

# **Cross-Sector Coordination of Village Community Social Institutions and Agricultural Intensification to Support Food Independence**

**Sudirah**

Sociology Lecturer, FHSIP, Universitas Terbuka, Tangerang Selatan, Indonesia  
sudi@ecampus.ut.ac.id

## **Abstract**

In rural studies, the themes of rural community social institutions, agricultural intensification, and food self-sufficiency are interesting studies. Coordination of village community social institutions is still weak. The agricultural intensification system is still experiencing problems. Food independence is still vulnerable. The purpose of this study is to analyze the coordination of village community social institutions, and the intensification of agriculture to support food self-sufficiency. The study from the perspective of rural sociology was carried out in 4 villages, namely Plawangan, Kertawinangun, Soge, and Ilir, Indramayu Regency, in 2021. The four villages are downstream areas with semi-technical, rain-fed, and irrigated downstream areas. This research method is qualitative. Collecting data through field observations, documents, interviews, and focus group discussions. Data analysis by triangulation. The results showed that the coordination of village community social institutions was able to control irrigation water to farmers' fields, with a shifting system. Crop failure (puso) due to flooding or lack of irrigation water can be overcome. Agricultural intensification can work, and can increase crop productivity by around 6 to 7 tons of grain per ha per growing season. Agricultural intensification is able to support food self-sufficiency for the region concerned.

## **Keywords**

Semi-Technical Irrigation, Rainfed, Shifting, Puso, and Downstream.

## **1. Introduction**

Rural livelihood is an interesting theme in socio-economic studies of rural communities. Moreover, Indonesia which incidentally is still dominated by agricultural areas, the study of rural community social institutions, agricultural intensification, and food self-sufficiency is an important and urgent rural study. Weak social institutional coordination of rural communities is an obstacle in agricultural intensification. In fact, agricultural intensification in Indonesia has developed since the New Order around 1980 until the present post-reform (2021). Even Indonesia during the New Order era was successful in food self-sufficiency. However, until 2021 Indonesia will still import rice. Therefore, this study would like to present an analysis of cross-sectoral coordination of village community social institutions, agricultural intensification and food self-sufficiency. The research locations were carried out in 4 (four) villages, namely Plawangan, Kertawinangun, Soge, and Ilir, Indramayu Regency, West Java, in 2021. Cross-sectoral coordination of village community social institutions in carrying out agricultural intensification requires strengthening. Intensification of lowland rice farming is related to various parties. The linkage is not only between fellow farmers, but also between farmers and the social institutions of the village community. The linkage in the intensification of lowland rice begins with determining cropping patterns, determining the planting period, tillage, selecting seeds, seeding, irrigating or irrigating, fertilizing, eradicating pests, diseases, harvesting, post-harvesting, and marketing.

The whole process, the stages of intensification of lowland rice farming requires cross-sectoral coordination with various related parties. Failure to coordinate at one stage can be fatal, hampering other stages of rice farming activities. In essence, the failure of cross-sectoral coordination can have an impact on productivity, so that the rice harvest produced is not optimal, even crop failure can occur. The three aspects to be studied are cross-sector coordination of village community social institutions, agricultural intensification, and food self-sufficiency is part of the development of the results of a qualitative research that has been carried out by the author in 2021, entitled: Puso Disaster Mitigation and Social Change of Farming Communities. Assessment of cross-sectoral coordination of village community social institutions is focused on coordination between village institutions, sub-district agencies, agricultural agencies,

irrigation agencies, and security agencies. The study of agricultural intensification is focused on sapta farming businesses. Assessment of food independence is focused on food availability, food quality, food adequacy, household access to food availability, and the affordability of community members to food commodity prices (Azahari, 2008). The assessment of these three aspects is based on empirical data obtained through field observations, documents, and interviews with a number of informants, as well as focus group discussions. Data analysis was done by triangulation. Verification of data and information is carried out on data sources, theories that become references, research methods used, and peer researchers that are relevant to the substance of this research, so that factual data and information are obtained from the field. The conclusion is based on a series of results of the triangulation analysis. Coordination of village community social institutions encourages agricultural intensification through three farming businesses. The success of agricultural intensification increases agricultural production. Increased agricultural production supports food self-sufficiency. This study is expected to be useful in providing an understanding of the relationship between coordination of village social institutions, and agricultural intensification in supporting food self-sufficiency in rural communities. The objectives of this study are as follows.

## 2. Literature Review

### 2.1 Cross-Sector Coordination of Village Community Social Institutions

According to Soekanto (2006) the term institutional refers to social institutions or community institutions. Furthermore, Paul B. Horton and Chester L. Hunt (2005) explain that social institutions are a system of norms to achieve a goal or activity that is considered important by society. Or social institutions are systems of social relations organized by society to realize certain general values and procedures and meet the basic needs of society. From the understanding of community social institutions or social institutions put forward by the experts above, it can be stated that community social institutions are a set of values and norms that form social institutions in such a way that they can regulate human life in community social relations so that they are able to survive or even be better in life. organize the next life. There are social changes in the social life of the people. In essence, strengthening the social institutions of rural communities is an effort to increase the capacity, capability, and consolidation of institutions related to community problems, in this case rural community agriculture. The social institutions of rural communities require that they become the glue of social relations between agricultural institutions, irrigation institutions, village institutions, and security institutions, by involving the active participation of the community.

According to Talcott Parsons (Ritzer, 2012) social institutions are Adaptation, Goal attainment, Integration, Latent pattern maintenance. There are 4 (four) elements in social institutions, namely adaptation, goals to be achieved, integration, and maintaining prevailing patterns of relationships. Society should adapt to the existing system of norms. People in their social life have goals to be achieved, such as achieving community welfare, including food independence. Community life is integrated by a system of norms and rules that apply. The social life of the community is built by maintaining and maintaining the prevailing patterns of social relations. Furthermore, according to Soekanto (2006) the boundaries of social institutions as a set of norms of community life from all levels that revolve around a basic need. According to Koentjaraningrat (1990) social institutions are the elements that regulate people's behavior in the form of a system of behavior and social relations in order to meet the needs of life. People who occupy social institutions as executor of functions, thus they can be replaced by others without disturbing the existence and sustainability of the social institution. The things that become elements in social institutions are not personal, but the positions occupied by the individuals concerned along with the rules of behavior inherent in the organization's container. This shows that social institutions are the building of a set of roles and rules for the behavior of people in the organization in an organized manner. The rules and values of behavior that have become a shared commitment in the life of the organization are often referred to as social norms. The social institutions of rural communities related to the intensification of sustainable agriculture are (1) Agricultural Institutions, (2) Irrigation Institutions, (3) Village



Figure 1. Cross-Sector Coordination of Village Community Social Institutions

Institutions, (4) District Institutions, and (5) Security Institutions (Sudirah, 2020). The cross-sector coordination of village community social institutions can be described as follows in Figure 1.

## 2.2 Agricultural Intensification

Agricultural intensification that applies SAPTA farming includes the use of superior seeds, fertilizer application, improvement of farming techniques, control of plant disease drugs, water supply and regulation, harvest and post-harvest (Rahayu and Karyana (2019). Now the Sapta Farming business is undergoing development and adaptation. The development and adaptation of sapta farming businesses carried out in this research location include the following: (1) good methods of cultivating paddy fields, (2) regular irrigation or irrigation arrangements for paddy fields. Then (3) selection of superior rice seeds, (4) applying proper fertilization, (5) eradicating pests and diseases that interfere with plants, (6) managing and caring for plants, and (7) harvesting and post-harvest marketing. share experiences in managing each stage of the ins and outs of rice farming Experienced farmers are able to manage every stage of the ins and outs of farming the paddy field. Cooperation in farmer groups should continue to be carried out, so that agricultural intensification and diversification can be carried out as well as possible (Sudirah, 2019).

Agricultural intensification can be described as follows in Figure 2.

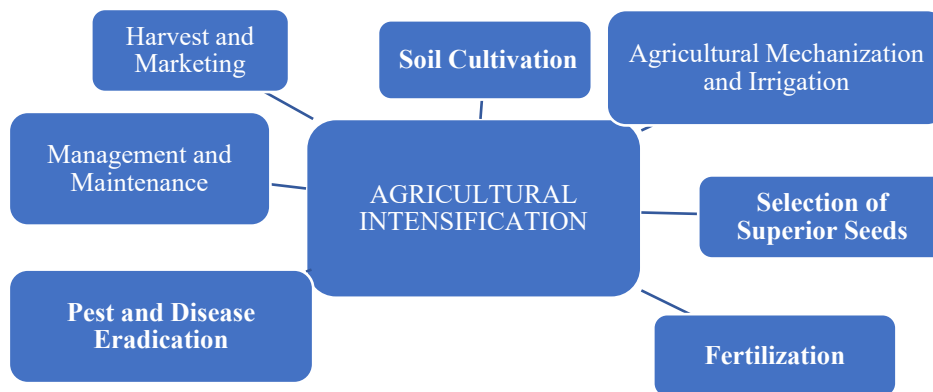


Figure 2. Agricultural Intensification

## 2.3 Food Independence

Food is anything that comes from biological sources of agricultural, plantation, forestry, fishery, livestock, aquatic and water products. These agricultural products are processed or unprocessed products intended as food or drinks for human consumption. In this case, food includes food additives, food raw materials, and other materials used in the process of preparing, processing, and/or making food or beverages. Food independence is the ability of the state and nation to produce diverse food from within the country. Food production can ensure the fulfillment of sufficient food needs. Food sufficiency reaches the household or individual level. This food production utilizes the potential of natural resources, human, social, economic and local wisdom in a dignified manner (Law No. 18 of 2012 concerning Food, Article 1 paragraphs 1, 3). Within the scope of the region, the regional food production concerned can guarantee sufficient food availability, ensuring that each individual gets food from time to time according to his needs to be able to live healthy and carry out daily activities. Thus, food self-sufficiency is defined as the condition of fulfilling food for every community in sufficient quantity and quality, safe, evenly, affordable and based on the diversity of local resources. Food sources for the people of Indonesia vary, and can replace each other according to the local culture of the community concerned. Therefore, the definition of food for the Indonesian people includes rice, corn, cassava, sweet potato, and sago. All these carbohydrate sources are the daily food of the Indonesian people.

The 2020-2024 Medium-Term Development Plan (RPJM) rolls out integrated village development, including agricultural development to ensure food self-sufficiency (Muhyiddin, 2020). The agricultural development policies

are, among others, directed at strengthening agricultural infrastructure, especially irrigation networks. This irrigation network is attempted to enter through the main channel, secondary channel, and tertiary channel in the paddy field. Strengthening the social institutions of rural communities can be done through synergistic coordination between related institutions and institutions. Efforts to prevent and overcome the puso disaster were able to overcome crop failures. Agricultural intensification programs that include Sapta Usaha can be implemented as well as possible, and

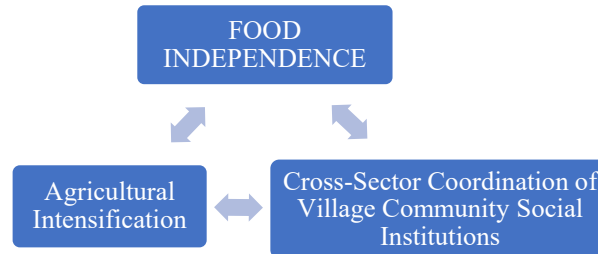


Figure 3. Cross-Sector Coordination of Village Community Social Institutions, and Agricultural Intensification to Support Food Self-reliance

continue to be sustainable from time to time. Cross-Sector Coordination of Village Community Social Institutions, and Agricultural Intensification to Support Food Self-reliance can be described as follows in Figure 3.

### 3. Methods

The location of this research is in the villages of Plawangan, Kertawinangun, Soge, and Ilir, Indramayu Regency, West Java. Geographically, the location of the 4 (four) research villages is located in the northern coastal area of West Indramayu. The location of this research is the downstream area of the secondary canal irrigation system in the Patrol Irrigation Section area. The research was conducted in 2021. This research method is qualitative.

### 4. Data Collection

Data was collected through field observations, interviews, and documents. Through field observations, researchers observed directly about the expanse of rice fields that were irrigated with technical, semi-technical, rain-fed, and downstream sleigh. Researchers also observed about secondary and tertiary irrigation canals. In addition, the researchers also looked at the pattern of paddy rice planting, cultivation of paddy fields. Furthermore, the researchers also looked at the selection of seeds, sowing rice seeds. Even the researchers also observed the activities of planting rice (tandur), fertilizing plants, spraying and eradicating pests/diseases, and the harvesting system carried out by farmers.

Interviews were conducted with all informants, namely the Head of Farmers Contact, administrators of the Water User Farmers' Association (P3A), Village Heads, Camat, Agricultural Extension Officers, Irrigation Section officers, Police Security officers, Koramil Security officers, and Agricultural Service officials. The selection of informants was carried out purposively randomly, according to their capacity and relevance to the focus of the study. Interviews were conducted not only in person, but also by telephone. The researcher also dug up documents from the Village Office, District Office, Agricultural Extension Center Office, and Irrigation Section Office to obtain various secondary data and information related to aspects of the study that were relevant to the main tasks of each of these agencies. In addition, data collection was carried out through a Focus Group Discussion (FGD) with Village Officials, District Officials, BPP Officials, Agricultural Service Officials in each office concerned. Referring to the health protocol rules, the discussion is limited to 3 to 5 people. Researchers conducted questions and answers and discussions to examine aspects of coordination across sectors of village community social institutions, agricultural intensification, and food self-sufficiency.

Data analysis was done by triangulation method. In triangulation analysis, researchers verify data sources, theories, methods, and opinions of other researchers (Moleong, 2012). In triangulation of data sources, researchers verify several informants about the same thing as a comparison, so that they get relatively homogeneous answers. The next

triangulation analysis, the researcher compares the theory that is the reference with the facts in the field. Next, the researcher conducted a triangulation analysis regarding the research method used. The last is triangulation with regard to the opinions of other researchers. This is done by asking for the opinion of peer researchers, and researchers in other fields relevant to the aspects of the study. Before drawing conclusions, the researcher verified the research findings in the field with a number of sources. Conclusions are drawn after going through a series of triangulation analyzes.

## **5. Results and Discussion**

An urgent problem that must receive immediate attention is the agricultural irrigation system. Coordination of village community social institutions is directed to deal with the problems of agricultural irrigation. The failure of coordination is a threat to the sustainability of agricultural intensification in the 4 villages where this research is located. The four villages are geographically located in the downstream area of the rice field irrigation system. This is different from the areas in the upstream and central areas where it is easier to get irrigation water for their rice fields. The success of agricultural intensification increases crop productivity. Increased productivity of rice harvest supports food self-sufficiency. The findings that can be revealed from the results of field observations and interviews are as follows.

### **5.1 Results**

In collecting data and information through field observations and interviews, we obtained findings. We collect the findings first. After that, we reduced the data by grouping and re-summarizing it based on aspects of the study, namely aspects of coordination of village community institutions, agricultural intensification, and farmer independence. We then re-verify the results of this extraction with the relevant informants, so that valid data are obtained. Furthermore, the analysis is carried out by looking at the relationship between the sub-aspects and the related aspects. In addition, the analysis is also carried out by looking at the relationship between one aspect and another. The findings after going through data verification are as follows. In collecting data and information through field observations and interviews, we obtained findings. We collect the findings first. After that, we reduced the data by grouping and re-summarizing it based on aspects of the study, namely aspects of coordination of village community institutions, agricultural intensification, and farmer independence. We then re-verify the results of this extraction with the relevant informants, so that valid data are obtained. Furthermore, the analysis is carried out by looking at the relationship between the sub-aspects and the related aspects. In addition, the analysis is also carried out by looking at the relationship between one aspect and another. The findings after going through data verification are as follows.

Human resources for agricultural extension workers are lacking, one extension worker handles more than one village. The ability of agricultural instructors regarding the ins and outs of paddy rice farming is still lacking (informan KdKtw); -The supply of irrigation water and infrastructure from the Jatiluhur Dam Main Canal, especially during the gadu (saden) season is insufficient. Even a number of sluice gates, such as in Wanguk and Bugis villages, were severely damaged (informan SP); -Village Community Social Institutions, District Institutions, Security Institutions are less active in coordinating (informan KtSg, and KtIr).

Intensification of agriculture begins with tillage. When the cultivation of paddy fields is carried out simultaneously with a number of other farmers, there is a shortage of tractors. Each farmer group consisting of about 30 to 50 people, with a rice field area of about 50 hectares has 1 tractor. The tractor rental price is not cheap (informan KtPlw, KtSg). In terms of supply of irrigation water from secondary canals in the upstream and middle areas to tertiary canals in the downstream areas, it is difficult to reach because the distance is about 10 km. Even a number of floodgates in Wanguk and Bugis villages were damaged (informan PIKdh, and KoKdh); -Intensification of agriculture requires agricultural tools. The use of agricultural tools such as water suction machines, rice sprayers (sprayer), and tractors requires high costs (informan KtPlw, KtSg); -Village Community Social Institutions, District Institutions, Security Institutions are less active in coordinating (informan KtPlw, KtIr).

Regarding the price of high-yielding rice seeds, it doesn't seem cheap. Many farmers end up making their own superior varieties of rice seeds from their harvests (informan BPPKdh); With regard to rice fertilization, the dosage may not be appropriate. Fertilizer prices are not cheap, even difficult to find in the market (rare). Subsidies on fertilizer prices are not sufficient (informan KtPlw, KtKtw, KtSg and KtIr); Regarding the eradication of pests and diseases, every sadon and gadu seasons of pests and diseases alternate. Farmers often become dizzy thinking about these pests and diseases. Rice pests and diseases are sometimes difficult to eradicate, even though they have used rice disease drugs (informan KtPlw, KtKtw, KtSg and KtIr). Furthermore, in terms of land management, it is constrained by the availability of tools owned by farmer groups. Each farmer group only has 1 (one) water suction machine, and 1 (one)

tractor (informan KtKtw, KtIrr). Meanwhile, rice plant maintenance is often hampered by insufficient irrigation water supply. In the sadon season, usually coincides with the dry season, so that irrigation water dries up. On the other hand, in the rendeng season it usually falls in the rainy season, so that it can cause flooding (informan SP); In terms of harvesting and marketing of rice. Farmers are less able to process the rice harvest. In general, farmers do not have a place to dry the rice harvest that is wide enough. As a result, once the harvest, the rice harvest is immediately sold. This condition is used by rice middlemen. Farmers are powerless, so they sell rice at prices below the standard price (Informan KtPlw, KtKtw, KtSg, and KtIrr). Human resources for agricultural extension workers are lacking, one extension worker handles more than one village. The ability of agricultural instructors related to the ins and outs of paddy rice farming is still lacking (informan BPPKdh).

Availability of household or individual food when the rice harvest is successful can be said to be sufficient. However, if farmers fail to harvest (puso), then the availability of households or individuals for food, especially rice, can be said to be lacking (informan BPP Kdh); Food quality depends on crop yields and management (informan DPIIm); Food availability related to household or individual food adequacy can be fulfilled (informan BPP Kdh); -As a result, farmers are less successful in producing their own food needs. This happens at the time of crop failure. As a result, the availability of food, especially rice, is not sufficient (informan BPP Kdh); In terms of household access to food availability, it can be said that there are no difficulties because rice commodities on the market are quite available (informan KoKdh); -The affordability of citizens to food commodities can be said to be quite difficult. The price of rice in the market is quite high, while when farmers sell their rice harvest, they are priced below standard (informan KtPlw, KtKtw, KtSg, and KtIrr).

## **5.2 Discussion**

Irrigation of paddy fields is still a problem. Therefore, the solution is to coordinate the social institutions of the village community. Farmers use irrigation water with a sleigh system. The farmers in the downstream, upstream and midstream areas share irrigation water turns, according to a schedule of days that have been mutually agreed upon in advance. After the irrigation system is handled through institutional coordination, the next step is to move the intensification of agriculture. Sustainability of agricultural intensification encourages food self-sufficiency. The agricultural and food sectors in Indramayu Regency are a source of national food security (Nusyamsi, 2020). In this discussion, the discussion will focus on solutions to overcome the findings in the aspects of Cross-Sectoral Coordination of Village Community Social Institutions, Agricultural Intensification, and Food Independence, as follows.

The findings relating to human resources in the field of agricultural extension workers indicate that there are less agricultural extension workers, even one extension worker handles more than one village (informan KdKtw). To overcome this, it is appropriate that the relevant agencies, such as the Department of Agriculture, need to add these agricultural extension workers. Additions can be made by recruiting ASN or PPPK. ASN is a State Civil Apparatus, while PPPK is a Government Employee with a Work Agreement (Explanation of Law No. 5 of 2014). Indeed it is related to the budget, but presumably it is still reasonable, and the realization can be pursued.

Findings related to the ability of the extension workers show that the ability of agricultural extension workers with regard to the ins and outs of paddy rice farming is still lacking (informan Ktw). To overcome this, the Department of Agriculture needs to develop the capacity of extension workers through education and training related to their main tasks. In addition, socialization by the Department of Agriculture and the Head of the Agricultural Extension Center (BPP) on the tasks of Agricultural Extension Officers also needs to be carried out.

The findings regarding irrigation water supply and its infrastructure state that the irrigation water supply from the Jatiluhur Dam Main Channel, especially during the gadu (sadon) season, is insufficient. Even a number of sluice gates, such as in Wanguk and Bugis villages, were severely damaged (informan Irr). To overcome the shortage of irrigation water supply for agriculture, the irrigation institution together with other related institutions need to continue to work on it. Irrigation institutions include the Irrigation Section, Irrigation Observer, Irrigation Interpreter, Irrigation Waker, Water User Farmers Association (P3A). The formation of the WUA is regulated by the local government. The Pengian Institute regulates the supply of irrigation water. According to an explanation from the Patrol Irrigation Section apparatus, the Patrol Irrigation Section regulates irrigation water from the Jatiluhur Dam in Purwakarta, West Java to irrigation canals in the Sukra, Patrol, Anjatan, Bongas, Kandanghaur, Gabuswetan and Haurgeulis sub-districts, Indramayu Regency. The 4 villages in the location of this study include villages in the Kandanghaur sub-district. To overcome the damaged irrigation canal, it is necessary to immediately repair it again, so that it functions as it should.

Even irrigation canals that are still functioning need maintenance, in order to avoid possible damage. In addition, it is also necessary to clean up the garbage that enters the irrigation canal, and drain the mud due to silting along the irrigation canal. Indeed, several problems in the agricultural sector that need immediate attention are irrigation systems and damaged irrigation channels (Fadli, 2016). With regard to the distribution of irrigation water to farmers' rice fields, cross-sectoral coordination involving the Police and Security is very much needed. Security institutions include the Sector Police (Polsek) and the Regional Military Command (Koramil), including Babinsa (Bintara Pembina Desa). Regarding agricultural intensification, Babinsa oversees the distribution of irrigation water to farmers' rice fields, especially those located in downstream areas. Babinsa coordinates with village officials, sub-district officials, farmer groups, officials from the irrigation section, and community leaders.

In terms of the ins and outs of paddy farming, from tillage to post-harvest, cross-sectoral coordination is needed. The social institutions of rural communities related to agricultural intensification are (1) Agricultural Institutions, (2) Irrigation Institutions, (3) Village Community Social Institutions, (4) District Institutions, and (5) Security Institutions. Cross-sectoral coordination of various agencies together with community social institutions makes a real contribution to helping farmers overcome floods in the rainy season, and overcome the shortage of irrigation water in the dry season (Sudirah, 2020). The rainy season usually occurs during the rendeng planting period. While the dry season usually occurs during the sadon planting period. These agencies help overcome agricultural problems faced by farming communities. These irrigation agencies play an important role in managing irrigation systems for agriculture. These irrigation agencies control the entry of irrigation water from the main source to the secondary irrigation canal. Furthermore, from the secondary channel irrigation water enters the tertiary channel. From this tertiary channel, farmers get irrigation water for their rice fields. In the rendeng season, the need for irrigation water for rice fields can be fulfilled. On the other hand, during the sadon season, the need for irrigation water for paddy fields is very limited, so the very limited irrigation water requires re-arrangement by all relevant agencies. Such conditions require cross-sectoral coordination involving various parties. The local government together with community social institutions and other related agencies should work together in synergy to overcome the scarcity of irrigation water. Agricultural institutions regulate the determination of cropping patterns, the period of cultivating the land for each season, nurseries of rice plants, and other ins and outs of farming lowland rice. The Security Institution helps control irrigation water needs from secondary canals to farmers' rice fields. Controlling irrigation water needs with a rotating system for farmers. This rotation system is usually carried out during the sadon season, when irrigation water supplies are very limited. Conditions like this require cross-sector coordination of relevant village community social institutions to regulate irrigation distribution between farmers located in upstream, middle, and downstream areas. The cross-sector coordination of village community social institutions can be described as follows.

Intensification of agriculture begins with tillage. When the cultivation of paddy fields is carried out simultaneously with a number of other farmers, there is a shortage of tractors. Each farmer group consisting of about 30 to 50 people, with a rice field area of about 50 hectares has 1 tractor. The tractor rental price is not cheap (informan KtPlw and KtSg); Agricultural institutions regulate the determination of cropping patterns, the period of cultivating the land for each season, nurseries of rice plants, and other ins and outs of farming lowland rice. The Security Institution helps control irrigation water needs from secondary canals to farmers' rice fields. Controlling irrigation water needs with a rotating system for farmers. This rotation system is usually carried out during the sadon season, when irrigation water supplies are very limited. Conditions like this require cross-sector coordination of relevant village community social institutions to regulate irrigation distribution between farmers located in upstream, middle, and downstream areas. The cross-sector coordination of village community social institutions can be described as follows.

Village Community Social Institutions, District Institutions, Security Institutions are less active in coordinating (informan PoKdh and KoKdh); -Intensification of agriculture begins with tillage. When the cultivation of paddy fields is carried out simultaneously with a number of other farmers, there is a shortage of tractors. Each farmer group consisting of about 30 to 50 people, with a rice field area of about 50 hectares has 1 tractor. The tractor rental price is not cheap (informan KtPlw and KtSg). Regarding the initial findings of the start of cultivating land which often lags behind the schedule for the cultivation period, good land management needs to pay attention to the schedule for the cultivation period. The schedule for the cultivation period is related to the determination of the cropping pattern. The determination of cropping patterns is related to the change in the period of the types of agricultural crops to be planted. The cropping pattern agreed upon by the farming community together with the relevant agricultural institutions is firstly rice, secondly to rice, and thirdly to secondary crops. This means that in one year the type of crop to be planted in the paddy fields is the first planting period (rendeng) is rice, the second planting period (gadu/sadon) is rice, and the third planting period (post-gadu/sadon) is secondary crops. The determination of the cropping pattern is based on the

experience of the farming community so far, that if the cropping pattern is rice - rice - rice, the productivity of the third crop is not optimal. The period of cultivating land is related to determining when to start working on paddy fields. Determination of the initial cultivation simultaneously is important. In the experience of farming communities so far, if they walk alone when starting land cultivation, they will be at risk of pest and disease attacks. Irrigation system, irrigation system, eradication of pests and diseases, development of agricultural human resources, and coordination between agricultural institutions and agencies are important aspects that can support lowland rice farming.

In terms of supply of irrigation water from secondary canals in the upstream and middle areas to tertiary canals in the downstream areas, it is difficult to reach because the distance is about 10 km. Even a number of floodgates in Wanguk and Bugis villages were damaged (informan PoKdh, and KoKdh); Rice plants require adequate irrigation. Because of this, farmers are trying to irrigate their paddy fields. Geographically, the four villages where this research is located are downstream areas, because they have not been reached by the technical irrigation system. During the rainy season, the farmers can be helped from the rainwater, and suck up river water by using a water pump. Now after the construction of the Kali Beji Weir and the Kali Perawan Rubber Weir, the problem of irrigation irrigation for the farmers' rice fields in the four villages can be overcome.

-Intensification of agriculture requires agricultural tools. The use of agricultural tools such as water suction machines, rice sprayers (sprayer), and tractors requires high costs (informan KtPlw and KtSg); Findings related to agricultural mechanization, especially machine tools used for agricultural intensification In agricultural intensification, the use of agricultural machinery such as tractors is indeed very necessary for land management. The use of tractors in rice field processing can increase productivity and efficiency. In addition, the use of tractors in agricultural intensification can also improve the quality and added value of the agricultural products it produces, and can even empower farmers to improve their skills in cultivating land using the tractor. Now the farmers in each Farmer's Group use tractors to cultivate their paddy fields. In essence, the use of machines such as tractors in lowland rice farming is to improve the performance of farmers in the agricultural production process, which at each stage of the production process can use agricultural tools (Aldila, 2016). Thus, agricultural mechanization can improve the efficiency of human labor, farmers' living standards, the quantity and quality of agricultural production they produce, enable the growth of farming businesses from subsistence farming to commercial farming, as well as accelerate the transition of the Indonesian economy from an agrarian economy to an agrarian economy. industrial economy (Wijanto 2002).

Village Community Social Institutions, District Institutions, Security Institutions are less active in coordinating (informan KdPlw and KdIr); -Regarding the price of high-yielding rice seeds, it doesn't seem cheap. Many farmers end up making their own superior varieties of rice seeds from their harvests (informan Kdh). In this case of difficulty, and the high cost of superior varieties of rice seeds, then agricultural institutions should help overcome this. Agricultural institutions include the Department of Agriculture, and the Agricultural Extension Center (BPP). This agricultural institution helps farmers provide superior varieties of rice seeds, provides counseling on good farming practices, such as selecting superior varieties of rice seeds, seeding, planting, maintaining, fertilizing, eradicating pests and diseases, and harvest management. In the intensification of agriculture, the selection of superior varieties of rice seeds needs to be done. High-yielding rice seeds are rice varieties that have resistance to disease, the planting period to harvest is faster, which is about 100 days, and can increase crop productivity. In addition, the selection of rice seeds is also important considering the aroma and taste. There is rice that has a fragrant aroma, a sticky taste (cepel), pera, and a fluffier taste. There are various types of superior varieties of rice, but the types of rice grown in the research villages are Ciherang rice, Denok rice, and sticky rice. With regard to rice fertilization, the dosage may not be appropriate. Fertilizer prices are not cheap, even difficult to find in the market (rare). Subsidies on fertilizer prices are not sufficient (informan Plw, Ktw, Sg, and Irr); Fertilization is carried out in accordance with the appropriate stages of fertilizing rice and secondary crops. Even fertilization also needs to be done on the soil so that it is not acidic, and becomes fertile. Fertilization is done usually at the age of rice planting starting about 10 days. Subsequent fertilization is given every 15 days. Timely fertilization can increase plant fertility. Agricultural extension workers also play an active role in providing counseling to farmers about the fertilization. Now farmers understand when fertilization should be done. Farmers also understand what type of fertilizer should be given to each fertilization. Thus farmers' rice plants can thrive.

Regarding the finding of fertilizer scarcity, it is appropriate that the distribution of fertilizer by the relevant institutions needs to be closely monitored, so that it reaches the farmers adequately. Likewise, the finding of low grain prices at harvest, it is necessary to have market operations from the relevant institutions. The Logistics Affairs Agency (Bulog),



for example, needs to play a role again in stabilizing farmers' grain prices. Related to the findings of the quality of agricultural Human Resources (HR) which is still lacking, the relevant agricultural institutions need to develop human resources through education and skills training that are relevant to their duties. -Regarding the eradication of pests and diseases, every sadon and gadu seasons of pests and diseases alternate. Farmers often become dizzy thinking about these pests and diseases. Rice pests and diseases are sometimes difficult to eradicate, even though they have used rice disease drugs (informan Plw, Ktw, Sg and Ir). Eradication of pests and plant diseases is carried out as soon as there are signs of pests and diseases. Eradication of pests and diseases is carried out as soon as the symptoms of pests and diseases are seen in rice plants. Pest and disease attacks can occur at various stages, from seeding rice to harvesting. Pests that often attack rice plants are rats, bondol birds, while diseases that often attack rice plants are sundep, leafhoppers. Agricultural extension workers also play an active role in providing counseling to farmers in overcoming various pests and diseases of rice and crops. -Furthermore, in terms of land management, it is constrained by the availability of tools owned by farmer groups. Each farmer group only has 1 (one) water suction machine, and 1 (one) tractor (informan KtKtw, KtIr). Meanwhile, rice plant maintenance is often hampered by insufficient irrigation water supply. In the sadon season, usually coincides with the dry season, so that irrigation water dries up. On the other hand, in the rendeng season it usually falls in the rainy season, so that it can cause flooding (informan SP).

Farmers should have sufficient knowledge and experience about the ins and outs of paddy rice farming. All stages of lowland rice farming require good land management and maintenance of rice plants. Rice fields must be managed by taking into account the availability of sufficient water, and soil fertility. Plant care must pay attention to the provision of appropriate fertilizers and drugs. Even at harvest time, farmers must pay attention to the yellow color of the rice, and the hardness of the rice seeds. If the rice seeds are yellow and hard, it indicates that the rice is ready to be harvested. -In terms of harvesting and marketing of rice. Farmers are less able to process the rice harvest. In general, farmers do not have a place to dry the rice harvest that is wide enough. As a result, once the harvest, the rice harvest is immediately sold. This condition is used by rice middlemen. Farmers are powerless, so they sell rice at prices below the standard price (Informan Plw, Ktw, Sg, and Ir). The yield of paddy rice farmers is in the form of unhulled rice. The post-harvest processing of rice is carried out until the drying process. They dry the unhulled rice for a few days until it becomes dry grain, ready to be milled. However, now the activities of farmers processing grain to become dry unhulled rice ready to be milled are only very few who do it. The reasons are various, they do not have the energy, do not have enough time, do not have a yard for drying, and do not have a place (warehouse) to store the grain. The most basic reason is that there is an urgent need for farmers. Farmers need money to pay for production costs that they borrow from other parties. Because it was so harvested, the wet paddy rice was immediately sold to pay off debts. The farmers are generally small farmers who cultivate an average of 0.5 ha of paddy fields. The rice fields they cultivate are not their own, but from the rent or profit sharing. Likewise, farmers who plant secondary crops. Crop crops such as corn, cassava, sweet potatoes, peanuts, green beans, and so on they immediately sell them to traders.

The findings state that the availability of household or individual food can be said to be sufficient if the farmers' rice harvest is successful. However, if the farmer's rice harvest fails (puso), then the availability of household or individual food, especially rice, can be said to be lacking (informan BPP Kdh). To overcome the availability of food, the intensification of agriculture must be implemented as well as possible. Good agricultural intensification can increase agricultural productivity. The findings stated that food quality depends on the yield and management (informan DpIm). To overcome food quality, agricultural intensification must be carried out as well as possible, so as to produce good quality unhulled rice. Even at harvest time it is necessary to maintain the moisture content of the grain, so as to produce dry unhulled rice ready to be milled. Unhulled unhulled rice produces relatively intact, unbroken grains of rice.

The findings indicate that household or individual food sufficiency can be fulfilled depending on the productivity of the harvest (informan BPP Kdh). To overcome the food sufficiency of households or individuals, agricultural intensification must be successful. The success of agricultural intensification must be supported by all relevant parties. Therefore, handling agricultural intensification requires coordination of Village Community Social Institutions, District Institutions, Security Institutions, and other parties. Coordination of social institutions with related parties is able to overcome various problems of agricultural intensification that arise. Village Community Social Institutions include the Village Consultative Body (BPD), Inter-Village Cooperation, Village Community Self-reliance Institutions (LKMD), Village Unit Cooperatives (KUD), and others (Dura, 2016).

The findings further state that the result of Puso Farmers is less successful in producing their own food needs. This happens at the time of crop failure. As a result, the availability of food, especially rice, is not sufficient (informan BPP Kdh). To overcome this puso, it is necessary to reaffirm that efforts must be made to intensify agriculture as well as

possible, its handling needs to involve various related parties, so that the rice harvest can be successful. The findings state that household access to food availability can be said to be not experiencing difficulties because rice commodities in the market are quite available (informan KoKdh). This condition should be maintained, so that household and community access to food availability is always easy. The findings indicate that the affordability of the community to food commodities can be said to be quite difficult. The price of rice in the market is quite high, while when farmers sell their rice harvest, they are priced below standard (informan KPlw, KKtw, KSg, and Klr). To overcome this, the government, such as BULOG, needs to play an active role in stabilizing the prices of food commodities, including rice. Market operations by distributing food to all regions proportionally need to be carried out, so that people can buy food at affordable prices.

Regional food independence, even national food independence, must be fulfilled independently by empowering all human capital, social capital, and economic capital owned by Indonesian farmers (Rahmawati, 2012). In this case, human capital is the ability and skills possessed by all agricultural actors to manage agricultural resources. These agricultural actors include farmers, farmer groups, Agricultural Extension Center, Agriculture Service, Irrigation Agency, and Cai Partners. Empowerment is carried out through coordination of these agricultural actors with village officials, sub-district officials, and security officers. This coordination is needed in order to overcome every problem in the ins and outs of farming faced by farmers. Empowerment of all human capital is important so that farmers can improve their social and economic life. Social capital is the glue of community diversity. Social capital binds the social relations of all farming communities (Fukuyama, 2000). These social ties are established through elements of social capital, such as local wisdom, values, mutual cooperation, trust, and social networks. These elements of social capital appear to be a force in facing farmers' food self-sufficiency efforts. Strengthening social capital can be formed through coordination of village community social institutions. Economic capital includes increasing agricultural productivity through intensification, diversification and extensification of agriculture.

Food is food or drink for human consumption sourced from agricultural, plantation, forestry, animal husbandry, fishery, water and water products that have been processed or not. The definition of food also includes food raw materials, food additives, and other materials used in the process of preparing, processing, and making food or beverages for human consumption. In the context of this research, the definition of food is focused on food sourced from the production of farmers who are sourced from lowland rice farming, and the diversification of the food crops they cultivate. Each household always tries to meet its food needs through various means, such as own business, by producing food crops or buying food according to their needs. Farmers are actually food producers who in their lives also need food. If farmers can meet their own food needs, it means that the farming household already has food independence, and vice versa.

Food independence for a farming household is strongly influenced by food production from its farming business (Mulyo, 2015). Farming activities cannot get maximum results if the cultivated land is included in the edge area. This situation has an impact on the state of food security of farm households living in the downstream area, the final estuary of irrigation canals for agricultural land. This happened in the research location, namely in the villages of Plawangan, Kertawinangun, Soge and Ilir, Indramayu district. Dependence on food from imports and the inability to achieve food self-sufficiency can cause national security to be disrupted. The agricultural sector has a very strategic role in supporting food independence, it is from the agricultural sector that the most basic human needs can be met.

## **6. Conclusions**

Based on the results of the discussion, it can be concluded as follows; Cross-sectoral coordination between village community social institutions, which is carried out synergistically involving village institutions, sub-district agencies, agricultural agencies, irrigation agencies, and security agencies can guard the entry of irrigation water into farmers' fields, with a rotating system. Cross-sectoral coordination between village community social institutions is able to strengthen the role of village community social institutions. Cross-sectoral coordination between local government and village community social institutions is able to overcome puso risk. Cross-sectoral coordination between the local government and the social institutions of the village community is the supporting capacity for carrying out agricultural intensification. The cause of crop failure (puso) is due to lack of irrigation water supply or due to flooding caused by high rainfall. The problems of flooding and drought can be overcome, through cross-sectoral coordination between the local government and the social institutions of the village community. The rotational irrigation system, which usually occurs during the gadu (saden) season, is able to reduce conflicts over irrigation water struggles between farming communities; Agricultural intensification is able to increase crop productivity by around 6-7 tons of unhulled rice per hectare per growing season. Intensification of lowland rice farming can continue by implementing the Sapt

Farming Business. Sapta farming is a reference in rice farming for farming communities. Sapta farming management is carried out dynamically and sustainably. Constraints in the management of Sapta Farming can be overcome through the cooperation of all local government agencies together with related community social institutions. Intensification of agriculture becomes the carrying capacity of food security (rice) for the region; Cross-sectoral coordination between village community social institutions, and agricultural intensification can increase agricultural productivity. Agricultural productivity supports food self-sufficiency. Thus, crop productivity supports food availability for households, good food quality, food sufficiency for households, household access to food availability, and public affordability of food commodity prices.

## References

- Aldila, R. The Performance of Agricultural Mechanization Utilization and Its Implications in Efforts to Accelerate Food Production in Indonesia. *Agro-Economic Research Forum*, Vol. 34 No. 2, December 2016: 163-17. 2016.
- Azahari, D.H. Building Food Self-Reliance in Order to Increase National Resilience. *Agricultural Policy Analysis*. Volume 6 No. 2, June 2008: 174 – 195. 2008.
- Fadli, M. The Role of Irrigation in Increasing Rice Field Production in Kec. Meurah Mulia Kab. North Aceh. *Agrifo Journal*. Vol.1 No. September 2, 2016.
- Fukuyama, Francis. *Trust: The Social Virtues and The Creation of Prosperity*, New York: the Free Press Onyx, J (1996), “The Measure of Social Capital”, paper presented to the Australian and New Zealand Third Sector Research Conference on Social Cohesion, Justice and Citizenship: The Role of Voluntary Sector, Victoria University, Wellington. 2000.
- Horton, Paul B., Chester L. Hunt., Aminuddin Ram, Herman Sinaga. *Sociology; Sixth Edition Volume 2*. Jakarta: PT Erlangga. 2005.
- Koentjaraningrat. *Introduction to Anthropology*. Jakarta: Rineka Cipta. 1990.
- Muhyiddin. *The Indonesian Journal of Development Planning* Volume IV No. 2 –June 2020.
- Mulyo, J.H., Dkk. Food Security and Independence of Marginalized Farmers' Households in Bojonegoro Regency *Agro-economy* Vol. 26/No. 2, December 2015.
- Nusyamsi, D. *Indramayu Becomes a Source of National Food Security*, Indonesian Ministry of Agriculture: The Highest Rice Production Center - *Mind-Rakyat.com*; accessed 26 August 2020.
- Perda DT II Indramayu No.17/1995 on Guidelines for the Establishment and Development of Water-Using Farmers' Associations (P3A) Mitra Cai in Kab. DT II Indramayu. 1995.
- Prabowo, Dani. *Minimizing the Indramayu Flood The Government Speeds Up the Rubber Weir Project*. <https://properti.kompas.com/read/2018/11/12/220000821/minimalisasi-gulung-inramayu-government-kebut-project-bendung-karet>. November 12, 2018.
- Rahayu Dwi Ajeng, and Karyana KS. *Application of Production Technology Based on Land Area and Its Effect on Soybean Farming Income (A Case in Cimaung District, Bandung Regency)*. *Journal of Agricultural Sciences Tirtayasa*, 1(1), 2019.
- Rahmawati, Y. at all. *Food Self-Sufficiency in Carbohydrate and Protein Sources To Realize Family Food Security*. *Invotec*, Volume VIII, No.2, September 2012: 179-202.
- Ritzer, G. 2012, *Modern Sociological Theory*, translation Alimandan, Jakarta: Kencana Prana Media Group, page 121.
- Soekanto, S. *Sociology An Introduction*. Jakarta: University of Indonesia Publishing Foundation. 2006.
- Sudirah, Etc. *The Relationship between Strengthening Social Capital, Mitigation of Flood Disasters, and Increasing Agricultural Production*. *Journal of Unismuh Makassar*. Published period until June 2020. <https://journal.unismuh.ac.id/index.php/equilibrium/article/view/3094/2356>.
- Sudirah, Agus Susanto, Agus Santoso. Paper: *Strengthening Village Institutions and Puso Disaster Mitigation*. FST-UT National Seminar, Pondok Cabe, October 3, 2019.
- Sudirah. Paper: *Strengthening Social Capital and Puso Disaster Mitigation*. VIII National Sociology Conference in Medan 31 March - 2 April 2019.
- Law No. 18 of 2012 concerning Food, Article 1 paragraph 3). 2012. LN.2012/No. 227, TLN No. 5360, LL SETNEG: 58 HLM. Enacted 16 November 2012. Promulgated 17 November 2012.
- Law No. 5 of 2014 concerning State Civil Apparatus. <https://www.kemhan.go.id/badiklat/2014/11/24/socialisasi-undang-no-5-tahun-2014-about-aparatur-sipil-negara.html>.
- Wijanto. *Machinery and Farming Equipment*. Yogyakarta (ID): Gadjah Mada University Press. 2002.

## Biography

**Dr. Sudirah, M.Si** Associate Professor of Sociology at the Universitas Terbuka, Head Lecturer since 2011 Rural Sociology & Development Counseling. S1 Educational Technology IKIP Jakarta, 1985; S2 Rural Sociology 1998; S3 Development Counseling, 2009 IPB Bogor.