

# Reformulating the Policy Model of Sustainable Food Agricultural Area to Meet Social Justice: The Experience from the North Coast of West Java

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**Abstract** The fair policy of staple food provision is a necessity to sustain food supply for people. However, this policy in Indonesia is still borne to the individual farmers' land. Based on the Law Number 41/2009, The Regional Government in determining the regional spatial planning has to allocate land for food agriculture that is prohibited from being converted, which is called a sustainable food agriculture area (SFAA), although the land belongs to individual farmers. This planning, unfortunately, does not go well. The experience of four districts on the north coast (*Pantura*) of West Java, Indonesia shows that the SFAA has not yet been formed. Therefore, this study aims to reformulate this policy model, which is easily applicable in Indonesia as well as in other developing countries which have similar socioeconomic conditions to Indonesia. For this purpose, this research explores the secondary data about the planning of SFAA formation in four regions of *Pantura*, West Java; identifies the farmers' response to this planning; and performs an in-depth discussion to determine an appropriate policy model. Based on one hundred

samples determined by Slovin Formula with 10 percent of error probability, taken by stratified random sampling technique in Indramayu Regency, *Pantura* of West Java, and by adopting chi-square test, the highly educated land owners tend to reject the SFAA planning; and the alternative SFAA model is strongly valuable, which is not the burden of the individual land owners. This study was conducted within the period from October to December 2022. In conclusion, the SFAA formation should optimize state-owned land with the concept of integrated farming and optimizing partnership patterns with the farmers, while the formation of SFAA on individual farmer-owned land is optional depending on the wishes and willingness of farmers.

**Keywords** SFAA Planning, Land Owner Response, Mixed Model of SFAA, Social Justice, Indonesia

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## 1. Introduction

The in-depth presentation on how to provide the model of public policy regarding the formulation of sustainable food agricultural areas (SFAA) is strongly valuable. It is expected that, by this policy, the sustainability of farming activity will be preserved; and the staple food supply will always be available under affordable circumstances. In this context, The Economist [1] emphasized the importance of food availability, food affordability, food safety, and sustainability as the main indicators for food security that should be acquired by every county in the world. As the sub pillars of sustainability, the political commitment to improve the national planning for national resources management and monitoring has taken the major part to acquire the real food security [1].

The suggestion [1] about the importance of political commitment is strongly relevant to the local context of Indonesia. The change in land use in Indonesia, especially from rice fields to other functions, looks unstoppable. According to MoA [2], the wetland size in Indonesia is currently 7,463,948 ha. Previously, in 2015 the size was 8,092,907 ha. By the new rice field making program, the size has increased to 8,187,734 ha in 2016, and became 8,164,045 ha in 2017; and dropped to 7,105,145 ha in 2018. Fortunately, the policy of creating new rice fields has yielded tangible results, and the size of rice fields in Indonesia has increased to 7,463,948 in 2019. This size of paddy fields was reinforced by the announcement of the Minister of Agrarian Affairs/head of the National Land Agency. The standard area of rice fields in Indonesia is 7,463,948 ha [3].

If it is compared to the paddy field size in the 1980s, Indonesia has lost more than half of the available wet land areas. The wet land size in 1983 was 16,704,272 ha. This size, unfortunately, has decreased to 15,424,004 ha in 1993 and 14,139,895 ha in 2003 [4]. Furthermore, in the period of 2003-2013 -- during the reform era in Indonesia -- the condition of agricultural land was very worrying. The land conversion has occurred massively, which jeopardized the agricultural sustainability. NDPB [5] announced the results of the 2013 agricultural census, and the wet land size was only 8,685,888.7 ha. Thus, Indonesia has lost 8,013.38 ha compared to the result of the 1983 agricultural census.

This reduction of the area of agricultural land is inversely proportional to the increase of population. In the early 1980s, when Indonesia received an award from FAO as a third world country that succeeded in achieving food self-sufficiency, the Indonesian population was between 147,490,298 people in 1980 to 179,378,946 people in 1990 [6]. This population has jumped to 270 203.9 million in 2020 based on the 2020 population census; and BPS [7] has predicted that Indonesian population in 2021 will be 272 682.5 million; and in 2022 there will be 275 773.8 million.

The increase of population with high dependence upon rice staple food within the decrease of paddy fields is really a problem. The staple food diversification, in which it

means to reduce a high dependence on paddy rice, could be a solution. There are many kinds of foods containing carbohydrates which can be used as staple foods, such as cassava, sweet potatoes, corn, taro, and others. The dry agricultural land is much wider than paddy fields, and it could be used to cultivate the alternative staple food. The dry agricultural land is still available about 27,730,368 ha in 2017, and increased to 29,353,138 ha in 2019 [2].

The staple food diversification will actually let people have wider access to food, and the poverty rate will be reduced due to the increased coverage of staple foods other than rice. But, unfortunately, encouraging food diversification is not easy. The government's efforts to promote staple food diversification have not yielded an expected result. The urban slum dwellers in five parts of Jakarta, prove to have a low desire to change the pattern of eating, in which they still depend on the rice [8]. The fairly good social interaction with cassava-eating indigenous people in the Cimahi area, Bandung, West Java, Indonesia, and the people around these indigenous communities have merely a habit of processing a variety of foods made from cassava. They still feel hungry if they do not eat paddy rice yet [9].

In the light of such community habits and manner of eating, the effort to maintain the existing rice fields and to create the new wet agricultural land are the right public policy choices. In this context, the Indonesian Government which is supported by the Parliament has issued the law number 41/2009 concerning Sustainable food agriculture land protection. This law has mandated the regional government to allocate land specifically designated for the cultivation of food crops, which is called the "sustainable food agricultural area" (SFAA). Based on the consideration that the food is the basic need that should be fulfilled, the SFAA is forbidden to convert to other functions other than farming forever, and it is of course a valuable public policy. The farmers who dare to change the function of SFAA will be imposed on criminal sanctions.

However, as the rice field in Indonesia is commonly farmer's individual property which have passed down from generation to generation, the policy of the SFAA establishment has made the task of providing food as a burden to individual farmers. This policy has also closed the opportunity for farmers to use land for other purposes that are more profitable. In addition, the SFAA formation has closed the opportunity for children of farmers to carry out vertical or horizontal mobility because they have to take care of SFAA which should not be abandoned.

It should also be emphasized that farming activities, particularly rice farming, are less profitable. The survey to 1,600 farmers in Africa, has proved that the farmers earn 60% less than non-farming families [1]. In the case of Indonesia, the profit ratio of rice farming compared to other non-agricultural businesses is 1:15 to 1:500. That is, if the land is used for farming, the farmer gets one advantage. But if it is used for other activities outside of farming, they will make 15 to 500 times the profit [4].

In the light of the discussion above, it is strongly feared that the formation of the SFAA will be very detrimental to farmers, thereby violating the basic principles of social justice. Therefore, the reformulation of the SFAA that satisfies the sense of social justice is really a necessity. This is expected to be an important input for the government in establishing the model of policy for the sustainability of agricultural development.

This policy model is not only expected to be practically implemented in Indonesia, but it is also hoped that it will contribute to solving the problems of other countries that have similar conditions to Indonesia. India, for example, has also had the experience of agricultural land conversion which threatens food provision as well as jeopardizes the sustainability of agriculture [10].

For the aim of “fully socially justified SFAA” reformulation, this research identified the planning of SFAA formation as well as the farmer's response to this planning. The question is what is the response of the farmers to the call for their children to remain farmers, to maintain SFAA, and to provide food for other parties? The research also asks the farmer's reaction to sanction against the farmer who dares to change the land function which has been designated as the SFAA. In the light of research finding, this study performs an in-depth discussion to reveal the new policy model of SFAA establishment which is not in contravention with the expectations of farmers.

The identification of SFAA planning is carried out in four regencies of the Pantura of West Java, including Bekasi, Karawang, Subang and Indramayu, based on the consideration that the four regencies are the rice production center of West Java that will be designated as an SFAA. The exploration of farmer response for more specific is conducted in Bangodua as one of the sub-regents of Indramayu who relatively represents the socio-economic conditions of Pantura farmers.

## 2. Framework Analysis and Reasoning

The objective of this research is to conceptually reformulate as well practically the policy to protect the paddy field in an effort to sustain the agricultural area to provide food for the people. It is right that food is a basic need that should be fulfilled, and food supply should not be interrupted, but it has to be constructed based on the basic principles of social justice. The cardinal virtue of basic thought of justice is a distribution in his or her dealing with each other in a society [11]. It should be emphasized that, the justice is a state of fairness, and each individual in their life has those benefits and burdens exactly which are due to him by virtue of his personal characteristics and circumstances. Thus, the social justice exalts and considers the noble of fairness with the goods and burdens arising from collective life which are shared among members of society [11].

Therefore, the concept of social justice is the instrument

to accomplish fairness and impartiality among society [12]. The social justice could also be characterized as someone's rights and freedom, distribution of benefits and burdens, compensation of loss, and a punishment of convict of crime. In the light of philosophy of allocation, the social justice strives to formulate a system to which benefits and burdens should be fairly distributed [12]. Practically, people have certain rights that should not be taken away from them; and the consequence that the government should have never tried to oppress any part of society with claims of facilitating the public good [13].

Adopting the concept of social justice, the task of food provision in Indonesia which is traditionally carried out by family-based farmers is not a burden of individual farmer, and it does not interfere with their sense of justice. Because of the subsistence farmer, they are full of joy and happiness to carry out their duties as farmers. The family farming system which is characterized by attribute to subsistence farmer is a strength. Their loyalty to agricultural land and farming activities is very high. That is because the farming activity for them is not market oriented, but it is merely to fulfil a family need [14].

The classic research of Fujimoto [15] in the village of Ranca Udik, Subang Regency, West Java describes the strength of subsistence farmer in the 1990s. Fujimoto [15] found 98 of family households who lived in the village of Ranca Udik, and about 59 people of them (60.20%) were family farmers who controlled averagely about 0.64 ha of rice fields. However, his research in Ranca Ekek, a suburb of Bandung, West Java, is quite different. The last location represents the weakness of farming interest of sub-urban residents. From 93 families in this location, there is only 10 families (10.7%) that could be categorized as farmer families with an average land control of 0.44 ha.

The changes of farmer orientation have actually started since the late 1980s. Garcia [16], who observed farmer trends in the 1980s, found that there had been a money economy penetration in rice production centers in Indonesia, as well as in Southeast Asia. Thus, the subsistence farmer has started fading and replaced by market-oriented farmers [16].

Of course, the degree of change of subsistence farmers varied from one farmer to another. This research paper will not fully present these differences. However, one phenomenon that needs pay attention to is the tendency to view agricultural land as a commodity. The in-Tabanan research, which is a district in the Province of Bali, a tourism area, revealed that 75% of the farmers agree or strongly agree that agricultural land is an economic commodity [17].

The more recent qualitative research in Cianjur, West Java, Indonesia which is one of the rice production-center and famous for the name “*beras Cianjur*” (the rice from Cianjur) reveals the tendency of farming unwillingness within the farmer because of the high burden and hard cost of rice farming. Many farmers express their unwillingness to farm and better to sell the wetland because of the low

profit of paddy cultivation. Another expression is better to sell land and have a job outside farming field because of the probability to earn more. They also express the unwillingness to farm because of the fear of crop failure [18].

In the light of the discussion above, the disappearance of subsistence patterns of life induces a weakness of loyalty to the land and the job of farmer. The sale of land is frequently seen as a solution to the socioeconomic problem of the farmer. The in-Tabanan research proves that, more than 75% of farmers agree or very agree that selling the land is a solution to the farmer problem [17]. The loyalty of the children of the farmer to the rice field that they will inherit proves to be weak, based on another research in Cianjur, West Java, Indonesia [18].

Taking into account that the lack of loyalty of farmers or children of farmers to agricultural land, and the tendency to farming unwillingness, the phenomenon of selling rice fields often occur among farmers. As previous research presented, the land conversion has occurred massively since the 1990s, since the fading away of subsistence farmers, and since the entry of the money economy into the rural area.

The strict policy to maintain the availability of land as food production centered in this context is valuable. However, the government policy to establish a SFAA mandated by law No. 41/2009 -- in the midst of farmers' weak loyalty to the land and in a tendency of farming unwillingness -- is not easy to implement. This law was legalized in 2009, and in more than ten years, the realization of the formation of the SFAA is still very low or has not even been formed at all. The tug of war between the interests of land is very high. Housing developers have an interest in transferring land functions. The industrialists

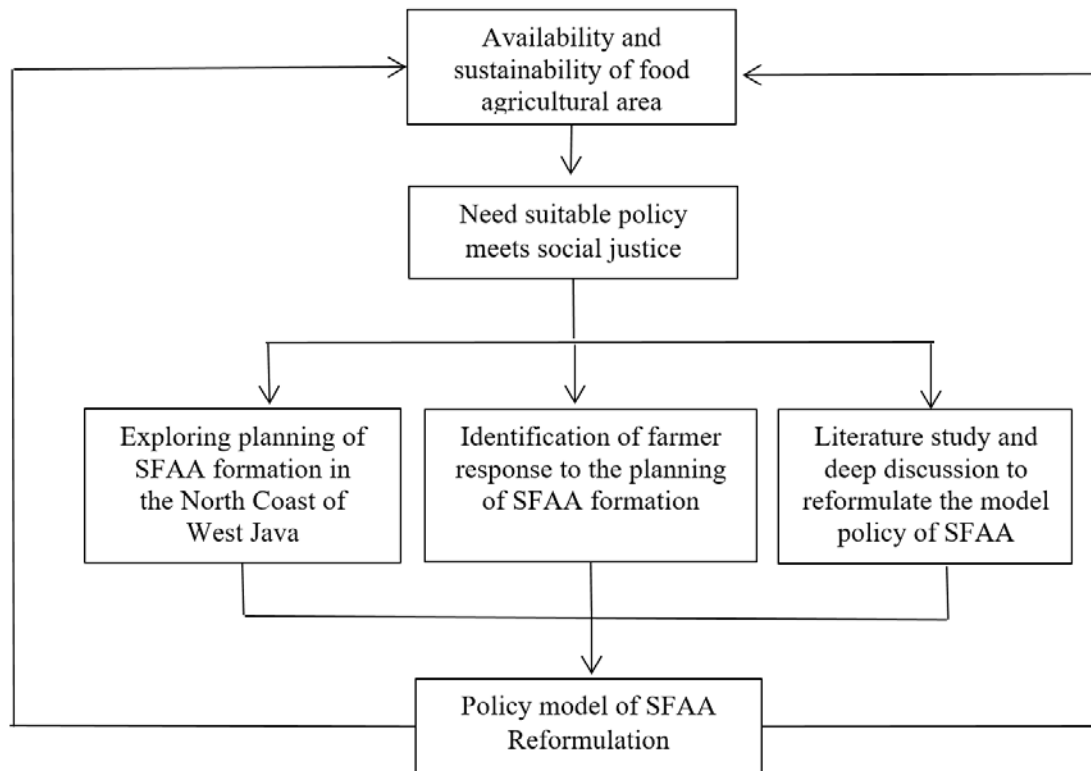
want the government to make it easier to grant land conversion permits.

In the light of the conditions above, the question is how to form the SFAA that meets the principles of social justice, not party feels disadvantaged, but is accepted by all parties? The conceptual reformulation is needed. The political commitment to the sustainability of agriculture, and food supply is maintained without being carried out by the detriment of farmers. The opportunities for farmers to gain greater profits from land use outside the agricultural sector should not be closed.

For this purpose, this research seeks to identify the planning of SFAA formation in four main regents of North Coast of West Java, which includes The Regency of Bekasi, Karawang, Subang and Indramayu, to explore farmers' responses to the planning of establishment of SFAA, as well as the factors that influence it, and to perform a deep discussion based on the research finding to reformulate the model policy of SFAA which meets social justice.

The farmer's response in this research is divided into three parts, including the response to: (1) the suggestion that farmers are willing to make their rice fields into SFAA that cannot be converted; (2) the recommendation that the children of farmers remain willing to continue the activities of managing SFAA; and (3) legal sanctions that may be imposed on farmers who dare to change the function of land that has been designated as SFAA.

This study presents seven variables that are hypothetically predicted to influence the diversity of responses to the planning of SFAA formation. The seven variables include age, family members who work in the agricultural field, farming experience, educational level, land size ownership, farming income per season, and jobs outside farming.



**Figure 1.** Research Objective, Framework Analysis and Reasoning

The effect of these variables on the response is based on the classic theory of Rogers [20] about satisfaction with observed results (observability). On the assumption that the farmers have more family members who work at the farming field, have long experience of farming, own agricultural land at minimum profitable limits, and have the satisfaction feeling to farming income, these variables hypothetically affect a positive response to the planning of SFAA formation. However, in the case of social mobility and tendency to leave farming activity in Sulawesi, Indonesia due to the improved skill and education [44], the education level and the work outside farming field hypothetically have a negative effect on the SFAA planning. Regarding age based on the assumption that the respondents are old farmers who have long experience in farming activities, this variable will also have a positive response to the SFAA planning.

To reformulate the SFAA based on the farmer's response in this research, and meet the basic principle of social justice, there are several important items contained in Law No. 41/2009 [21] which needs to pay attention to. First, the land that can be used as SFAA is: (1) irrigated land, (2) tidal and non-tidal swamp reclamation land, and (3) non-irrigated land. Second, in terms of ownership, the land that can be designated as SFAA includes the individual-owned land, or state-owned land as the ex-forest concession rights. Third, the agribusiness actor at the SFAA can be an individual farmer or business institution, such as limited liability companies whose majority shares are owned by the Indonesian nation or cooperatives. These

three items can be materials for further discussion to determine the policy model in establishing the SFAA that meets the principles of social justice, which have positive implications for maintaining the availability of food agricultural land.

### 3. Material and Methods

#### 3.1. Research Type and Location

This research adopts mixed method, consisting of three main stages. First, secondary data collection to explore qualitatively the planning of SFAA formation in four main regents of Pantura of West Java, which include the Regency of Bekasi, Karawang, Subang and Indramayu. Second, a survey sample to identify farmers' responses to this planning in Bangodua as a sub regent of Indramayu Regency. Based on the strategic location, complete infrastructure, sufficient rice field size [22], this sub region is predicted to be designated as SFAA. The response of Bangodua's farmers will relatively represents the condition of Pantura farmers because they are under equal conditions. As presented below, they are experiencing land conversion and unsuccessful formation of an SFAA, although these regions have the same planning of SFAA formation. Third, in-depth discussion based on the secondary data and survey finding to reformulate the policy model of SFAA which meet social justice, suitable for farmer wishes, are easily applied.

### 3.2. Research Population and Sample

The population of this survey is 3692 Bangodua's farmers that gather in eight farmer groups in eight villages. By a complete list of population in each farmer group, this research adopts the Slovin formula with 10% error probability to determine the sample size. By this formula, this survey obtains 97.33 samples, which is brought out into 100; and it is taken by stratified random sampling technique proportionally from eight farmer groups in eight villages.

### 3.3. Research Variables, Measurement and Data Collecting

The dependent variable of this research is farmer's response to the planning of SFAA formation. The response is divided into three parts, consisting of the response that: (1) the farmers are obliged to use their land solely to farm food crops; (2) the children of the farmer are obliged to manage agricultural land that has been designated as an SFAA after the senior farmer having passed away; and (3) the farmers will be subject to criminal sanctions if they change their agricultural land that has been designated as an SFAA land. This response is measured by marking score (1,2,3, and 4) for each statement with the key word "agree." The statements to measure the response have met the validity and reliability test based on alpha Cronbach criteria.

The independent variables of this survey are farmers' socioeconomic characteristics, which include age, family member who work at the agricultural field, farming experience, education level, size of land ownership, farming income per season, and job outside farming. These independent variables are measured in nominal or ordinal scale. Data collecting is carried out within the period from October to December 2022.

### 3.4. Data Analysis

Data analysis is also divided into three stages. First, determining the score of the response of each farmer for each statement. Second, grouping each score of response into two categorize (positive and negative) by adopting the following interval formula:

$$\text{Interval scale} = (m-n)/b$$

In which:

- m: The highest possible score
- n: The lowest possible score
- b: The number of scales to be formed

As the survey make the score between 1 and 4 for each response, and the respondents are 100, the possible highest score is 400, and the possible lowest score is 100, and the

number of scales to be formed is 2 (negative vs positive). Therefore, the interval scale is:

$$(m-n)/b = (400-100)/2 = 150.$$

Based on the interval formula, the categorization of response is provided in Table 1.

**Table 1.** Categorization of the Farmers' Response to Planning of SFAA

Categorization	Score	Response
1	100-250	Negative/Disagre
2	251-400	Positive/Agree

Third, exploring the effect of socioeconomic characteristic to the response of the planning of SFAA formation. For this purpose, the research presents each independent variable and two categories of response in cross table, and adopts the chi-square test with the following formula:

$$X^2 = \sum_{i=1}^k \left[ \frac{(f_o - f_e)^2}{f_e} \right]$$

In which:

- $\chi^2$ : chi-square
- $f_o$ : Observed frequency in the research
- $f_e$ : Expected frequency in the research
- $i...k$ : Response to the SFAA planning

Basically, by comparing the frequency of the observed data ( $f_o$ ) with the frequency of expected data ( $f_e$ ), the Chi square test aims to identify the data distribution in cross table and the tendency of relationship between farmer characteristic of social economy and their response the to planning of SFAA formation.

## 4. Result of the Research

### 4.1. Description of Research Location

The Northern Coast (*Pantura*) of West Java is the main paddy-producing area. This area consists of four main regencies: Bekasi, Karawang, Subang and Indramayu. Apart from rice plants, this area -- because it stretches out horizontally, with adequate infrastructure and being not far from Jakarta -- is also highly suitable for residential estate, industrial areas and shopping centers. Therefore, the Pantura area has become a bone of contention for housing developers, investors, and those who still want to maintain this area as a rice production center. The Pantura of West Java is illustrated in Fig. 2, where agricultural areas form a green belt above.

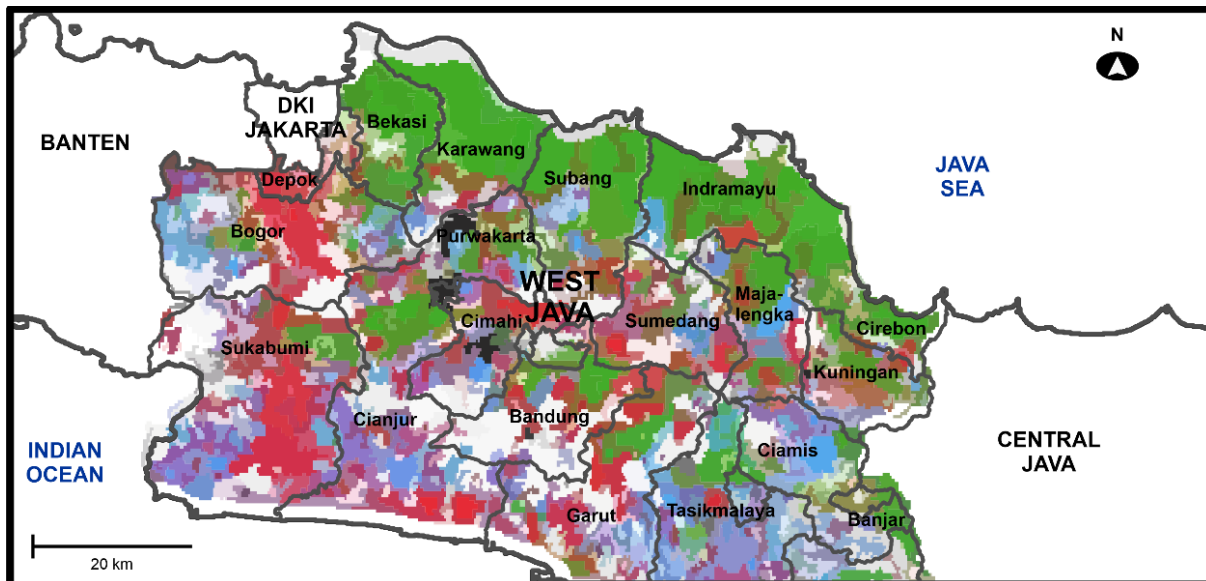


Figure 2. The Illustration of Pantura, West Java

The Bekasi Regency, which is nearest area to Jakarta, has a planning to designate 35.244 ha of agricultural land area as the SFAA [23]. This SFAA rice field is distributed to 13 sub-districts. The determination of the area is based on the consideration that it is in a stretch of land that supports efficiency and productivity; in accordance with the land use; supported by basic infrastructure such as irrigation, road access, and agricultural facilities & infrastructure; and the land has been used as a food agricultural area [24].

The Regional Government of Karawang has also taken steps to determine the SFAA. Based on the Regional Regulation on the Protection of SFAA (Regional Regulation Number 1/2018), there is 85,339 ha of agricultural land which is potentially designated as SFAA. In addition, there is also 1,914 ha of land as a reserve area for SFAA [25]. This high potential land to be determined as the SFAA is spread across 29 districts; and the reserve area is distributed to eleven districts [26]. But, unfortunately, the head of the region of Karawang has not issued the spatial decree to designate these areas as the SFAA.

Unlike the previous two regions, the Subang Regency has merely an academic text to prepare a Regional Regulation for the Protection of SFAA land. This "Academic Text" [27] emphasizes that the agricultural land protection should meet three important items: (1) the agricultural activities must adequately meet the needs of farming families; (2) the ecological sustainability should be preserved to let the ecosystem has the ability to survive for a long time; and (3) the SFAA that will be formed should meet absolutely the social justice.

The draft of regulation of SFAA formation is obviously to solve the problem of massive land conversion in Subang Regency. The important items that encourage land conversion are (1) the growth of housing, industrial and

new economic centers; (2) the increasing transport line, economic needs of farmers, and selling price of land; (3) the changes of the status of paddy field ownership due to the inheritance system which induces the land fragmentation; and finally (4) the decrease of interest of young generation in agriculture activity [28].

Regarding the Indramayu Regency which is the easternmost area of the Pantura region of West Java, it also does not have the SFAA land. The conversion of agricultural land also occurs in this area. Based on aerial photographs and *iconos* images, the 133,716 ha (65%) of land use in Indramayu is dominated by paddy fields. The ponds are 18,780 ha (9%), and the settlement is merely 16,627 ha (8%). Within eleven years, the condition has changed. In 2015, the area of paddy fields decreased to 132,097 ha (64%) and settlements increased to 18,625 ha (9%), and it is predicted that, in 2025, the paddy field will be 131,328,3 ha if there are not major changes such as infrastructure development or establishment of industrial zones [28].

Therefore, the four regents of Pantura have the socioeconomic characteristics of farmer, and the formation of SFAA is really needed. For this purpose, based on climate, soil fertility, topography, and water availability, the Indramayu's agricultural land could be categorized into strongly suitable, suitable, less suitable, and unsuitable for sustainable agriculture [29]. Fortunately, the research has found 92,419 ha of Indramayu land that is categorized into strongly suitable; 7654 ha is grouped into suitable; 1,5824 ha could be included into less suitable, and there is no Indramayu land which is categorized into unsuitable land. The very suitable land is distributed to 31 districts, which means that all districts of Indramayu have very suitable land for SFAA. The District of Bangodua has 3,219 ha of very suitable land, and there is no suitable, less suitable, and unsuitable agricultural land. It could be concluded that

there is not marginal land in Indramayu Regency, especially in District of Bangodua. Therefore, it is highly potential to designated as SFAA land.

**4.2. The Socioeconomic Characteristic of Respondents**

The provision of food agricultural land which is prohibited to be converted is actually an innovation. The diversity of socioeconomic characteristic of farmer could probably induce different response, especially the land provided to become the SFAA as a farmer individual-owned land, and they are inherited from their parents for generations. Therefore, exploring the farmer’s response to this innovative policy should be preceded by describing the brief of socioeconomic condition of the farmers.

The age is one of the important characteristics of farmers. In the Indonesian context, the results of the inter-census survey indicate the low interest of the young generation to be involved in farming activities [30]. The Indonesian farmers are currently at an old age which is generally above 40 years. From 27,682,117 heads of farmer families in Indonesia, more than 64% are aged 45 years or more. The farmer who is at the age of 25-35 years is only 9.84%; while the young farmer aged 25 years or below is only

0.069% [30]. In this context, this research paper finds that 65% of respondents are 45 years or more. In accordance with the low interest of the young generation in farming activity, this research proves the majority of respondents (51%) have only two persons or less of their families who work in the farming field. But, fortunately, because the majority of the respondents are old, they are experienced farmers. The 82% of respondents have experienced in farming activity more ten years; and the farmer whose experience is less than ten years is only 18% (Table 2).

The education level should also get attention. 66% of respondents of this research had only a primary school education. The rest of them (44%) get junior and senior high school education (Table 2). The education level represents the human capacity that has a significant effect on the willingness to innovate. The in-depth literature study which involves 70 books, journals, and other documents proves the education level is an important factor for social innovation, which is defined as new solutions for social life by innovating products, services, models, and market processes [31]. The research in Kalimantan (Indonesia) [32] and Cianjur (West Java, Indonesia) [33] indicates, the high level of education has a tendency to adopt the innovation technology.

**Table 2.** Respondents Distribution Based on Socioeconomic Diversity

No.	Socioeconomic Characteristic	Category	%
1	Age	<45 years	35
		≥45 years	65
2	Family members who work at the agricultural sectors	< 2 persons	51
		≥ 2 persons	49
3	Farming experience	< 10 years	18
		> 10 years	82
4	Education level	Elementary School or less	66
		Junior high school	16
		Senior high school or more	18
5	Land size of ownership	< 0,5 ha	45
		0,5 - 1 ha	37
		> 1 ha	18
6	Farming income per season	< IDR 15,000,000.00	44
		IDR15,000,000.00 – IDR30,000,000.00	39
		> IDR30,000,000.00	17
7	Job outside farming	Possess	49
		Does not posses	51



However, in the context of Indonesia, the educated young farmer -- because they see business opportunities in a more profitable non-agricultural sector -- tend to leave the agricultural field. They look at the agricultural sector which is dirty, full of mud, and grunt work which is not suitable for well-educated people. In addition, the agricultural field is less profitable compared to other sectors. Therefore, it is not amazing that about 90% of Indonesia farmers are old people, which is relatively at a low education level [34]. From this point of view, the education level and job outside agricultural field hypothetically will contribute to the negative perception to the government policy of SFAA formation.

In this research paper, there are 49% of respondents who have jobs outside farming (Table 2). Therefore -- although the majority of respondents (51%) do not have a job outside the farming field -- the variable of the job should be paid attention to because it will possibly influence the negative perception of the SFAA formation.

The other variables predicted to have a significant effect on the perception on the policy of SFAA are area of land ownership and per season income. This research paper finds that 18% of farmers who manage the land more than 1 ha; 37% who control 0.5-1 ha; and this research finds that 37% of farmers who control only <0.5 hectare (Table 2). The experiment in Sri Lanka indicated that an increase of one acre of land size increased land productivity by approximately 75 kg per hectare [35]. Thus, the land size hypothetically will have a significant effect on the positive response to the SFAA formation. This hypothesis is strengthened by a research, in which the farmers who own more land size have a higher chance to benefit all offered innovation [36].

The per season income is also predicted to have a significant effect on the SFAA policy. The land size, productivity and income have interrelationship with each other. Based on research experience in Bangladesh, land productivity could be measured exactly by farmers'

income [37]. Thus, in line with productivity, the per season income hypothetically is a significant factor on the perception of the policy of SFAA formation. This research paper fortunately finds that, 44% of respondents earn < IDR 15,000,000.00 per season; 39% have income per season between IDR 15,000,000.00 to IDR30,000,000.00; and the majority of respondents (44%) earn IDR 15,000,000.00 or less per season.

### 4.3. Response to the Policy of SFAA Formation

To explore the farmer's response, this research paper provides seven statements as a solicitation for the farmer to keep farming and not leave agricultural activities. The results of the research, fortunately, indicate the agreement of the farmer regarding these appeals (Table 3). In more detail, the persuasion that the land owner is obligated to use the rice field is only for food farming and it is forbidden to convert it into any building to get a positive response. From this finding, the rest of subsistence behavior in farming is the most likely to exist in Indonesia [38].

In the light of this subsistence farming [38], it is natural that the farmer tends to agree the appeal that rice farming has more fun than making a place of business. For subsistence farmers -- or those who are influenced by subsistence behavior -- farming activities are more important than other businesses. In this context, based on this farmer's response (Table 3), the subsistence farmer in Indonesia -- as well as in South East Asia -- could be seen as a strength. Agricultural activities, especially food farming, survive because of subsistence farmers who are not profit oriented [39]. However, referring to the theory of Scott [40] based on his research in South East Asia, if their subsistence interests are disrupted, they are unable to provide food for themselves and their families, especially if the land they own is disturbed, the farmers will become violent, and they will fight against the authorities.

**Table 3.** Farmer's Response the Persuasive Policy of SFAA Formation

No	Detail of Policy	Score	Response
1	Obligation to the land owner to use the rice field only for farming	321	Positive
2	Planting rice is an obligation to provide food for the people	370	Positive
3	The rice field is an inheritance for children that must be used for farming	293	Positive
4	Do not intend to sell rice fields even though land price is high	347	Positive
5	Rice Farming is more fun than making a place of business	339	Positive
6	Unwilling to sell rice fields even in urgent circumstances need money	307	Positive
7	Farming activities are more important than other business	347	Positive

Note: (1) The Score between 100 to 250 is negative/disagree; (2) The Score between 251 to 400 is positive/agree

In addition, the solicitation that the rice field is an inheritance for children that must be used only for farming also obtains a positive response (Table 3). The land inheritance system in Indonesia -- especially in West Java -- has become part of their culture. Kano [41] asserts that the paddy field in Indonesia is private ownership owned by individual farmers based on their effort to produce the wild forest to become a productive paddy field. The consequence is that every individual farmer has the right to inherit the land. Boomgaard [42] describes the individual hereditary private ownership of land was found in some areas of the Archipelago. Historically, many pieces of land near the city, especially around the Pantura of West Java, were given out in a form of quasi-feudal tenure to the (hereditary) commanders of indigenous auxiliary troops. However, most of the lands have become hereditary individual private ownership. Therefore, it is not surprising, the old farmers agree to bequeath their land to their descendants and may not be used except for farming.

Regarding the appeal not to intend to sell the rice field even though the price of paddy field is high, and the position of unwillingness to sell rice fields even in urgent circumstances also gets a positive response (Table 3). Historically, in a traditional Javanese and Sundanese society, there is a prohibition on selling food agricultural land, and if it is forced to sell it, the sale can only be made to the local village community [41].

In the light of this response, the farmers (or old farmer) still have a high loyalty to their farming land. This positive response is highly potential to reformulate the SFAA policy. However, the farmers do not want to be forced to be farmers forever. Their children also do not want to be hindered from carrying out social mobility through education. If their children have the opportunity to work in non-agricultural sector which they think better, they want their children to enjoy life outside farming. Therefore, the statement that tends to force farmers to continue farming and must be continued by their children -- in which the work as a farmer is a hereditary job that must be continued

by children -- gets a negative response (Table 4).

The unwillingness of their children to become farmers, aside from low income, farming life also reflects a low social status. Based on the IFLS (Indonesia's Family Life Survey) between 2000 and 2007, there were 2,629 farmer households who were moving out from farming field to non-agricultural sector. The same case has also occurred between 2007-2014 in which the households who left farming activity are about 2,592 families [43]. In more detail, the action of leaving the agricultural sector is also experienced by landowners. The IFLS shows that there were 1,678 landowners who left the agricultural sector in 2000-2007; and 1,549 family landowners in 2007 to 2014 [43]. Therefore, by this secondary data research, moving out from agricultural to non-agricultural sectors has become a trend. Thus, parents strongly will not agree to force their child to work in farming field forever (Table 4).

The inclination to work outside the agricultural sector is reinforced by improving the quality of education, skill, and work competency. In the case of migrant workers from Makasar, Indonesia to many destinations in the neighboring country of Malaysia, many productive work forces leave agricultural sectors because of the improvement of education and skill and due to the small income of agricultural workers [44].

The imposition of sanctions on farmers who dare to change the function of their own land from agricultural fields to other usages is certainly contrary to the tendency of farmers to choose jobs outside of agriculture. This policy is feared to be unproductive action, and will be difficult to implement. In this context, this research paper provides four statements that tend to impose the punishment on the farmer. But unfortunately, farmers tend to reject this sanction. In more detail, the farmer has a negative response to the statement that the government assistance will be revoked if they use rice fields for other functions. The farmer also shows a negative response to the statement that they will get a fine if they change the rice fields to other uses (Table 5).

**Table 4.** Farmer Response the Government Policy of Farming Obligation

No	Detail of Policy	Score	Response
1	Working as a farmer is a hereditary job that must be continued by children	180	Negative
2	Obligation to maintain rice fields although the houses or industrial estate have been built around it	234	Negative
3	Children continuing to farm rice is proud	216	Negative

Note: (1) The Score between 100 to 250 is negative/disagree; (2) The Score between 251 to 400 is positive/agree

**Table 5.** Farmer Response the Government Policy of Imposing Sanction to the Farmer

No	Detail of Policy	Score	Response
1	The government assistance will be revoked if using rice fields for purposes other than rice farming	179	Negative
2	Obligation to return the rice fields to its original state if farmers change it to other usage than rice farming	135	Negative
3	Given a fine by the government if changing rice fields to other than farming	174	Negative
4	Imprisoned or pay a fine if changing rice fields to other than rice farming	173	Negative

Note: (1) The Score between 100 to 250 is negative/disagree; (2) The Score between 251 to 400 is positive/agree

In addition, the farmers also disagree the expression that they are obliged to return the rice fields to its original state if they change the land function to other usage. Finally, the farmers obviously reject the Government policy that will imprison them or have to pay a fine if they change rice field to other functions (Table 5). These farmers' attitude is the valuable input to reformulate the policy of SFAA which meets social justice.

**4.4. The Socioeconomic Effect on the Planning of SFAA Formation**

The farmer's approval or refusal to the policy of SFAA formation is based solely in general tendency. To identify their response obviously to the planning of SFAA formation, this research paper tries to explore deeply the distribution of this response in cross tables based on various socioeconomic conditions; and to prove the influence of this socioeconomic on this response, this research applies chi-square test. In other words, this research paper tries to determine which of the socioeconomic groups has the effect of accepting or rejecting the SFAA formation.

The result of cross table and chi-square analysis -- or about who approves and rejects the planning of SFAA formation -- is provided briefly in Table 6. The "response" as the dependent variable of this research is strictly expressed in the word "rejection" of SFAA planning. The independent variables are the socioeconomic of the farmers. The first independent variable is age (X1), which is clear that X1 does not have any effect on this rejection. However, the scope of this conclusion applies only to old farmers whose age is over 45 years, because 65% of this research's respondents are at the age of 45 years or more (Table 3).

The number of family members who work at the agricultural sectors (X2) do not contribute to this rejection. The farmers as the head of household with their family members having the same loyalty to the farming land and to the job as farmer. This conclusion is not amazing, because 51% of respondents have two persons or more who

work at the farming field.

The farming experience (X3) which is identical with the age also does not influence the rejection of SFAA formation. Referring to Table 2, the majority of respondents (82%) have the farming experience more than 10 years. This long experience indicates the status of senior farmer who have high loyalty to the farming field.

The other two variables that do not contribute significantly to this rejection are the size of land ownership (X5) and farming income per season (X6). The wider the agricultural land owned, the more satisfied with farming activities. Therefore, based on the P-value criteria in chi-square test, the farmers who have relatively large land areas tend to have a positive response to the planning of SFAA. Thus, these farmers accept the government policies to prevent their land from being converted. To be clearer, there are 18% of respondents who have more than 1 ha of land; 37% own between 0.5 ha and 1 ha; and 45% of farmers who control the land less than 0.5 ha.

Based on this research finding, the criteria of business feasibility are very important in determining agricultural areas to be designated as the SFAA. This conclusion is reinforced by other results of this study that income per season (X6) is a variable that encourages farmers' acceptance of the SFAA policy. For farmers, this income per season seem to get a visible required minimum profit. Thus, the result of the research concludes, to satisfy farmers, it is very important to consider the business feasibility of rice field before being determined as the SFAA.

Unlike the previous variables which support the SFAA policy, this research finds two variables which tend to reject the public policy to protect the rice field. The variable is education level (X4) and job outside the farming field (X7). The farmer who has relatively better education tends to refuse the SFAA formation. This conclusion is based on P-value criteria, which is less than 5% (Table 5). This very small P-value means the effect of education to the rejection of SFAA formation is significant.

**Table 6.** The Contribution of Socioeconomic Diversity on the Farmer Response to the Rejection of SFAA Formation

No	Socioeconomic Variables	Chi Square (X <sup>2</sup> )	P-Value
1	Age (X1)	0,022	0,881
2	Family members who work at the agricultural sectors (X2)	0,603	0,437
3	Farming Experience (X3)	0,108	0,743
4	Education Level (X4)	9,189	0,010**
5	Area of land ownership (X5)	2,070	0,355
6	Farming income per season (X6)	3,101	0,212
7	Job outside Farming (X7)	3,988	0,046**

Note: \*\*Strongly Significant

The effect of this education is naturally not amazing. People with less education are close to nature, and their life could not escape from nature. They obtain food and earn money on the basis of their activities in cultivating nature. Farming is an activity that is close to nature. However, with improved education, they are less dependent on nature, and they can earn money from activities outside the agricultural sector [44]. In addition, the non-agricultural activity is generally more profitable. Thus, the loyalty of highly educated people to the farming land – because they see the economic opportunity outside of farming -- is relatively low. Therefore, they strongly reject the plan of rice field protection. Likewise, the loyalty to rice farming activities is strongly weak for those who already receive greater benefits from the non-agricultural sector. Therefore, people who have activities outside agriculture (X7) tends to reject the establishment of SFAA (Table 6).

## 5. Discussion to Reformulate the SFAA which Meets Social Justice

In the light of the above results of the research, also referring to the Law on the Protection of Sustainable Food Agricultural Land, the concept of land ownership should be the focus of the discussion to comply with the principles of social justice in establishing the SFAA. In the context of staple food production, in Indonesia -- and also in several Southeast Asian countries – the concept of smallholder agriculture should strongly be considered [45].

Historically, in Indonesia there has been a dualism of land ownership as well as a dualism of agriculture, between smallholder agriculture and capitalistic plantations. The emergence of large capitalistic plantations in Indonesia is after the enactment of the 1870 agricultural law by the Dutch colonial government. This agricultural law confirms that land not recognized as the rights of farmers is state-owned land [47]. The Dutch government finds the land that is recognized as individual property is rice fields (both individual or communal ownership), dry agricultural land, yards, and pastures.

Thus, without any fear of peasant uprisings, the Dutch government determined that apart from land that was recognized as belonging to individual farmers is state-owned land. In this regard, the Dutch Government invited investors, especially from Europe, to manage state-owned land in the form of large plantations whose products were import-oriented. This policy of the colonial government gave birth to dualism in land management, smallholder agriculture which plant rice as the main commodity, and large plantations with import-oriented products, using management and modern technology [45,46]. In independent era, the former private plantation became state-owned land. Furthermore, in modern Indonesia, there are forest lands that have great potential for the development of food crops.

The formation of SFAA on farmer

individual-owned-land (IOL) actually continues the tradition of farmers as food providers. This of course does not violate the principles of social justice, if the farmers are willing, without coercion from anyone. There should be no sanctions given to farmers who are not willing to use their land for SFAA area. However, when their land is designated as SFAA, the farmers must benefit from it and be able to live properly, and there should also be a chance for children of farmers to choose other jobs outside farming.

If farmers show the positive response, in which they agree to the planning of SFAA formation on their own land, the optimization of the land needs to be carried out properly, including providing incentives for these farmers. In this study, the farmers show positive responses to the formation of the SFAA, although they do not want their children to be forced to be farmers forever, and also do not want to be penalized for changing the function of the SFAA to other uses. Therefore, it strongly needs the alternative land to be determined as the SFAA. Referring to article 29 of the Law on SFAA Protection, it is possible for state-owned land (SOL) to function as the SFAA. The land allocated for SFAA can be made from abandoned land and former forest area lands that have not been granted land rights in accordance with statutory provisions. Thus, the former forest area can be converted into SFAA.

The question in this case is who are the business actors to manage and produce food on SFAA? If it is solely imposed on farmers, this is contrary to the principle of social justice. Among farmers, especially children of farmers, many of them want to switch professions to various jobs outside agriculture. If investors are invited and ex-forest land is handed over to the private sector, it is feared that it will create a wider gap between smallholder agriculture and large plantations, which in fact has already occurred [45,46].

Fortunately, referring to the Sustainable Food Agriculture Land Protection Law, specifically Article 27, the business activities in the SFAA can be carried out by individual farmers, companies, or cooperatives engaged in agribusiness, or directly by the Government. If the activities at SFAA are solely carried out by small farmers, this will be a model of forced smallholder farming that is contrary to the principles of social justice. The provision of food will be a burden for farmers. The farmer seems to be a group of humans who are destined to serve other social groups, especially the elite group. Likewise, if the business activities in SFAA are only carried out by the Government in the form of SOEs, this will weaken the potential of professional farmers who are interested in working and developing themselves in the agricultural sector.

Therefore, the mixed model is the right alternative. For one thing, there is an SFAA which originates from the individual owned-land (IOL), and the farmers actively manage this SFAA professionally with a profitable agribusiness approach. For another, there are State Owned Enterprise (SOEs) or Regional Owned Enterprises (ROEs)

as administrators of SFAA originating from SOL. The SFAA's business is conducted in integrated manner, including food production, processing and marketing. This SFAA could also serve as a research center, agro-tourism area, and other activities which are in line with the SFAA's mission. In this context, every local government must allocate land for SFAA function. For paddy cultivation, the SFAA administrator can do a close partnership with the individual farmer or farmer groups. By allocating the SOL, the formation of SFAA will be faster and more controlled. The severe sanctions can be imposed on parties that interfere in the functions of the SFAA, originating from SOL.

Thus, there are two sources of food, the farmers' owned SFAA and the state' owned SFAA. The balance of food supply from these two sources will not only accelerate food self-sufficiency, but also create controlled prices. The food prices will not rise uncontrollably because of the balance of the two sources of supply. This model of SFAA is closer to the principles of social justice, neither party will feel burdened. This model could easily be applied in third world countries that are the same or almost the same with Indonesia.

## 6. Conclusions & Recommendation

This research proves that farmers have a tendency to agree the appeal for the formation of SFAA that may not be converted into other functions. However, in contrary, farmers tend to resist the calls to keep farming for themselves and for their children; and also tend to reject the sanction that could probably be imposed on them for changing the function of SFAA to a use other than farming.

Therefore, the formation of SFAA must be optional which is beneficial for farmers, so that food procurement does not become a burden for farmers. Thus, the formation of SFAA should not merely rely on farmers' land with the business actors are farmers.

The government in this case can allocate suitable state-owned land for SFAA. This can be done by each Regional Government. The SFAA actors are not only farmers, but the government can also establish SOEs or ROEs as SFAA executors. This model of SFAA will be close to meet social justice, and can be easily applied to each region. This model can be implemented in the third world countries that have problems of land conversion.

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