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# Formulation of protection policy for sustainable cropland agriculture

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**Abstract.** The conversion of agricultural land into other function is a threat to the achievement of food security. Data shows that the conversion of agricultural land has reached 150,000 hectares per year. This state of land conversion is very worrying because Indonesia will have difficulties in pursuing food independence, resilience and sovereignty. Therefore, the fulfilment of food needs within a country is absolutely necessary. Moreover, food also holds important and strategic policies in Indonesia based on its social, economic and political influence. Based on this problem, the purpose of this study is to formulate policies for the protection of sustainable cropland agriculture. By using a policy analysis approach, this study formulates the choices that local governments can take to protect agricultural land, namely (1) establishing sustainable cropland agriculture areas, (2) establishing agricultural land inside and outside agricultural areas, (3) establishing land sustainable agricultural food reserves inside and outside the sustainable cropland agriculture area; and (4) the area of sustainable cropland agriculture is stipulated in the Regional Spatial and Regional Planning. To control sustainable cropland agriculture, government policies that can be applied are (1) providing incentives and disincentives, (2) licensing mechanisms, (3) protection and (4) extension.

## 1. Introduction

Building resilience and food independence become very important and strategic. This is an affirmation of the efforts of implementing the responsibilities and obligations of the state in the framework of fulfilling the right to food as human rights. However, cropland in Indonesia has diminished due to a conversion of agricultural to non-agriculture land.

The Directorate of Food and Agriculture Ministry of National Development Planning / BAPPENAS in 2006 conducted a study on the Strategy for Controlling the Transfer of Agricultural Land Functions. The results show that the problem of conversion of agricultural land that can reduce the amount of agricultural land, especially rice fields, has been going on since the 1990s. The Ministry of Agriculture in 2010-2014 revealed that data on the conversion of paddy fields to non-agricultural land from 1999-2002 reached 563,159 ha or 187,719.7 ha/year. Between 1981-1999, the balance of paddy fields increased by 1.6 million ha, but between 1999-2002 there was a shrinking area of 0.4 million ha or 141,285 ha/year [1].

The 2004 statistical bureau data shows that the rate of conversion of agricultural land from paddy fields to non-paddy fields is 187,720 ha per year, with details of non-agricultural conversion to 110,164 ha per year and another agricultural conversion of 77,556 ha per year. The conversion of agricultural dry to non-agriculture land is 9,152 ha per year. Based on the synthesis of data and



information from a number of research results and data published by a number of related institutions, it is estimated that the area of paddy fields converted is not less than 150,000 hectares/year [2].

However, until now there has been no accurate data on the size of the function of paddy fields. This is related to monitoring and recording that has not been institutionalized properly. Conversion of agricultural land in Java is even more alarming. Based on the results of the land census conducted by the Ministry of Agriculture (Ministry of Agriculture), paddy fields in 2010 shrank to 3.5 million hectares (ha) from 4.1 million ha in 2007. Within a span of three years, land conversion reached 600 thousand hectares [1].

This state of land conversion is worrying the Government and Regional Government in striving for the realization of independence, resilience and food sovereignty. Therefore, the fulfilment of food needs within a country is absolutely necessary. Moreover, food also holds important and strategic policies in Indonesia based on its social, economic and political influence. But food security, independence, and sovereignty face serious problems because the availability of agricultural land for food that is converted to non-agricultural land continues to increase. This problem requires the Regional Government to take a policy to protect food agricultural land so that the availability of agricultural food land can be maintained to meet the right to food.

Other issues related to land resources are the difficulty of stemming the process of shrinking productive agricultural land due to the rampant practice of transferring agricultural land to non-agriculture. Economic reasons always background and become a driving factor for the conversion of agricultural land includes:

1. The value of land rent obtained from agricultural businesses is always lower than the value of land rent for the non-agricultural sector (housing, services, industry, and road infrastructure) [3, 4].
2. The welfare of farmers who are still left behind [5].
3. The interests of local governments in the era of regional autonomy, especially related to regional revenue (PAD), there is an assumption that the agricultural sector does not provide significant benefits [4].

The conversion of agricultural land must be prevented because it is irreversible and permanent, meaning that when agricultural land has been changing functions whenever it is difficult to be able to change back to agricultural functions. Besides that, the conversion of agricultural land has a very bad impact on the nation and the people of Indonesia. The negative impacts are:

1. The potential to threaten the national food security;
2. The process of impoverishment of farmers because of loss of basic assets for their livelihood;
3. Unemployment due to the disappearance of agricultural land that is able to absorb a workforce of up to 46%;
4. The redundancy of investments that have been planted by the government (especially irrigation);
5. Cultural degradation of people in rural areas;
6. Decreasing environmental functions [6].

To overcome the increasingly narrow agricultural land as a result of the conversion of agricultural land, it is necessary to form a regional policy on the Protection of Sustainable Cropland Agriculture. The question is how is the formulation of effective land use control policies to protect sustainable crop land agriculture?

## 2. Methods

The study of the formulation of this policy used the literature study method. The literature study was used to examine various policy products related to the protection of sustainable food agricultural lands. The results of the study of policy products are used as a basis for reformulating public policies to address land conversion problems.

### 3. Public policies in responding land conversion

Three major strategies have been prepared by the government to reduce the rate of land conversion, the first through the National Spatial Approach in accordance with Law 26/2007 concerning Spatial Planning, stipulates Law 41/2009 concerning Protection of Sustainable Cropland Agriculture and thirdly to develop an incentive and disincentive system for agricultural development actors both farmers, communities and local governments. Related to the protection of sustainable crop land agriculture which has been regulated by Law 41/2009, hierarchically must be followed up with Regional Regulations which would need to accommodate the interests of protecting sustainable cropland agriculture to realize national food security.

As a follow-up to Law 41/2009 concerning Protection of Sustainable Cropland Agriculture, Government Regulation 1/2011 concerning the Determination and Transfer of Functions of Sustainable Cropland Agricultural and Government Regulation 30/ 2012 concerning Financing Sustainable Cropland Agricultural Protection.

In this case, the function of policy from a legal perspective is as affirmative action or called affirmative action which is interpreted as an effort to increase opportunities for people and groups of people to get progress in a certain period of time [7]. Through a policy of providing incentives and rewards for farmers and landowners to push their land as sustainable and non-functional food crops.

The policy to protect sustainable food agriculture land is actually an initial step that requires follow-up action, namely how the substance of the provisions of Law 41/2009 is comprehensively interpreted, especially relating to legal politics and the purpose of law formation. Because if the law is formed, the law must be upheld and he is expected to be able to carry out the legal mission in providing certainty, usefulness and bringing justice.

The need for law enforcement against the threat of the conversion of sustainable food agriculture land is a law enforcement system that involves sub-systems that include substance, structure, and culture. In this frame, the position and role of the Regional Government in the establishment of sustainable cropland agriculture is very important.

This can be illustrated because fertile food crops are found in rural areas generally. The rate of population growth and competition to get land for the benefit of non-agricultural land cannot be avoided because of changes in the way people view the rice field agricultural land also changes. Therefore, the Regional Government needs to actively implement and formulate sustainable cropland agriculture protection policies in its territory.

Furthermore, according to Article 3 of Law Number 41/2009, the protection of Sustainable Crop land Agriculture is held with the aim of:

- a. protecting areas and food crops sustainably;
- b. guarantying the availability of sustainable food agricultural land;
- c. realizing independence, resilience and food sovereignty;
- d. protecting ownership of farmer food owned by farmers;
- e. increasing prosperity and welfare of farmers and the community;
- f. increasing the protection and empowerment of farmers;
- g. increasing the provision of employment for a decent life;
- h. maintaining ecological balance, and;
- i. realizing agricultural revitalization.

In order to guarantee and realize sustainable development, especially in the context of increasing and providing food availability, the policy of food self-sufficiency, food security and food sovereignty is one of the pillars to safeguard national sovereignty. Law 41/2009 concerning Protection of Sustainable Cropland Agriculture, and Government Regulation 1/2011 concerning the Determination and Transfer of Functions of Sustainable Cropland Agriculture has regulated land protection and the requirements and mechanisms regarding the Transfer of Functions of Sustainable Food Farming Land, especially for the public interest and disaster.

#### **4. Analysis of land transfer of land function**

The conversion of productive agricultural land into non-agricultural land is caused by weakness in low productivity, and business in agriculture has a very high risk, while the threat is increasing the need for land for housing so that the price of land is higher this indicates the conversion of land to non-agricultural land. As an illustration, for example, agricultural land owned by farmers in Banyumas Regency ranges from 0.2-0.3 ha. The productivity of rice cultivation in Banyumas Regency is around 5.23 tons per hectare [8]. This is the potential for land conversion to occur if the land they have is offered by a housing developer. Transfer of function is due to the increasing need for housing every year.

The number of housing needs in Banyumas Regency is a major threat to the survival of LP2B land. The high demand for land for housing causes land prices to increase. The high price of land makes the potential for land conversion to be very large. An agricultural land conversion which has been increasing lately is one of the threats to agricultural sustainability. Another trigger from the conversion of agricultural land to other uses is the low level of profit from farming. In addition, agricultural businesses are faced with various unpredictable problems and high costs of controls such as weather, pests and diseases, unavailability of production and marketing facilities.

Changes in land function were not only influenced by housing development factors but also triggered by other activities, for example, the presence of industry. The existence of these industries can trigger changes in the function of agricultural land, both because of the waste that can reduce the productivity of agricultural land, or this industry can also trigger an increase in the built-up area around it.

The conversion of land functions occurs mostly on agricultural land that has high productivity into non-agricultural land. Many national rice barn areas are being used and like development centers in the urban suburbs. Agriculture areas are generally equipped with irrigation infrastructure so that production is high. The conversion of paddy fields to residential and industrial areas greatly influences the availability of agricultural land and the availability of food and other functions. The pattern of land use in paddy farming is still quite high in Banyumas Regency.

As an example, it can be seen from the number of paddy fields in Banyumas Regency that reached 52.38% of the entire Banyumas Regency. Non-paddy fields are 47.62% of the entire Banyumas Regency. The population of Banyumas Regency in 2013 was 1,362,152 people. If it is assumed that land that is not agriculture (other uses) is the need for houses, offices, markets etc. then each individual in Banyumas Regency requires an area of 109.16 m<sup>2</sup>. If the population is projected at 0.015 per year, then in 2025 the population is 1,586,907. The amount of land needed to support the population is 17322.6776 ha, which means it must increase to 2453 ha. The extent of this is the possibility of transferring functions from agricultural land to housing [8].

#### **5. Policy formulation of control over a land function**

In order to inhibit the rate of conversion, it is necessary to establish Sustainable Food Farming Land (LP2B), Sustainable Food Agriculture Reserve Land (LCP2B) and Sustainable Food Agriculture Zone (KP2B).

Efforts to protect LP2B are carried out through the establishment of an area (KP2B) which will consist of LP2B and LCP2B and various supporting elements. This means that in addition to rice fields, various supporting elements also need to be known to determine the appropriate policy or program. KP2B then needs to be an integral part of the Regency Spatial Plan, while LP2B and LC2B are integrated into detailed Spatial Plans. In this legislation also stated that agricultural land of food that will be protected can be part of the region or stretch outside the region. In this law also stated that agricultural land of food to be protected can be found within the region or outside the region. At present, the district/city government is a pioneer in the effort to save rice fields. Until September 2013, the regency spacial plans (RTRW) documents had been enacted reached 62.5% and 69 of them had determined the area of LP2B in its Spatial Regulation [9].

Government Regulation 12/ 2012 concerning Sustainable Food Farming Land Incentives carried out by the Government and the Government Regions through the provision of incentives. Incentives are a form of attention and appreciation from the Government and/or Regional Government towards Farmers whose land is willing to be designated as Sustainable Food Farming Land. Conversely, revocation of incentives or disincentives is the taking of rewards given by farmers because of the occurrence of land conversion that is not in accordance with norms and procedures. Incentive and disincentive mechanisms in agricultural protection policies have proven effective in motivating farmers in adopting sustainable agricultural practices [10,11].

Incentives provided to farmers can be in the form of land and building tax relief, agricultural infrastructure development, funding research, and seed development and superior varieties, ease in accessing information and technology, provision of agricultural production facilities and infrastructure, guarantee the issuance of land rights certificates in Sustainable Food Farming Land through sporadic and systematic land registration, and awards for high achievers.

Beneficiary farmers have obligations including using land in accordance with its designation as Sustainable Food Agriculture Land, preventing irrigation damage, maintaining and improving soil fertility, preventing land damage, and maintaining the environment.

Providing incentives to farmers is an effort to improve the quality of agricultural human resources. Agricultural human resources are needed to improve the yield and quality of agricultural production. With the existence of agricultural human resources, farmers are able to innovate to create agricultural technology that is capable of producing high-quality agricultural products in high quantities so that they are able to meet the need for food nationally and internationally.

The incentive provision policy is given by considering the types of Sustainable Food Agriculture Land; soil fertility; land area; irrigation; a level of land fragmentation; farm productivity; location; agricultural business collectively; and environmentally friendly farming practices.

On the contrary, disincentives, which can be referred to as revocation of incentives, are carried out if farmers as recipients of incentives do not carry out their obligations by not protecting their sustainable food agriculture lands by violating norms, standards, procedures and criteria, and if their land has been converted. Revocation of incentives is imposed in stages by providing written warnings, reducing incentives, and revoking incentives.

Furthermore, the policy of safeguarding Sustainable Food Farming is carried out by stipulating:

- a. Sustainable Food Agriculture Zone;
- b. Sustainable Food Agriculture Land inside and outside Sustainable Food Agriculture Areas; and
- c. Sustainable Food Agriculture Reserves in and outside of Sustainable Food Agriculture Areas.

Sustainable Food Farming Control Policy can also be carried out through the mechanism of protection and empowerment of farmers. In this case, the Regional Government is obliged to protect and empower farmers, farmer groups, farmer cooperatives, and farmers' associations.

Protection of farmers, farmer groups, farmer cooperatives, and farmer associations can be in the form of facilitation on:

- a. the price of beneficial staple food commodities;
- b. obtain agricultural facilities and infrastructure;
- c. marketing of agricultural produce of staple food;
- d. prioritizing crops land to meet regional food needs and support national food;
- e. compensation due to crop failure caused by natural disasters, pest outbreaks, and *puso* (crop failure).

Especially regarding compensation, farmers are given compensation guarantees if they experience crop failure due to natural disasters, pest outbreaks, and *puso*. Provision of compensation is given at least as much as the production costs incurred by farmers. With a compensation policy, farmers get adequate economic incentives to protect their survival [12].

To develop farmers' access to various resources and knowledge, farmers' empowerment policies and farmer participation need to be strengthened [13,14]. The aspects of empowerment and participation of farmers regulated in the policy of controlling land use change include strengthening

farmer institutions, counselling and training to improve the quality of human resources, assisting funding / capital sources facilities, assisting education and health facilities of farmer households, assisting facilities to access science, technology, and information, and providing assistance in facilitating marketing of agricultural products.

## 6. Conclusion and policy implication

The rapid rate of population growth and development requires new lands, resulting in competition for land use and the conversion of agricultural land to non-food agriculture that can threaten food security and independence. The regional government is obliged to protect the sustainable cropland agriculture in order to be used for the greatest prosperity and welfare of the people in order to guarantee the right to food for the community.

In order to protect the agricultural land of food from land conversion and implement the provisions of Law 41/2009 concerning the protection of sustainable cropland agriculture, it is necessary to regulate the protection and stipulation of sustainable cropland agricultural in a regional regulation. The active role of the regional government in formulating and implementing the policy of sustainable cropland agriculture land protection needs to be realized immediately. The policies can be in the form of the initiation of regional policies and establishment of regional regulations on the protection of sustainable cropland agricultural so that land conversion can be prevented and sustainable cropland agricultural can be protected.

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