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Agricultural Insurance Policy Development System in Indonesia: A Meta-Analysis

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Abstract: Agricultural insurance is an effort to minimize risks and uncertainties in the agricultural sector business. This program is needed by farmers in Indonesia who are susceptible to the numerous risks of crop failure. So far, there are still various obstacles in the implementation of agricultural insurance in Indonesia. This study aims to describe the development of policies in the application of agricultural insurance in Indonesia. This study was carried out using the Policy Development System Engineering approach through a meta-analysis. This research produces several policy recommendations for improving the agricultural insurance system in Indonesia going forward. Some of the recommendations include increased coordination between the institutions involved, systematic information exchange between the parties, quality improvement in field staff human resources, socialization program improvement at the farmer level, establishment of quick and swift insurance claim procedures, increased role of farmer group chairpersons, an increase in premium subsidy with various schemes, and Islamic agricultural insurance policies in Indonesia. Policy recommendations are strategic steps taken by various stakeholders providing an integrated and sustainable agricultural insurance system in Indonesia.

Keywords: rice farming insurance, livestock insurance, insurance system, subsidy, strategy.

印度尼西亚农业保险政策制定系统的元分析

摘要：农业保险是为了最大程度地减少农业部门业务中的风险和不确定性而做出的努力。印度尼西亚的农民需要该计划，因为他们容易遭受农作物歉收的众多风险。迄今为止，在印度尼西亚实施农业保险仍然存在各种障碍。这项研究旨在描述印尼农业保险政策的发展。这项研究是使用政策制定系统工程方法通过荟萃分析进行的。这项研究为改善印尼的农业保险制度提出了一些政策建议。其中的一些建议包括：加强相关机构之间的协调，各方之间系统的信息交流，提高实地工作人员人力资源的质量，改善农民一级的社会化计划，建立快速而迅速的保险理赔程序，增加农民团体主席的作用，通过各种计划增加的保费补贴以及印度尼西亚的伊斯兰农业保险政策。政策建议是利益相关者采取的战略步骤，可为印度尼西亚提供一个综合，可持续的农业保险体系。

关键词：稻谷农业保险, 牲畜保险, 保险制度, 补贴; 战略。

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1. Introduction

Indonesia, as an agrarian country, has enormous natural resources for agriculture sector businesses. Having a tropical climate and fertile soil is the main capital for Indonesia's people to carry out agricultural activities. The agricultural sector is one sector that plays an important role in the world, especially in developing countries like Indonesia; this sector is one of the highest foreign exchange-earners. Agriculture has a major contribution to Indonesia's Gross Domestic Product (GDP). In the second quarter of 2019, the agricultural sector contributed 13.41% of Indonesia's total GDP based on constant 2010 prices, making the agricultural sector the second most contributing sector to GDP [1].

On the other hand, Indonesia is in the path of the pacific ring of fire, which makes Indonesia vulnerable to natural disasters. This will certainly have a negative impact and threaten biodiversity, which will also affect the agricultural sector and farmers' level of welfare. An uncertain and changing climate will greatly affect the agricultural sector. This will have implications for the disruption of farming activities that rely heavily on natural factors [2]. Natural factors pose a serious threat to the agricultural sector, especially rice, so strategic steps are needed in an effort to minimize the adverse impacts received by farmers. In addition to climate factors, other threats such as plant pests can also result in crop failure in rice farming.

Business in the agricultural sector is inseparable from very high risks and uncertainties. Therefore, the need for a system that can minimize risks or threats, and uncertainties that occur in the agricultural sector, especially rice farming, effectively and efficiently. Agricultural insurance can be the best alternative to minimize risks and uncertainties in the agricultural sector. Insurance can help transfer risks due to flooding, drought, and attacks from pests and diseases. Insurance is offered as one of the funding schemes to transfer risk, such as crop failure (AUTP 2017 General Guidelines). Furthermore, as stated in [3], agricultural insurance would greatly help farmers from large losses and ensure their future sufficient working capital by ensuring rice farming financing in the following season.

Insurance in agriculture is a concern of the world, both developed countries, developing countries, and less developed countries. In less developed countries that make the agricultural sector the main sector of the community's economy, the World Bank and FAO provide special intensive for agriculture areas that have high weather sensitivity [4]. Besides, the World Bank, together with microfinance institutions, continues to test new agricultural insurance products based on weather indices [5, 6, 7, 8]. In developed countries like the United States, the agricultural insurance system has been in place since 1938. The most insured crops are corn, soybeans, and wheat. In 2008, data showed that approximately 80% of agricultural areas had been insured. The total insurance premium in 2008 and 2009 was nearly 10 billion. The insurance coverage is 50% of the average yield [9].

In European countries, each country implements a very different agricultural insurance system. In Austria, 50% of the premium for agricultural insurance is subsidized by the government. In contrast to the Czech Republic, direct insurance subsidies are paid by the government to insurance companies. The insurance covers more than 80% of agricultural land, where more than 60% is insurance against the risk of snow (freezing), hail, storm, flood, drought, and other risks [10]. Spain is one of the countries with an excellent agricultural insurance system. To run the agricultural insurance system involves cooperation between the public and private sectors, with specialized institutions for its operation and development. This system is financed by the Spanish central government and from local government budgets. The total premium for agricultural and livestock insurance under this system continues to increase each year from around € 3 billion in 1991 to nearly € 11 billion in 2008 [11].

In some countries such as Germany, the United Kingdom, and Scandinavian countries, the agricultural insurance system operates on a purely commercial basis without government interference. In contrast to France and the Netherlands, where the government plays an important role in providing insurance funds, farmers are also required to pay contributions to run the agricultural insurance program. In some developed countries such as the United States, agricultural insurance is limited to insurance against risks and uncertainties in climate or natural disasters and insurance against fluctuations in agricultural commodity prices [9].

In Indonesia, the implementation of the national agricultural insurance program has been carried out since 2015. The main focus of this program is on the Rice Farming Insurance, locally called Asuransi Usaha Tani Padi (AUTP). In carrying out this program, the government subsidizes premium payments of 80% while the remainder is paid independently by farmers. The government cooperates with JASINDO Limited Liability Company (PT) as an insurance company to handle AUTP [13]. During its implementation from 2015-2019, various obstacles were encountered, such as; socialization at the farmer level is still lacking so that farmers' understanding of AUTP and benefits is still low, farmers'

willingness to pay self-help premiums are still low, support from extension agents, plant pest control (POPT) and the officials at the field level are still out of numbers, the claim system is difficult according to farmers, farmers whose land feels safe do not feel flooded, drought and plant pests (OPT) attacks do not want to become AUTP participants, as well as several other obstacles that are still found in the application of insurance systems for rice plants in Indonesia [33].

Based on the description above, this article aims to formulate a policy development system in applying for agricultural insurance in Indonesia and several other new opportunities as research contributions through a meta-analysis. To elaborate, we divide it into seven discussion sections, including (1) introduction, (2) research methods, (3) insurance models in the agricultural sector, (4) agricultural insurance in Indonesia, (5) realization of agricultural insurance, (6) recommendation for developing agricultural insurance policies system in Indonesia, and (7) conclusions.

2. Methods

The study of agricultural insurance in Indonesia was carried out using the Policy Development System Engineering approach through a meta-analysis. There are four stages carried out in Indonesia's agricultural insurance study using the Policy Development System Technique (Figure 1), namely: 1) exploring the achievements in agricultural insurance; 2) exploring the existing situation in this sphere; 3) studying the ways of policy realization? 4) proposing recommendations for further improvement to elaborate various agricultural insurance development strategies in Indonesia that are right on target.

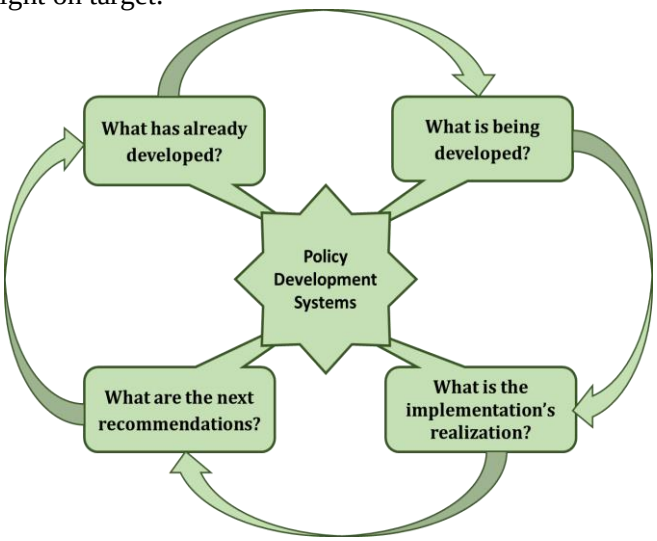


Fig. 1 Policy development systems

A meta-analysis is a form of quantitative research that uses data and information through numbers and statistical methods based on various research results to be managed, organized, represented, explored, and developed through extracting as much information as possible from the data obtained [13-15]. This method is very close to comprehensive and has been widely used by various researchers in formulating, mapping, and developing existing research results to be more strategic [16-20] and included in terms of recommending policies and governance [21-24, 42].

The data used in this study are primary and secondary data. Primary data are obtained through field observations. These data were obtained from interviews, questionnaires, and discussions with experts. The experts involved in the study were researchers from the Indonesian Ministry of Agriculture, researchers from the Indonesian Center for Agriculture Socio-Economic and Policy Studies (PSEKP), PT Jasindo (insurance company), Lecturer at Universitas Syiah Kuala (Unsyiah), Ar-Raniry State Islamic University Lecturer, farmers and insurance practitioners, agriculture and plantation service (Aceh Province, Central Java Province and East Java Province), Animal Husbandry Office (Aceh Province, Central Java Province and East Java Province). Secondary data are collected from the current data and the previous year's data obtained from relevant agencies and literature studies. This literature study data is generally used as supporting data.

3. Results and Discussion

3.1. Insurance Models in the Agricultural Sector

Agricultural insurance is currently applied in various countries, not only in developed countries such as America, France, Japan but also in developing countries such as Taiwan. Agricultural insurance is developing well, while in India, Bangladesh, and the Philippines, the development is still slow. French agricultural insurance system was developed more than forty years ago under state supervision [25]. Agricultural insurance in France has considerably grown since the reforms of 2004. Compared to Western Europe, in France, more than 60% of the agricultural area is insured. The situation is different in Germany: more than 80% of the agricultural area is insured [26].

Agricultural insurance in Latin America is relatively developed compared to other regions such as Africa and

many Asian countries. Agricultural insurance in Latin America has grown in recent years, but agricultural insurance is not distributed evenly between Latin American countries. The supply of agricultural insurance products in this region is relatively growing compared to other regions in terms of the number of companies offering insurance [27].

In the United States in 2003, premium subsidies, for example, amounted to 38-67% of the total premiums that farmers must pay. Then for administrative costs and total agricultural insurance premiums subsidized by the United States government reached 70-75% [28]. Furthermore, farmers could also buy other agricultural insurance packages with the Buy Up program, where farmers can arrange insurance from 50% to 85% of the average yield [9]. The insurance risk of crop failure is caused not only by disasters, but farmers can also insure their agriculture to avoid fluctuations in the prices of agricultural commodities. By buying an insurance package to avoid these price fluctuations, farmers will get insurance reaching 55% to 100% of the expected price. The premium for this insurance program depends on the actual production history on the farm. In terms of price insurance, the Risk Management Agency provides an estimated price.

ASEAN countries such as Thailand and Vietnam have also already run agricultural insurance programs compared to Indonesia. Thailand started to run agricultural insurance in 1978 and Vietnam in 1982. Although it was stopped due to high administrative costs and huge losses, the Thai government continued to innovate by producing an integrated agricultural insurance system that can survive until now. Agricultural products generally insured are cotton, corn, and soybeans. While in Vietnam, farmers are already independent in implementing insurance programs where the government no longer needs to provide premium subsidies. Agricultural insurance is carried out by an agricultural bank in collaboration with farmers and is not mandatory. Agricultural products covered by insurance are corn, cassava, and rice. In Japan, the type of agricultural insurance has been in effect since 1929. In Japan, agricultural insurance is focused on rice, livestock, fruit and fruit production, field crops, and greenhouse insurance [29].

One form of agricultural insurance currently being developed is weather-index insurance developed by the International Finance Corporation (IFC). This type of insurance has been applied in several countries such as Thailand, India, Mexico, Kenya, and Malawi. In developing countries, it is still under-represented in insurance coverage even though the agricultural sector in developing countries is relatively large compared to manufacturing and services [28].

Governments in several countries also play a role in implementing insurance programs by assisting in subsidies. According to [30], high-income countries, such as the United States, Spain, France, and Italy, provide:

1. Premium subsidy. The government provides premium subsidy assistance to ease the number of premiums that must be paid by farmers;
2. Operational subsidy. For private insurance as funds to cover some of the high administrative costs associated with operating an insurance scheme, including insurance company operating costs, loss assessment costs, and information gathering and monitoring costs;
3. Subsidized reinsurance. Reinsurance is a method used by insurance companies to reduce or manage risk. After the existing government insurance program, it is difficult for private insurance companies to innovate and introduce new risk management products. The government supports an insurance program to maintain the level of farm income. The public sector plays an important role in agricultural insurance because the policies and regulations that have been set will affect the region's activities and economic conditions.

According to [12], the government plays a very important role in maintaining and carrying out agricultural insurance implementation. The government was very instrumental in minimizing the risks faced by farmers by providing incentives and encouraging them to manage risks independently. This government subsidy is to avoid potential market failures, and this is inseparable from the combination of various kinds of risks faced by farmers.

3.2. Agricultural Insurance in Indonesia

Indonesia needs to anticipate the challenges of applying for insurance institutionally and financially by adopting agricultural insurance in other countries. Models of the study of agricultural insurance implementation are also widely carried out by building lessons learned from other countries. Such studies, for example, have been carried out comprehensively on the insurance system in New Zealand [25], Romania [26], Latin American countries [27], Australia[28]. The Fiscal Policy Agency (Badan Kebijakan Fiskal/BKF) examined the implementation of agricultural insurance nationally in terms of the conceptual, funding, and trial features of rice farming insurance as well as taking lessons learned in India, China, Vietnam, Thailand, and Japan [31].

Based on the Law of the Republic of Indonesia No. 19 of 2013 concerning Protection and Empowerment of Farmers, in essence, agricultural insurance aims to protect farmers in the form of working capital assistance. Identification of this protection is carried out in the form of crop damage or crop failure due to the risk of natural

disasters, attack of plant-disturbing organisms, outbreaks of infectious animal diseases, impacts of climate change, and/or other types of risks. In Indonesia, agricultural insurance is divided into four sub-sectors: insurance in the food crops, horticulture, plantation, and livestock sectors. The Indonesian Government began testing agricultural insurance by showing PT Asuransi Jasa Indonesia (Jasindo) as an insurance service provider from 2012 until 2015. Buffaloes and Cows Livestock Insurance (Asuransi Usaha Ternak Sapi/Kerbau (AUTS/K) has been tested since 2012 and received a good reception from various groups of population. The Rice Farming Insurance (AUTP) has been introduced and implemented since the 2012/2013 planting season. However, since 2015 the government has been more focused on developing Rice Farming Insurance (AUTP) because rice is a national strategic commodity that is very vulnerable to climate change and crop failure risk [29, 32, 33]. Through the Ministry of Agriculture, the Government of Indonesia issued Minister of Agriculture Regulation No. 40 of 2015 concerning Agricultural Insurance Facilitation, which is technically limited to the Rice Farming Insurance (AUTP).

In the 2017 AUTP report, the Ministry of Agriculture explained the scope of agricultural insurance funding in the form of an agreement between farmers. The insurance company aims to protect farmers in case of crop failure due to the risk of floods, drought, and pests. AUTP is a government program under the Ministry of Agriculture through the Director-General of Agricultural Target and Facilities (PSP) through a partnership with PT Asuransi Jasa Indonesia (JASINDO, insurance company), whose source of funding comes from the Indonesian Budget (Anggaran Pendapatan dan Belanja Negara/APBN) and Regional Government Budget (Anggaran Pendapatan dan Belanja Daerah/APBD) whose operational budget is contained in the DIPA of the Satker Directorate General of Agriculture and Agriculture Facilities. Thus, agricultural insurance, as one of the efforts to protect farmers as regulated in Act Number 19 of 2013, includes (a) farmers working on food crops that do not have land for farming and work on a maximum of two hectares, (b) farmers who own land and do food crop cultivation business in a land area of two hectares, and/or (c) horticultural farmers, smallholders or small-scale farmers.

Through rice farming insurance, the guarantee against crop damage due to flooding, drought, and pests and diseases of plants or plant pests (OPT), can be compensated as working capital for the sustainability of his farming business. The vision of the agricultural insurance program is to make insurance a protection scheme against crop failure or other agricultural business risks, including livestock farming, towards modern agri-business ventures in sustainable agricultural development. The mission of agricultural insurance program is to increase production of agricultural commodities and productivity on an ongoing basis and create conditions that benefit farmers/ranchers and still maintain environmental sustainability in national agricultural development.

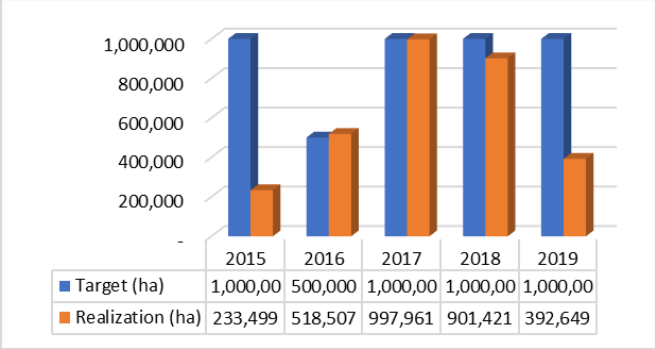
In Indonesia's agricultural insurance program, the agricultural insurance facility policy is guided by the Decree of the Minister of Agriculture No.30/Kpts/SR.210/B/12/2018 concerning Guidelines for the Assistance of Rice Farming Insurance Premium and No.31/Kpts/SR.210/B/12/2018 concerning Guidelines for Buffaloes and Cows Livestock Insurance Premiums. The price of rice cover is set at Rp.6,000,000 per hectare per planting season. The insurance price is the basis for calculating the premium and the maximum compensation limit. The total rice farming insurance premium of Rp.180,000/ha/planting season. The government's premium assistance amount is Rp.144,000/ha/planting season, and the remaining farmers are self-supporting Rp.36,000/ha/planting season. If the insured land area is less than or more than 1 (one) ha, then the amount of premium (and compensation) is calculated proportionally. As for the buffalo/cows insurance facility, the insurance premium is Rp.200,000/head/year. The government's premium assistance amount is Rp.160,000/head/year, and the remaining farmers are self-supporting Rp.40,000/head/year.

3.3. Realization of Agricultural Insurance

The AUTP target in 2015 was 1 million hectares and was realized at 233,500 hectares with a claim of 3,482 hectares. Based on this insignificant realization target, in 2016, the AUTP target was reduced to 500,000 hectares with the realization of 518,506 hectares, and claims reached 11,107 ha. In 2017 the target was increased again to 1 million hectares, along with various strategies and innovations, so that 997,961 hectares was realized with a claim of 25,028 hectares. In 2018, the target was still maintained at 1 million hectares and realized 901,420 hectares with claims of 10,754 hectares. The realization of the AUTP target from 2015 - 2019 can be seen in Figure 2.

In 2015 the realization of the AUTP program only reached 23.34% of the total targeted. In 2015 the AUTP

program was still an introductory stage that was only developed in 16 provinces of Indonesia's rice production centers. In 2016 there was an increase in the realization that reached 100%, but the land target area in 2016 was reduced by 50% from the previous year's target.

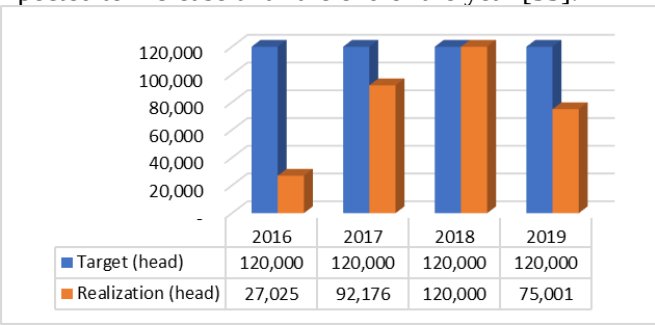


Data for 2019 as of July 31, 2019 [33]

Fig. 2 Targets and realization of the 2015-2019 AUTP program in Indonesia

In 2017 there was a very significant increase in realization of 99.80%, although it did not reach 100% as in the previous year. That year, the target area was doubled (1 million hectares) compared to 2016. In 2018 the targeted realization fell to 90.14% of the same target area as the previous year. Factors causing the decline were many claims that were late in 2017. Farmers felt the submission and search for claims were complicated, and PT Jasindo suffered heavy losses in several areas that participated in AUTP [29, 33].

For AUTS since the program began in 2016, it was targeted to reach 120 thousand head of cattle, but only 27 thousand were realized with 697 head claims. In 2017 the target was still the same, namely 120 thousand, and the realization had increased to reach 92,176, with 3,470 claims. For the year 2018, still, with the same target of 120 thousand heads, 120 thousand were successfully realized, with claims reaching 1,736. The realization of the AUTS/K target from 2016-2019 can be seen in Figure 3. In 2016 the realization of the AUTS/K program only reached 22.52% of the total targeted. In 2017 and 2018, there was an increase in realization, which reached 76.81% in 2017 and 100% in 2018. In 2019 the new target was to reach 62.50% as of July 31 and was expected to increase until the end of the year [33].



Data for 2019 as of July 31, 2019 [33]

Fig. 3 Targets and realization of the 2016-2019 AUTS/K program in Indonesia

A case study research on implementation in regions in Indonesia reveals that the implementation of AUTP faces many challenges in rice farming [34], such as low participation of farmers in the insurance program in Padang, with a range of 20% of the target. Based on logistic regression analysis, there is a positive and significant influence between farmers' participation in agricultural organizations and participation in agricultural insurance. Some obstacles in the implementation of AUTP in Kaliori District, Rembang, Central Java were reported [35]. There are still difficulties with the field officers, and the head of the farmer group invited members to participate in the socialization or join the AUTP program. The office of PT Jasindo located far from the agricultural territories is constrained in socialization, premium payment, and claims process, in addition, the motivation of the instructor to socialize the AUTP program is still considered very low. A similar situation was reported in [36]: the socialization or delivery of limited information was one of the obstacles in implementing AUTP in Ciwaringin District, Cirebon Regency, West Java. PT Jasindo socializes only to the head of the farmer group and member representatives so that the possibility of information not flowing to farmers' broader level is very likely. The limited information and knowledge of farmers about AUTP cause farmers' low participation in disseminating information about agricultural insurance to other fellow farmers. Another factor is the financial ability of farmers to pay very low insurance premiums. Farmers who are financially able to pay a premium of Rp36,000/ha/planting season are only 34.38%; this value is obtained from measurements based on the value of the ability to pay (ATP) and willingness to pay (WTP).

Several obstacles were found in implementing AUTP in Indramayu Regency, West Java Province [37], including the duration of the claim compensation payment process by PT Jasindo to the farmers' group. The length of time this claim is paid will greatly affect the reduced interest of farmers to take part in the AUTP program the following year. Farmers also think that the long process of filing claims is very difficult for farmers, so farmers are reluctant to follow the insurance process. Besides, farmers still have very low knowledge about the implementation scheme of the AUTP program, both regarding reporting schemes, forms of compensation that can be proposed, and so forth. The response of the agricultural insurance policy as an effort to protect farmers was carried out in a case study in Agorejo Village, Bantul Regency [38]. It was carried out effectively through the Association of Farmers' Groups. Agricultural insurance plays a role in transferring the risk

of irrigation water users. The same conclusions were drawn in [29], based on his observations on farmers' attitudes and satisfaction towards rice farming insurance attributes in Karawang regency, West Java, where the head of the farmer group recommended the motivation of farmers in participating in the AUTP.

In general, the obstacles and problems still encountered during the process of implementation of AUTP activities in Indonesia were (1) socialization to the level of farmers who are still minimal, (2) farmers do not fully understand the benefits of the Rice Farmer Business insurance program (AUTP), so farmers are reluctant to pay self-help premiums 20% voluntarily, (3) operational funding support from local/city governments is still low so this will also have an impact on the lack of support from extension agents, POPT and officials at the field level, (4) farmers assume the level of ease and accuracy of the claim process which is difficult, therefore farmers are not willing to become AUTP participants in the following season [33], (5) high-risk farmers are more likely to participate in the AUTP program than farmers with low-risk levels. Farmers who feel that their land is safe and will not be flooded, drought, and subject to OPT attacks do not want to become AUTP participants [39], (6) farmers feel they are not benefiting from the current insurance scheme, especially with the halal-haram system problems. Agricultural insurance developed at this time. Farmers who are religious and sensitive to halal-haram practices cause the agricultural insurance program to be a particular obstacle in its implementation [40].

3.3. Recommendations for Developing Agriculture Insurance Policies System in Indonesia

Based on the previous stage study, the strategic steps that can be taken to achieve an integrated and sustainable agricultural insurance program in Indonesia can be mapped. The development of an agricultural insurance system in Indonesia is not a seasonal and temporal job but rather an activity that must be carried out continuously, hoping that developments will occur over time. To achieve this, a recommendation for the design of policy formulations for the agricultural insurance system in Indonesia needs to be formulated and implemented as a whole, from the preparation, implementation, supervision, until evaluation throughout the implementation. The formulation of policy recommendations for developing agricultural insurance systems in Indonesia can be seen in Figure 4.

Various formulations of policy recommendations are influenced by the government's seriousness, insurance companies, and farmers to achieve change for the better. The results of the formulation of policy recommendations will face several limitations in the field; such as asymmetric information that can lead to moral hazard behavior by policymakers, differences in perceptions about the risk mitigation process for climate change, and attacks by plant pests, and changes in premium subsidy policy by the Indonesian government. The government, insurance companies, and farmers are three components of actors who play an important role in recommending strategic steps for agricultural insurance development in Indonesia.

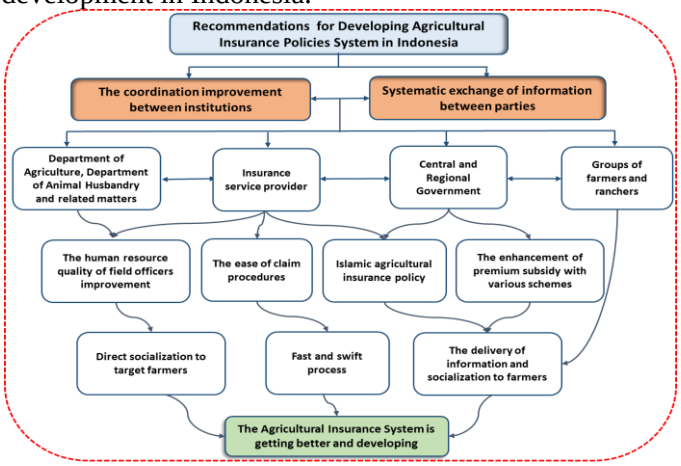


Fig. 4 Recommendations for developing agricultural insurance policies system in Indonesia

Based on Figure 4, some recommendations for strategic steps can be applied in developing agricultural insurance systems in Indonesia. The strategy recommendations are as follows: 1) Improvement of coordination between institutions involved in the agricultural insurance system, including local government, agriculture, and animal husbandry agencies as the executor and person in charge of the agricultural insurance program, PT. Jasindo is an insurance service provider, farmer groups or livestock groups, and other related parties. These stakeholders have their respective roles and responsibilities to succeed in the agricultural insurance program in Indonesia. 2) The need for an exchange of information between stakeholders involved in the agricultural insurance system systematically. This was also conveyed in [29]. One of the most needed attributes is the ease of getting information, so farmers can find out and share any developing information. So far, limited information delivery has become an obstacle to implementing AUTP [36]. 3) There needs to be an

increase in the quality of field officers, both field agricultural extension workers (PPL), technical implementing units (UPTD), and field officers from PT. Jasindo as an insurance provider. During this time, the role of agricultural extension workers and field officers from PT Jasindo is considered not optimal in carrying out its duties. The instructor's motivation to socialize the AUTP program was supposed to be very low [35]. 4) it is necessary to increase the socialization program carried out by agricultural extension workers (PPL) and PT Jasindo. According to [35], one of the obstacles in obstructing the delivery of information and outreach directly to the farmer level is the location of PT's office, Jasindo, far from the farmers. PT Jasindo only conducted limited socialization to the head of the farmer group, so it was possible that the information would not reach all farmers directly due to the limitations of the head of the farmer group [36]. 5) PT. Jasindo, as the insurance provider, needs to create a system that can make it easy for farmers to process claims quickly. During this time, findings in several regions in Indonesia showed that farmers still feel the PT Jasindo claim procedure complicated; there are delays in payment of claims and late agents who assess the damage [29; 37, 41]. 6) Central and regional governments need to increase premium subsidies with various schemes. It is undeniable that there are still very many farmers in Indonesia who have low financial levels, thus affecting the farmers' inability to pay premiums. One of the factors that prevented farmers from joining the insurance program was farmers' financial inability to pay insurance premiums [36]; the results of this study showed that 65.62% of respondents were unable to pay the premiums that had been set. 7) Establishment of an Islamic agricultural insurance system. The majority of Indonesian farmers are Muslims. The presence of Islamic agricultural insurance can be a way out for Muslim farmers who have been reluctant to follow conventional agricultural insurance programs to ensure agricultural management by managing the level of risk that can occur due to crop failure [40]. Also, the establishment of the Islamic agricultural insurance system presents mutual responsibility between farmers and insurance institutions. Both farmers and insurance institutions suffer no one-sided loss because of farmers' moral hazard. Another benefit is the Islamic system's existence will encourage the Islamic banking industry to finance farmers' capital. Because the concept of Islamic finance financing must have underlying assets, the Islamic agricultural insurance system is very compatible with the spirit and concept of Islamic banking. 8) Increasing the role of group and farmers' group leaders in delivering information and outreach to farmers more broadly. The head of the farmer group has a very big role in determining farmers' decision to join the agricultural insurance program [29]. Implementing these recommendations is a complicated activity because it involves various parties with different interests in order. However, this effort must be interpreted as an effort to correct the deficiencies into something better.

Agricultural insurance policy development system based on meta-analysis studies produces an important novelty in terms of developing regulations for the protection and empowerment of farmers in Indonesia through the Agricultural Insurance facility. The study results have been formulated innovatively and contextually by exploring lessons learned about agricultural insurance models globally, the history of agricultural insurance in Indonesia, its implementation performance, and future policy development strategies. A comprehensive agricultural insurance policy design has been formulated hierarchically based on the actors and targets achieved in Indonesia's agricultural insurance policies. Specifically, the development of agricultural insurance policies in Indonesia in the future has been mapped with various policy options such as strengthening human resources, socialization, accelerating claims, premium subsidies by the government, and the idea of developing Islamic agricultural insurance products.

4. Conclusions

This research has contributed to the development of agricultural insurance in Indonesia and can also be information for other countries developing agricultural insurance systems such as Indonesia. The Indonesian government itself still very much needs various kinds of improvements to produce an agricultural insurance system that is getting better and growing in the future. Some of the improvements include increased coordination between the institutions involved, systematic exchange of information between the parties, improvement of the quality of field staff human resources, improvement of the socialization program to the farmer level, establishment of quick and swift insurance claim procedures, increased role of farmer and farmers' group chairpersons, an increase in premium subsidy with various schemes, as well as Islamic agricultural insurance policies in Indonesia.

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