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2



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78. Playing A Role In Accordance With Drama Text Written By Student Using Role Playing Method 611-614  
*Liza Murniviyanti, Universitas PGRI Palembang, Indonesia.*
79. The Effectiveness of Indigenous Poetry Reading Comprehension to Conclude The Content Through The Application Of Tai Type Cooperative Learning Method In VII Grade Of Smpn 1 Seluas Bengkayang District 615-621  
*Alfonso, Postgraduate Program of State University of Surabaya, Indonesia.*
80. The Impact Of Literacy Program Wjlrc On Junior High School Student's Reading Comprehension 622-632  
*Sri Mulyati, Lies Amin Lestari, Pratiwi Retnaningdyah-Universitas Negeri Surabaya, Indonesia*
81. Communicative Game: Building Students' Fluency In Speaking And Their Interest 632-642  
*Nur Hasanah, Abdul Asib, Slamet Supriyadi-English Education Department of Graduate Program of Sebelas Maret University*
82. Dice Game: Enhancing Young Learners' Vocabulary Mastery In Learning English 643-654  
*Isnaini Umi Nurhasanah, Abdul Asib, Ngadiso-Sebelas Maret University*

#### **Vocational Education**

83. Implementation of Living Value to Build Character Students in Vocational High School 655-664  
*Dewicca Fatma Nadilla and Piki Setri Pernantah, Master of History Education, Faculty of Teacher Training and Education, Sebelas Maret University, Surakarta, Indonesia.*
84. Does Ethical Content Really Matter In Influencing Students' Ethical Behavior? (A Case Study In A Leading Accounting Vocational School In Yogyakarta) 665-673  
*Rahmawati Hanry Y and Putri Paramita Agritansia, Akademi Akuntansi YKPN Yogyakarta and Universitas Gadjah Mada, Indonesia.*
85. Analysis of Agricultural Insurance Supply due to Climate Change 674-680  
*Fitri Susilowati, Adhi Prakosa-Faculty of Economics, University of PGRI Yogyakarta*

#### **Multiculture Education**

86. Kawruh Pamomong Ki Ageng Suryomentaram as One of The Cultural Capital in Educational Field from Indonesia 681-688  
*Dhiniaty Gularso, Sugito, Zamroni, Yogyakarta PGRI University, Yogyakarta State University, Indonesia.*

## ANALYSIS OF AGRICULTURAL INSURANCE SUPPLY DUE TO CLIMATE CHANGE

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### Keyword

loss, climate change, insurance, risk, agriculture.

### ABSTRACT

Climate change is one of the risks faced by the agricultural sector. Development of insurance scheme is needed to coping risk of climate change. The purpose of this study was to conduct a supply-side analysis in the agricultural insurance market due to changes in the Indonesian context. Analytical techniques conducted in this research is descriptive analysis. Data collection method used is interview, literature study and field study. Based on law No. 19 of 2013 on Farmers Protection and Empowerment and Regulation of the Minister of Agriculture No. 40 /Permentan/SR.230 /7/2015 as the basis for the implementation of Agricultural Insurance Facility encourages the supply of agricultural insurance in Indonesia. The government and PT Jasindo collaborate to cover agricultural risks especially in climate change causes. PT Jasindo is a sole insurer that has been recommended by government to protect farmers by subsidy. The supply of agricultural insurance is still limited to rice crops. Agricultural insurance in Indonesia can run because the payment of agricultural insurance premiums are subsidized by the government.

### INTRODUCTION

Climate change may increase the risk experienced by agricultural sector. The risk can impose financial loss to farmer. The loss from climate change may be realized in material and non-material loss, such as fatalities, environment damage, capital loss, and psychological impact (Law number 24 of 2007). However, the impact does not necessarily make people and businessman to seek for an alternative protection to reduce the risk of loss. This due to their awareness to conduct a protection from the impact of disaster is still low.

The tendency of worsening climate change, the increase in vulnerability toward natural disaster, and risks that inflict financial loss are several factors that encourage the government to provide a protection. The protection of risk of loss as a result of climate change can be minimized by insurance. Insurance, in the Law No.2 of

1992 regarding insurance business is an agreement between two parties or more in which the insurer bind themselves to the insured by accepting insurance premium, and to provide compensation to the insured for their loss, damage or loss of expected profit, or legal responsibility from the third party that might be borne by the insured due to uncertain event, or provide payment based on the living condition (died or alive) of a person who is insured. Pasaribu (2010), the development of insurance for paddies plantation can reduce loss to 75% including the loss caused by floods, drought, and pest attack. Suryanto (2015) conducts research on agricultural insurance for farmers in Surakarta, the results show that the factors that affect the demand of insurance for farmers in Surakarta are the level of income, level of education, type of disaster, and their residential area. Meanwhile, from the supply side, company must increase the use of information technology, human resource



quality, and develop partnership to be able to compete with other insurance company.

The government regulates the protection through the Republic of Indonesia Number 19 of 2013 regarding the Protection and Empowerment of Farmers. However, the foundation for the implementation of Agricultural Insurance Facility is Agricultural Ministry Decree Number 40/Permentan/SR.230/7/2015, which aims to provide facilities and protection in assuming plantation business risk to encourage the development of agricultural insurance in Indonesia. As the follow-up of the decree, the government try to protect farmers by appointing BUMN (State Owned Enterprise) Asuransi, PT Jasindo (Persero), and the sole insurer for farmers who experience crop failure. Indonesia as a country that has high vulnerability toward natural disaster opens wide opportunity for insurance company to offer products related with the loss caused by disaster. However, even though government has provided protection against the risk of climate change, farmers and business people as the party who bear the risk still have low awareness to insure their loss. This low awareness can be caused by various factors, among other distrust toward company, the difficulty in claiming their insurance, and the high premium they should pay.

The tight competition in the insurance industry needs analysis on the factors that determine demand in the insurance market, such as premium payment, offered protection system, and facility or infrastructures owned by the company. Beside, to increase people awareness and trust toward insurance company, insurance company has to implement proper business strategy. The strategy may become strength for an insurance company to win in the competition in promoting its products.

## METHOD

This study is carried out with descriptive quantitative approach. Insurance company that provides coverage for loss in Indonesia is selected to be studied. The subject studied in this occasion is PT Asuransi Jasa Indonesia (Jasindo). Descriptive technique is used to analyze the data, which is collected through interview, literature study, and field study. The combination of various techniques in collecting data is expected to generate valid information for the analysis of agricultural insurance supply. The secondary data needed for analysis are: total number of companies that offer agricultural insurance product, premium establishment, number of customers, and characteristic of customers.

## RESULT AND DISCUSSION

### **The Analysis for the Market of Loss Insurance in Indonesia**

The company that offers loss insurance is a company that offers a service in the mitigation of risk for loss, lost benefits, and legal responsibility for the third party, which appears as a result of uncertain event. Loss insurance is included in the general insurance. Insurance companies in Indonesia that offer loss insurance product with premium above 200 billion rupiah are Asuransi Tugu Pratama, Asuransi Jasa Indonesia, Asuransi Adira Dina, Asuransi Astra Buana, and Zurich Insurance Indonesia. While insurance companies with premium below 200 billion rupiah from the first place to the fifth place are Asuransi Bintang, Asuransi Samsung Tugu, Asuransi Permata Nipponkoa Indonesia, Tugu Kresna Pratama, and ACE Insurance.

The product that can be insured in the loss insurance are varies, from house, motorbike,

car, students, claim for lawsuit toward midwives profession, agriculture, etc. The diversification in the insured products is

expected to provide wide offers for the community.

Table 1. The Growth in the Number of Insurance Companies 2011-2015

No	Note	2011	2012	2013	2014	2015
1	Life Insurance	45	47	49	50	55
2	General Insurance	85	84	82	81	80
3	Re-insurance	4	4	4	5	6
4	Social Security Administrator	2	2	2	2	2
5	Compulsory Insurance Administrator	3	3	3	3	3
6	Total companies (point 1-5)	139	140	140	141	146
7	Insurance Broker	138	150	153	157	166
8	Re-insurance Broker	27	29	29	31	37
9	Assessors of Insurance Loss	27	26	25	26	28
10	Total (point 7-9)	192	205	207	214	231
11	Total (point 1-11)	331	345	347	355	377

Source: Indonesia Insurance Statistic, 2015

Based on the data, there are 80 general insurance companies that offer loss insurance. Among these companies, only one company appointed by the government to provide agricultural insurance service, PT Asuransi Jasa Indonesia (Jasindo).

#### Market Potency for Loss Insurance

Loss insurance companies in Indonesia have wide market potency, observed from the growth in gross premium, gross claim, total assets, and total investment for general insurance companies from 2011-2015.

Table 2. Gross Premium based on Types of Business 2011-2015

Year	General Insurance and re-Insurance	Growth (%)	Life Insurance	Growth (%)	Social Insurance	Growth (%)	Compulsory Insurance	Growth (%)
2011	38.83	21.2	93.99	24.4	6.75	17.8	13.54	14.7
2012	44.91	15.7	107.94	14.8	7.81	15.7	15.23	12.5
2013	53.19	18.4	113.22	4.9	10.35	32.5	16.31	7.1
2014	54.67	2.8	112.88	0.3	69.44	570.9	10.29	-36.9
2015	60.25	10.2	135.13	19.7	88.97	28.1	11.21	8.9

Source: Indonesia Insurance Statistic, 2015

Table 3. The Growth of Gross Claim compared to Gross Premium 2011- 2015

Year	General Insurance and re-Insurance	Life Insurance	Social Insurance	Compulsory Insurance	Total Claim (a)	Growth/Decline (%)	Total Gross Premium (b)	Ratio (a/b)
2011	15.05	59.19	3.51	10.03	87.78	4.8	153.13	57.3



2012	20.19	70.89	3.85	12.73	107.66	22.6	175.89	61.2
2013	21.59	75.20	4.71	14.80	116.30	8.0	193.06	60.2
2014	27.93	71.82	56.66	7.01	163.42	40.5	247.29	66.1
2015	33.22	82.83	75.00	6.70	197.75	21.0	295.56	66.9

Source: Indonesia Insurance Statistic, 2015

Table 4. Total Assets of Insurance Industry 2011-2015

Notes	2011	2012	2013	2014	2015
Life Insurance	228.8	270.29	293.74	368.06	378.03
General Insurance	54.67	71.96	100.99	116.46	124.01
Re-insurance	3.21	4.69	6.45	10.29	14.81
Social Insurance	121.93	144.96	162.16	209.41	226.92
Compulsory Insurance	79.14	92.12	96.18	108.46	109.65
Total	481.75	584.02	659.72	807.68	853.42

Source: Indonesia Insurance Statistic, 2015

Table 5. Total Investment of Insurance Industry 2011-2015

Notes	2011	2012	2013	2014	2015
Life Insurance	203	239.79	253.21	318.49	327.68
General Insurance	39.9	47.95	56.9	56.81	60.41
Re-insurance	2.5	3.49	4.34	6.80	9.99
Social Insurance	117.5	139.68	156.96	193.49	211.00
Compulsory Insurance	56.7	66.41	67.04	72.77	77.04
Total	407.32	497.32	538.45	648.37	686.12

Source: Indonesia Insurance Statistic, 2015

#### PT Asuransi Jasa Indonesia (Jasindo)

The perseverance of Asuransi Jasa Indonesia is built through long history of development which initiates the industry in its field. Starting from the nationalization of Netherlands insurance companies, including NV Asurantie Maatschappij De Nederlanden and Bloom Vander in 1845 which located in Jakarta, both companies are insurance companies in loss insurance that provides protection against the risk in plantation and similar business. After the Indonesia independence, loss insurance companies belong to Netherlands and UK is nationalized into PT. Asuransi Bendasraya and PT. Umum Internasional Underwriters (PT. UIU). This policy is taken based on the Law Number 86 of 1958 regarding Nationalization of Netherlands companies in

the Republic of Indonesia territory. This nationalization aims to provide maximum service for the society, strengthen security and national economy.

With the development in Indonesia, government makes a policy to merge several businesses. Through the Ministry of Finance Decree Number 764/MK/IV/12/1972 ratified in 2 June 1973, PT. Asuransi Bendasraya which operates in rupiah insurance and PT. Umum Internasional Underwriters (PT. UIU) which operates in foreign exchange insurance are merged into a company named Asuransi Jasindo. The experience in loss insurance since the colonial era provides special value for the existence and the development of Asuransi Jasindo this day and in the future.



Asuransi Jasindo is stronger from year to year as reflected in its performance that keeps improving. Asuransi Jasindo also receives support from its partner company, Swiss-RE and Partner-RE, which strengthen Asuransi Jasindo position as international level insurance company. The vision of this company is to become a trusted and reliable insurance company, while its mission is to conduct insurance business with high quality services and keep trying to generate sustainable profits.

#### **Agriculture Insurance Product offered by PT Asuransi Jasindo**

Agricultural insurance is a program prepared by the Ministry of Agricultural together with PT. Jasindo in a partnership to develop and maintain food security in Indonesia, in order to reduce import of rice which may harm Indonesia economy. To this day, Indonesian government only provide assistance by distributing seed and fertilizer to farmers when they experience loss due to uncertain climate, pests, natural disasters, and other causes. In this case, PT. Jasindo as insurance company is expected to offers compensation for the risk of crop failure to farmers who experience loss.

As an insurance company trusted by the government, PT. Jasindo feels so called to provide protection for very wide agricultural business. In implementing its operational activities, the company aims for the effective and efficient pathway by conducting socialization. The activity aims to deliver knowledge to farmers regarding the importance of agricultural insurance and to eliminate negative point of view from people toward insurance.

Asuransi Jasindo does not wish to urge farmers to apply for the insurance. Most of farmers are reluctant to apply for insurance because they have no stable income. Based on this fact, Asuransi Jasindo

tries to facilitate farmers by offering affordable premium. The agricultural insurance applies quota system, because it should be matched with the needs of farmers who want to apply for the insurance. Asuransi Jasindo as an insurance company will give compensation if there is claim filed. The compensation is given based on the area of lands owned by the farmer.

As a developing country, Indonesia faces an incredibly heavy duty. In the insurance field, PT. Jasindo also experience two equally important challenges. On the one hand PT. Jasindo is expected to increase people awareness to insurance, especially farmers by entice them to insurance, and provide protection in agriculture business. On the other hand, PT. Jasindo have to take control and develop knowledge in agricultural insurance field to be able to provide laudable service, support economic growth in maintaining today and future food security in Indonesia.

Agricultural insurance includes crop insurance and cattle insurance. Crop insurance offered by PT Jasindo only covers paddies. PT Jasindo in implementing the insurance will receive assistance from the Department of Agriculture. The Department of Agriculture will assist PT Jasindo in determining customer's feasibility to accept their claim or not. The government in partnership with PT Jasindo determines the area of agricultural business based on the condition and potential of natural resources, human resource, and artificial resources, provide an assurance of agriculture product marketing to farmers who perform plantation as governmental program, provide property tax reduction for productive and sustainable agricultural fields, and realize supporting facilities for agricultural products. PT Jasindo will only serve farmers who join small farmers group because the agricultural insurance offered by PT Jasindo is for protection against harvest

loss caused by natural disaster, organism attack/pests, outbreak of contagious animal disease, effect of climate change, and another types of risk.

PT Jasindo currently only offers coverage for paddies, or goes with the Asuransi Usaha Tanaman Padi (AUTP) scheme. The government, besides providing insurance through a partnership with PT Jasindo also distribute subsidy in the form of seeds, fertilizer, and or agriculture tools or machinery according to the farmer's needs. The subsidy must be delivered effectively, right on target, time, location, types, quality, and numbers. The subsidy is distributed mainly to farmers with sustainable agricultural lands.

#### Insurance Premium

Farmers pay insurance premium with their own money and through subsidy. Farmers who apply for insurance have to pay a premium of Rp 180.000/hectare/planting season. Around 80% of the premium is subsidized by the government. If farmers experience crop failure >75%, farmers will receive compensation of Rp 6.000.000. In contrary, if farmers do not face crop failure, their premium will not be returned to them. Farmers who receive premium subsidy must be joined in farmers group and have and active management. The protection is provided for:

1. Farmers who plant on other's land and have no farm of their own, with maximum area of plantation of two hectares.
2. Farmers who own agricultural lands and perform food plantation on the maximum two hectares area.
3. Horticulture, plantation, and animal husbandry in a small scale according to the prevailing regulation.

#### CONCLUSION AND SUGGESTION

##### Conclusion

Agricultural insurance can become a solution for the risk of loss caused by climate change. PT Asuransi Jasa Indonesia (Jasindo) is appointed by the government to provide insurance service for farmers who join farmer group. The offered agricultural insurance is still limited to paddies or implemented under Asuransi Usaha Tanaman Padi (AUTP) program. Agricultural insurance in Indonesia can be realized because the premium is subsidized by the government.

##### Suggestions

1. Policy maker can formulate an incentive and subsidy for insurance company that offers agricultural insurance product. The market potential for insurance company is very wide open, since several areas in Indonesia are the center for paddies production.
2. The determination of premium need to consider the risk faced by farmers. The premium determined without considering the risk will leads to moral hazard and adverse selection.

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