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Editorial Note

Knowledge Sharing as a Key for Achieving the SDGs

The Sustainable Development Goals (SDGs) are global framework to triumph an improved future and further sustainable for all. They address the world we face in three dimension including economic, social and environmental. The SDGs cover 17 issues related poverty, food security, social equality, environmental, health, peace and justice and others. The 17 goals area are all integrated and interconnected and they will required global action to achieve in 2030. Covid-19 pandemic, for example, which is now spreading almost over of the countries marking that all countries need hand in hand to tackle such pandemic that threaten an achievement of one of the 17 goals--health and well-being. As sustainable development then is not only responsible for a certain country, we should take the actions and contribute to adopt and implement the framework into policies through different approaches and roles.

National Development Planning Agency (Bappenas)--one of the leading sector to manage nationally SDGs in Indonesia—plays important roles ensuring SDGs will work well. Efforts have been made to integrate SDGs issues into both national and regional development plans. Disseminations, pilot projects and trainings have been done to support the implementation of SGGs. However, it is not clear whether there has been a knowledge management to document, display, share and discuss related to SDGs issue in more academic approaches.

To respond the gap, the Centre for Planners' Development , Education and Training (CPDET) known as Pusbindiklatren Bappenas collaboration withIndonesia Development Planners Association (PPPI), initiated to publish the Journal of Indonesia Sustainable Development Planning (JISDeP). CPDET has a roles to develop capacity and competency of planners in central and regional government through degree and non-degree or training programs either in domestic and overseas. The degree programs include regular master, master linkage, and doctoral program. Under Ministry of Education's regulations, all under and graduate students should publish paper as one of the requirement for graduation. CPDET also has a task to develop and facilitate non-structural planners or known as *Fungsional Perencana*. Therefore, JISDeP is aims at twofold: to contribute the development of SDGs policies and to facilitate planners as well as students receiving scholarship from CPDET.

JISDeP is three times a year journal, started since early of year 2020. It is expected that the journal is able to cover issues of sustainable development from around the world to later be used as policy material in sustainable development planning in Indonesia, developing countries, and the world in general. JISDeP therefore greatly invites students, professor, researchers, policy makers, planners and others professions to submit any issue related to SDGs both in the form of research papers, policy papers, project evaluation and reports, policy reviews, commentaries and book reviews.

In this first issue, there have been 13 papers submitted and only 8 papers have been accepted. The articles include research papers, policy papers or reviews and commentary. They cover and discuss

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various issues such as politics, economics, social, culture and environment.All accepted papers have been reviewed by high qualification reviewers in their fields ranging from professors, researchers, senior policy makers, and professional diversities both from domestic and overseas affiliation.

On behalf of the JISDeP journal, we wish to extend our warm welcome and would like to thank for all the editorial board members, peer reviewers, and authors, for their efforts, guidances, contributions, and valuable supports. Our gratitude also goes to all people involving in publishing this JSDeP such as secretariat team, information and technology members, production team, and financial supports.

Wignyo Adiyoso, S.Sos., MA., Ph.D.
Editor in Chief

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Research Paper

Rice Farmer Risk Management by Cropping Pattern Diversification in Rural West Java:

Motivation, Behavior, and Perception

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Abstract

The Indonesian government have implemented agricultural production cost insurance since 2015 called *Asuransi Usaha Tani Padi (AUTP)*. It is an issue that the rate of farmer participation in the insurance is still low. As a challenge to increase participation, it becomes important to be aware of motivation, behavior, and perception that influence the practical risk management of farmers. This study investigated the relationship between cropping pattern diversification (as risk management) and factors such as motivation, behavior, and perception. Based on a field survey of 240 smallholder farmers in Garut District, West Java Province, these were the characteristics of farmers who practiced cropping pattern diversification: (1) high-risk perception (impact and probability); (2) risk-averse; and (3) economic motivation. The study revealed that approximately one-third of farmers had risk-neutral and low-risk perceptions of whom approximately 70.7 percent practiced single cropping patterns. They may not adopt any risk- coping strategies unless they are aware of the risks that they face. Improving awareness about the negative impacts of risks on income from farming might encourage them to adopt risk-coping strategies for both on-farm risk coping (such as cropping pattern diversification) and off-farm risk-coping (such as agricultural insurance).

Keywords: Farmer risk management, motivation, risk behavior, risk perception, rural West Java

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1. Introduction

In Indonesia, agricultural production has been threatened by the increase in risks due to climate change. National Disaster Management Authority (BNPB) (2017) reports that the number of drought and flood disasters had doubled from 2005 to 2015. According to the Minister of Agriculture (2017), there was a rise in the number of pest and disease occurrences from 2014 to 2017. Moreover, because of El Nino Southern Oscillation, the risk in farming increased significantly. For example, when the dry season period was longer due to the El Nino, this made the wet season delayed (Supari et al., 2018) and accordingly resulted in failure in production of the wet season (Naylor et al., 2007).

As an innovative strategy to cope with risks, the Indonesian government had implemented agricultural production cost insurance for smallholder rice farmers since 2015 to reduce the adverse impact of risks (from climate change) on farmer prosperity. Unfortunately, the participation rate in 2016 was still approximately 23 percent of the target rice farmers (Jasindo, 2017). It implies issues of sustainable rice farming as well as food security.

Corbett (1988) and Zimmerman & Carter (2003) stated that the first line of farmer efforts to reduce the adverse impacts of risks is modifying farming practices (on-farm strategy). One of the most important on-farm strategies is diversification of cropping patterns (Binswanger, 2012; Carter, 1997). To minimize risks in farming, farmers try to find the best combination of crops or cropping patterns that can maximize the output in a year (Hardaker et al., 2015). Encouraging more rice farmers to take up agricultural insurance, as far as agricultural insurance is an ex-ante risk coping strategy, it could be the first step to being practically aware of current risk management of farmers through cropping pattern diversification.

Farmers decide their cropping patterns based on their economic, technical, and social motivations for farming (Gasson, 1973; Greiner et al., 2009). In the process of selecting cropping patterns, risk perception plays an essential role. Farmers might have different perceptions about outcomes and risks when they select a certain type of innovation, including cropping pattern (Anderson et al., 1988). Another aspect is the farmer risk behavior. For instance, Feder (1980), Kabede (1992), and Moscardi & de Janvry (1977) reported that risk behavior is associated with the level of technology adoption and the level of input allocated for production. Therefore, this study has the aim to clarifying the feature of farming motivation, behavior, and perception of farmers that underlie their practical cropping patterns in rural West Java, focusing on risk management.

2. Methodology

2.1 Framework

As shown in Figure 1, the selection of cropping patterns must be influenced by three factors: risk in farming, behavior towards risk, and motivation for farming. Risk in farming is perceived as a risk impact and risk probability (Rogers & Prentice-Dunn, 1997).

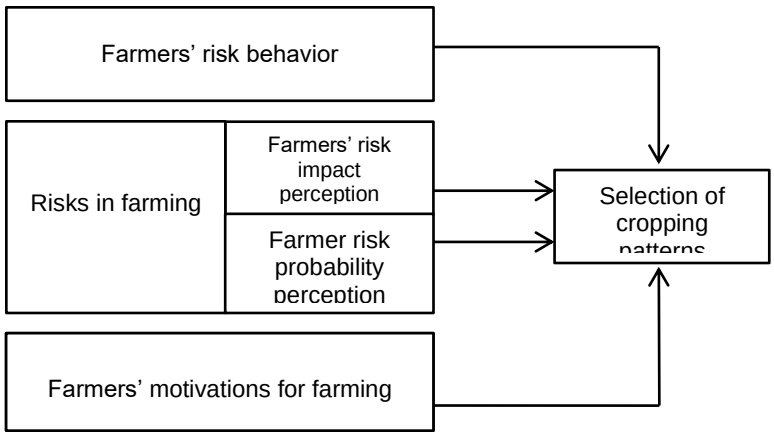


Figure 1. The framework used in the study

There are various risks in farming, which are grouped as production, price, personal/human capacity, government policy, and finance (Harwood et al., 1999; Hardaker et al., 2015). Production risk is related to

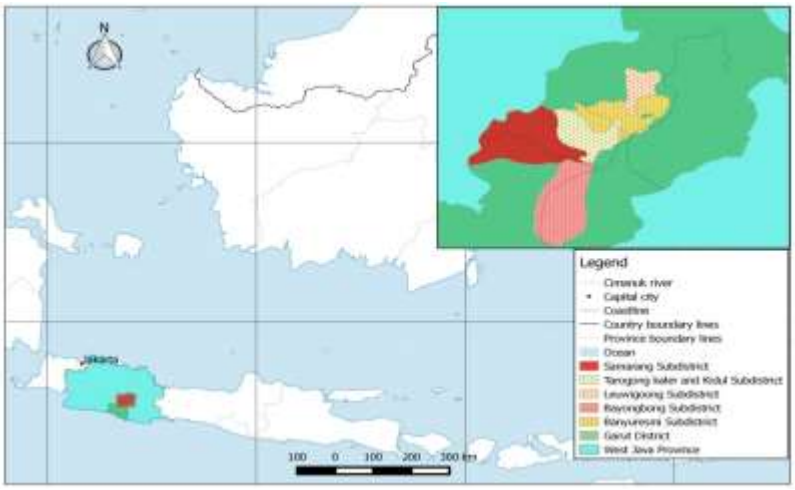
soil fertility, water availability, and unpredictable weather (Loomis et al., 1971; DiFalco & Chavas, 2009). The risk of price change/fluctuation in products and inputs is influential in the sustainability of farming, owing to high cost and low profits. Government policies and regulations, such as import policy, more taxes, and high products standards, might have adverse impacts on farming income (Goetz & Zilberman, 2007). Personal/human risk is associated with poor health or injury. Financial risk is related to losing assets owing to production failure (Harwood et al., 1999).

Farmers have different preferences of risks in farming. Those who are risk-averse might try to reduce the adverse impact of risk exposure by taking risk-coping strategies (DiFalco & Chavas, 2009; Menezes et al., 1980). The other two preferences are risk-neutral and risk-taker preferences.

It has been said that rational farmers pursue profit maximization in farming (Binswanger & Rosenzweig, 2007; Gasson, 1973). However, farmer motivations for farming are not limited to profit maximization. They may include technical, cultural, and social motivations. As understood through indigenous knowledge or tradition, some crops are resilient to risks and indispensable to livelihood, which is likely to be one reason for willingness to cultivate crops with lower profit in cropping patterns. Some farmers might select a cropping pattern to technically adapt to biological and geographical conditions such as soil fertility and water availability (Leemans & Born, 1994).

2.2 Data Collection

Garut District was selected as the study area (Figure 2). The district is one of the agricultural production centers in the West Java Province, located within 64 masl to 1,300 masl, where farmers produce paddy, corn, groundnuts, chili, mustard, cabbage, tomato, and others (CBS, 2016) because of its agro-climatic condition. Currently, the district has become one of the most vulnerable areas to disasters, especially floods and droughts (BNPB, 2017). Participation of farmers in agricultural production cost insurance in 2016 was one of the lowest among the districts in the province (Jasindo, 2017).[1] There are two seasons in the study area: wet season and dry season. The wet season is from September to May, while the dry season is from June to August. The highest average monthly precipitation during the last five years in the West Java Province occurred in December (339.5 mm), while the lowest one in August (50.1 mm) (CBS, 2017).



Source: modified from Geospatial Information Agency (BIG) (2017).

Figure 2. Location of study area

[1] Farmer participation in agricultural production cost insurance in 2017 in West Java Province was 36.9 percent from the target (112,213 ha out of 304,000 ha), while in Garut District was 24 percent from the target (1,920 ha out of 8,000 ha) (Ministry of Agriculture, 2018).

Field surveys were first conducted from August to October 2017 and again in February 2018 in the northern part of Garut District. With a 95 percent confidence level (Z = 1.96), 50 percent degree of variability, and 7.5 percent margin error, 240 farmers who had not yet utilized agricultural production cost insurance were selected by multistage cluster sampling. Six sub-districts[2] were chosen from 21 sub-districts: two sub-districts each in the upstream, midstream, and downstream areas of the Cimanuk River in the district. These sub-districts are located in different altitudes: Bayombong (973 masl) and Semarang (815 masl) were in the upstream area, Tarogong Kaler (731 masl) and Tarogong Kidul (714 masl) were in the midstream area, and Banyuresmi (698 masl) and Leuwigoong (638 masl) were in the downstream area (CBS, 2016). From each sub-district, two villages were randomly selected, and 20 farmers were selected from each village. Face-to-face interviews were conducted with focus on motivation in farming, perceptions on faced risks, cropping patterns, and crops cultivated in each crop season during the period from 2012-2016. At the end of the interview, a game to measure risk behavior was played.

2.3 Data Measurement

2.3.1 Motivation for Farming

Farmers were asked to select their motivations for farming. They were allowed to mention a specific motivation that was not in the list of choices. There were eleven motivations in the list that could be divided into economic, cultural, and technical motivations (Table 1), and they could select one or more motivations.

Table 1. List of motivations

Type	Motivation
Economic	Gain higher profit
	Attain higher yield
	Avoid commodity price fluctuation
	Avoid higher input cost
	Get a higher cash flow
	Follow market demand
Cultural	Never change the crop grown
Technical	Have knowledge and skill
	Reduce the occurrence of pests and diseases
	Reduce the impacts of environmental factor change
	Improve soil fertility

2.3.2 Risk Behavior

There are different approaches to measuring farmer risk behavior. For example, Mariano et al. (2012) use the existence of crop diversification as an indicator of risk behavior. Greiner et al. (2009) appllied the relative risk attitude method. Feder (1980) and Moscardi & de Janvry (1977) took the amount of fertilizer used in production to measure the risk behavior characteristics. Schechter (2007) used a risk game (an economic experiment) to measure the risk behavior of indigenous people in rural areas. For the present study, the risk game was more appropriate for measuring farmers' risk behavior than the other approaches because diversification of cropping patterns involves decisions on financial asset allocations, which is similar to the nature of the risk game. Moreover, as an advantage, the risk game enables measurement of farmer risk behavior, specifically in the form of continuous data.

At the end of a face-to-face interview at the houses of farmers in the afternoon, after farming work was complete, the risk game was played as follows. Based on the risk game by Schechter (2007), the farmer is given real money of Rp. 30,000 ($2.2). This is approximately two-thirds of the daily wage in the villages of the study (Rp. 50,000 = $3.7). The proportion of the value of money used in the game to the daily wage is almost equal to that in the risk game conducted by Schechter (2007). The daily wage is a meaningful reference for the risk game because the farmer will try to generate income for the day that is at least equal to the daily wage in the location. If the farmer could not get income on the day when the risk game was played, he or she was given Rp. 30,000, but this is still low compared to the daily wage of Rp. 50,000 (as the expected income of the day). In the risk game, the farmer has an opportunity to increase Rp. 30,000 to Rp. 50,000 by allocating some money as a bet. In this opportunity, the decision to bet or not depends on individual characteristics. If a farmer has a diminishing marginal utility of wealth,

[2]Sub-districts are subdivisions of a district. Sub-districts are divided into administrative villages. A province consists of several districts.

he or she will avoid allocating the money as a bet. Conversely, if a farmer has an increasing marginal utility of wealth, he or she may try to allocate some amount of the money as a bet.

In the risk game, a farmer can bet the amount of 0 (no bet), 5000, 10,000, 15,000, 20,000, 25,000, or 30,000. The betting farmer takes a piece of paper out of a transparent plastic bag, in which there are six pieces of paper numbered 1 to 6. As shown in Table 2, suppose that he or she bets Rp. 30,000. If the number 6 is printed, he or she could gain Rp. 75,000, while if the number is 0, he or she would lose the Rp. 30,000. In addition, for this study, based on how much of the Rp. 30,000 the farmer wished to bet, his or her risk behavior was categorized as risk-taker, risk- neutral, or risk-averse (Table 3).

Table 2. The rule of the risk game

Result of Bet		
Number Taken in the Game	Value	Meaning
1	0	Lose all of the money allocated for bet
2	0.5 x money for the bet	Gain half of the money allocated for bet
3	1 x money for the bet	Gain all of the money allocated for bet
4	1.5 x money for the bet	Gain one and half of the money allocated for bet
5	2 x money for the bet	Gain two times of the money allocated for bet
6	2.5 x money for the bet	Gain two and half of the money allocated for bet

Source: Schechter (2007).

Table 3. Types of farmers' risk behavior

Value of Money Allocated for Bet	Type
$0 \leq 10{,}000$	Risk-averse
$10{,}000 \leq 20{,}000$	Risk-neutral
$20{,}000 \leq 30{,}000$	Risk-taker

2.3.3 Risk Perception

This study divides risk perception into two kinds: risk impact and risk probability. The former is the farmer perception of the impact of risk on his or her income from farming. The latter is the farmer perception of the probability of risk occurrence. Each perception was measured by a Likert scale, as presented in Table 4.

Table 4. Likert scale for risk perception measurement

Perception	Likert Scale
Risk impact	1= very low, 2 = low, 3 = high, 4 = very high
Risk probability	1= very low, 2 = low, 3 = high, 4 = very high

2.3.4 Diversification of Cropping Patterns

This study focuses on the diversification of cropping patterns as a farming practice to understand farmer risk management in farming. This is because farmers try to minimize the adverse impacts of risks by adjusting cropping patterns (O'Donoghue et al., 2005; Mandal, 2010). There are several methods of estimating the degree of diversification: Herfindahl Index, Simpson Diversity Index, Ogive Index, Entropy Index, Modify Entropy Index, and Composite Entropy Index (Chand & Ramesh, 1996; Kelley & Ryan, 1995; Shiyani & Pandya, 1998). Since the degree of diversification can be captured by incorporating the number of crops planted and the proportion of area cultivated for each crop in a cropping pattern, this study utilized the Composite Entropy Index (CEI) to measure the diversification of the cropping patterns. The following is the equation of CEI:

$$\mathrm{CEI} = \left[-\sum_{i=1}^{N} P_i \log \mathrm{N} P_i\right] \times \left[1 - \frac{1}{N}\right]$$

where N is the number of crops planted, and P_i is the proportion of i^{th} crop to the total cropped area. The value of CEI ranges between 0 and 1. For example, the CEI of two rice crops on the paddy field is 0, since the number of the crop planted is only 1.

2.4 Data Analysis

In this study, Cluster Analysis (CA) was conducted to identify the groups of farmers with similar characteristics based on the value of CEI, motivation for farming, risk behavior, and risk perception. It was also used to describe the overall association between motivation for farming, risk behavior, risk perception, and CEI. Meanwhile, Principal Component Analysis (PCA) was applied to investigate the common factors of motivation for farming and risk perception

3. Results and Discussions

3.1 Farmers' Characteristics

As shown in Table 5, the average age of farmers was 51.9 years old, and the average level of education was approximately 7.5 years. The majority (90.4 percent) of farmers were male. The average per capita expenditure and asset value were Rp. 9.7 million/year and Rp. 98.3 million respectively. Approximately one-third of farmers had a bank account. The highest proportion of landholding arrangement was 48.8 percent of sharecropping, followed by owner (45.8 percent) and rent in cash (5.4 percent). On average, farmers managed 0.43 ha of farmland. The percentage of farmers who implemented cropping pattern diversification was 54.6 percent.

Table 5. Summary of farmer characteristics

Variable	Average, Percentage
Age of farmer (year)	51.9
Education of farmer (year)	7.5
Gender (percentage of male)	90.4
Per capita expenditure (Rp mil/year)	9.7
Asset value (Rp mil)	98.3
Bank account ownership (%)	31.7
Farmland size (ha)	0.43
Type of farmland	
Irrigated farmland (%)	77.1
Rain-fed farmland (%)	22.9
Landholding	
Owner (%)	45.8
Sharecropping (%)	48.8
Rent in cash (%)	5.4
Farmers with the diversification of cropping patterns (%)	54.6

3.2 Cropping Patterns

As shown in Table 6, five kinds of cropping patterns were practiced by farmers in three cropping seasons: (a) paddy-paddy-paddy; (b) paddy-paddy-horticulture; (c) paddy-horticulture- paddy; (d) paddy-horticulture-horticulture; and (e) paddy/horticulture-paddy/horticulture-paddy/ horticulture. The number of cropping patterns practiced by a farmer during the last five years ranged between one and four.

One hundred and nine farmers (45.4 percent) practiced just a single cropping pattern of paddy-paddy-paddy. There were 63 farmers (26.3 percent) who practiced a combination of three cropping patterns by selecting three out of four cropping patterns. The majority (58) of these farmers selected the combination of paddy-paddy-paddy, paddy-paddy-horticulture, and paddy- horticulture-paddy. The value of CEI for the combination of three cropping patterns ranged from 0.28 to 0.56. There were 42 farmers (17.5 percent) who selected two out of four cropping patterns, and the value of CEI ranged from 0.17 to 0.46. The majority (32) of these farmers selected paddy-paddy-paddy combined with paddy-paddy-horticulture. In contrast, there were fewer farmers (26 farmers, 10.8 percent) who practiced four out of five cropping patterns, and the value of CEI ranged from 0.29 to 0.61. In this group, the majority (20) of

these farmers practiced the combinations of paddy-paddy-paddy, paddy-paddy-horticulture, paddy-horticulture-paddy, and paddy-horticulture-horticulture.

As for the preference of cropping patterns by farmers of among the downstream, midstream, and upstream areas, there were differences in the practiced cropping patterns. (1) In the downstream area, the majority of farmers practiced one cropping pattern; (2) in the midstream area, the majority of farmers practiced three cropping patterns (32 farmers, 40 percent) and one cropping pattern (27 farmers, 33.7 percent); and (3) in the upstream area, the majority of farmers practiced one cropping pattern. The percentage of farmers who practiced four cropping patterns compared to those in the other areas is the highest.

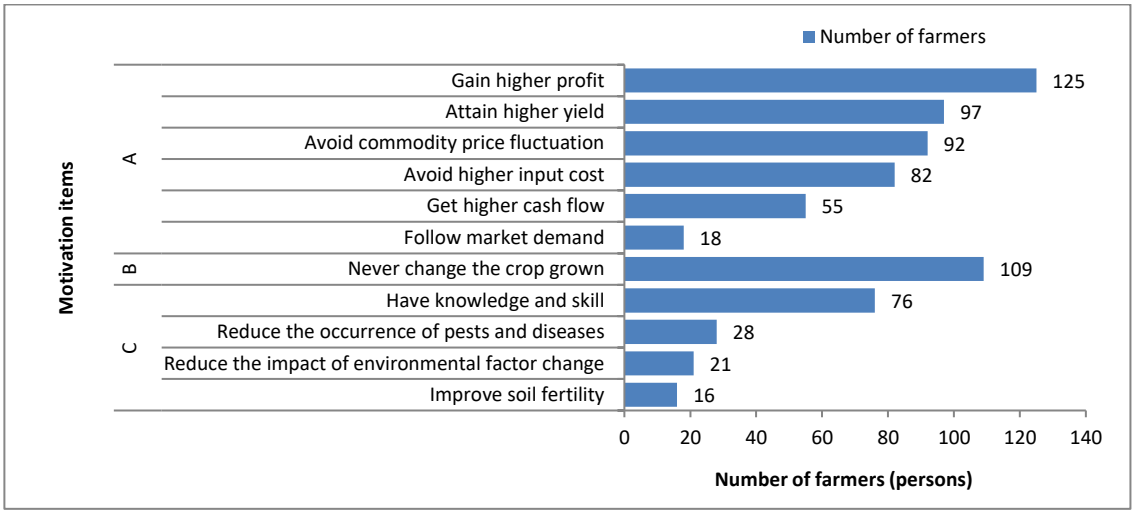
Table 6. CEI and the number of farmers by cropping patterns

Number of Cropping Patterns	Cropping Pattern Selected					CEI	Number of Farmers				
	a	b	c	d	e		Down-stream	Mid-stream	Up-stream	Total	%
1	+					0	46	27	36	109	45.4
	+	+				0.17-0.46	10	17	5	32	13.3
	+		+			0.17-0.44	2	1	1	4	1.7
	+			+		0.28-0.44	3	1	2	6	2.5
	+	+	+			0.28-0.56	16	32	10	58	24.2
	+	+		+		0.28-0.51	1	0	4	5	2.1
	+	+	+	+		0.29-0.59	1	2	17	20	8.3
	+	+	+		+	0.44-0.58	0	0	2	2	0.8
	+	+		+	+	0.44-0.51	1	0	2	3	1.3
		+	+	+	+	0.61	0	0	1	1	0.4

Note: + = cropping pattern selected; a = paddy-paddy-paddy; b = paddy-paddy- horticulture; c = paddy-horticulture-paddy; d = paddy-horticulture-horticulture; e = paddy/horticulture-paddy/horticulture-paddy/horticulture.

3.3 Farmers' Motivation

As shown in Figure 3, the main motivations for selecting crops were "Gain higher profit" (125 farmers, 52.1 percent), "Never change the crop planted" (109 farmers, 45.4 percent), "Attain higher yield" (97 farmers, 40.4 percent), and "Avoid commodity price fluctuation" (92 farmers, 38.3 percent). As a whole, economic objectives were the major motivation of farmers.



Note: A = economic motivation; B = cultural motivation; C = technical motivation.

Figure 3. The rank of farmers' motivations for farming

As for the range of motivations, the majority (208 farmers, 86.7 percent) had more than one motivation. There were approximately 63 combinations of farmers' motivations. Table 7 presents the top 10 farmer motivations (of 147 farmers, 61.3 percent). There were differences in farmer motivations among the downstream, midstream, and upstream areas. In the downstream area, the majority of farmers (18 farmers, 22.5 percent) were driven by three economic motivations: "Gain higher profit +

Attain higher yield + Avoid commodity price fluctuation". In the midstream area, two combinations of two motivations, "Avoid higher input cost + Never change crop grown" and "Avoid higher input cost + Have knowledge and skill", motivated the majority of farmers, approximately 14 farmers (17.5 percent) and 13 farmers (16.2 percent), respectively. Meanwhile, in the upstream area, the majority of farmers (19 farmers, 23.7 percent) were driven by cultural motivation ("Never change crop grown") and a combination of four economic motivations (16 farmers, 20 percent): "Gain higher profit + Attain higher yield + Avoid commodity price fluctuation + Get higher cash flow". As a whole, the combination of farmers' motivation for farming was diversified, but the core motivation was economic, while the single motivation for farming was limited to "Never change crop grown".

Table 7. Top 10 motivation combinations

No	Motivation											Location			Total	
	Economic						Cultural	Technical								
	HP	HY	CP	IC	CF	MD	NC	KS	PD	SF	EC	D	M	U	N	%
1							+					11	2	19	32	13.3
2	+	+	+									18	4	4	26	10.8
3				+			+					7	14	0	21	8.8
4				+				+				4	13	0	17	7.1
5	+	+	+		+							0	0	16	16	6.7
6							+	+				0	12	1	13	5.4
7	+	+					+					7	0	0	7	2.9
8							+		+			5	1	0	6	2.5
9	+		+		+							0	0	5	5	2.1
10	+	+	+					+				0	3	1	4	1.7

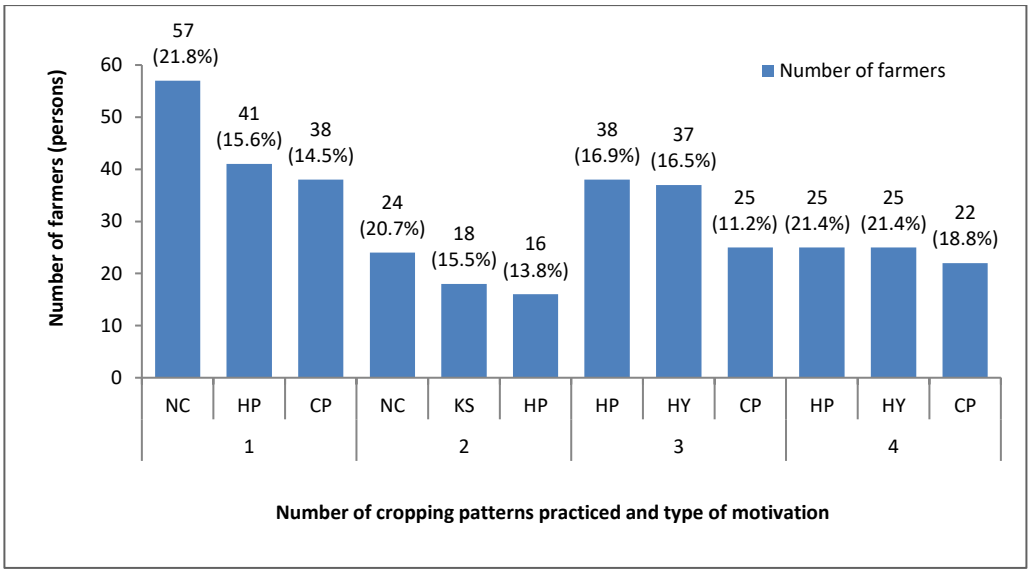
Note: + = motivation selected; N= number of farmers; HP = Gain higher profit; HY = Attain higher yield; CP = Avoid commodity price fluctuation; IC = Avoid higher input cost; CF = Get higher cash flow; MD = Follow market demand; NC = Never change crop grown; KS = Have knowledge and skill; PD = Reduce pests and diseases; SF = Improve soil fertility; EC = Reduce the impacts of environmental change; D = Downstream; M = Midstream; U = Upstream.

Figure 4 presents the top three farmer motivations by the number of practiced cropping patterns. There were several findings:

(1) Cultural motivation ("Never change crop grown") was the main motivation of farmers who practiced one or two cropping patterns. Moreover, these two groups had economic motivation as one of the top three motivations: "Gain higher profit". The difference between farmers who practiced one or two cropping patterns was that farmers who practiced two cropping patterns had technical skill motivation ("Have knowledge and skill"), while farmers who practiced one cropping pattern did not have this motivation.

(2) The economic motivation was the main motivation for farmers who practiced three or four cropping patterns, with "Gain higher profit", "Attain higher yield", and "Avoid commodity price fluctuation" being the top three motivations. The difference between the two groups was that farmers practicing three cropping patterns were more likely to select "Gain higher profit" and "Attain higher yield" as their motivation. Meanwhile, farmers practicing four cropping patterns almost had equal proportions in selecting the three motivations ("Gain higher profit", "Attain higher yield", and "Avoid commodity price fluctuation").

In general, it can be concluded that the number of cropping patterns practiced has a relationship with farmer motivation. For example, "Have knowledge and skill" became an essential motivation for farmers to implement cropping pattern diversification. If farmers have knowledge and skill, they might change their farming practices from one cropping pattern to two cropping patterns.



Note: HP = Gain higher profit; HY = Attain higher yield; CP = Avoid commodity price fluctuation; NC = Never change crop grown; KS = Have knowledge and skill. The percentage was calculated by dividing the number of farmers selected motivation by the number of farmers.

Figure 4. Main Farmer motivations for farming by the number of cropping patterns

3.4 Farmers' Risk Behavior

As shown in Table 8, almost half of the farmers (52.9 percent) had risk-averse behavior. On average, they betted only Rp. 7,142 (24 percent) out of Rp. 30,000, and consequently reduced the Rp. 30,000 to Rp. 28,704 owing to less gain from the risk game, while risk-taker farmers (only 8.8 percent) betted Rp. 25,629 out of Rp. 30,000 (85.4 percent) and increased the Rp. 30,000 to Rp. 36,038 owing to much gains from the risk game. As for risk-neutral farmers (38.3 percent), they betted Rp. 18,750 out of Rp. 30,000, but they had a little gain from the risk game (Rp. 31,848 from Rp. 30,000). On average, risk-taker farmers could increase their value of money compared to risk-averse and risk-neutral farmers. Risk-averse farmers might not increase their value of money because their willingness to bet in a high-risk game was very low. It is of interest that the value of money for risk-neutral farmers did not increase significantly compared to risk- taker. The percentages of the risk-taker, risk-neutral, and risk-averse farmers who could increase the value of the money were 62 percent, 83 percent, and 41 percent, respectively.

As shown in Figure 5, it can be seen that (1) risk-averse farmers diversified cropping patterns; (2) risk-taker farmers remained with a single cropping pattern of triple rice crops; and (3) risk-neutral farmers had a diverse number of practiced cropping patterns, but the majority practiced the single cropping pattern of triple rice crops.

Table 8. Result of the risk game

Risk Behavior	Average Money Allocated for Betting (Rp)	Number of Farmers (%)	Average Money Gained from Betting (Rp)	Average Money Owned after Betting (Rp)	Number of Farmers with the Amount of Money ≤ Rp30,000 and Rp30,000 < after Betting	
					≤Rp 30,000	Rp30,000 <
Risk-taker	25,629	21 (8.8%)	31,667	36,038	8 (38%)	13 (62%)
Risk-neutral	18,750	92 (38.3%)	20,597	31,848	16 (17%)	76 (83%)
Risk-averse	7,142	127 (52.9%)	5,846	28,704	75 (59%)	52 (41%)

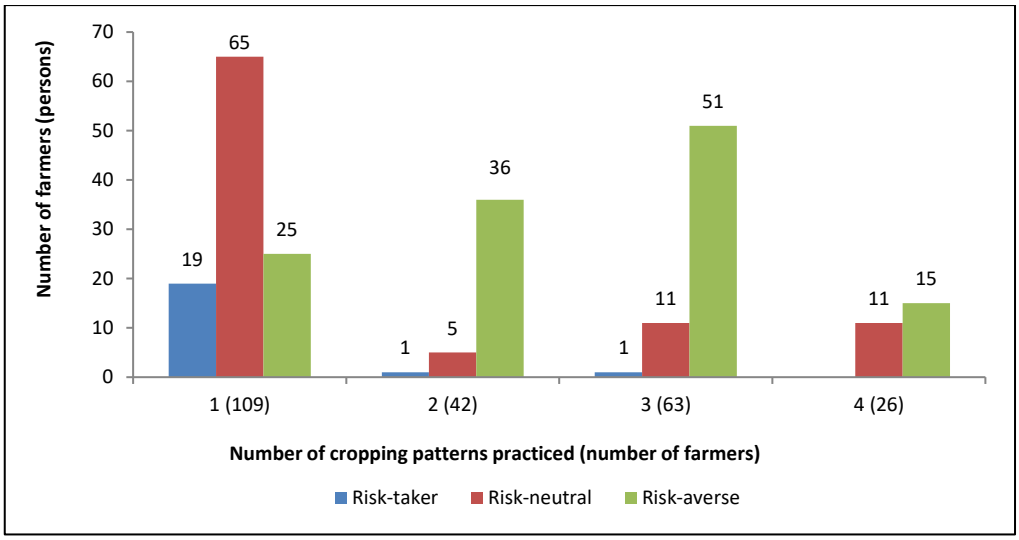


Figure 5. Farmers' risk behavior by the number of cropping patterns

3.5 Farmers' Risk Perception

As shown in Figures 6 and 7, as far as top five risk perceptions were concerned, there were some interesting findings on farmer risk perception (impact and probability) in the downstream, midstream, and upstream areas:

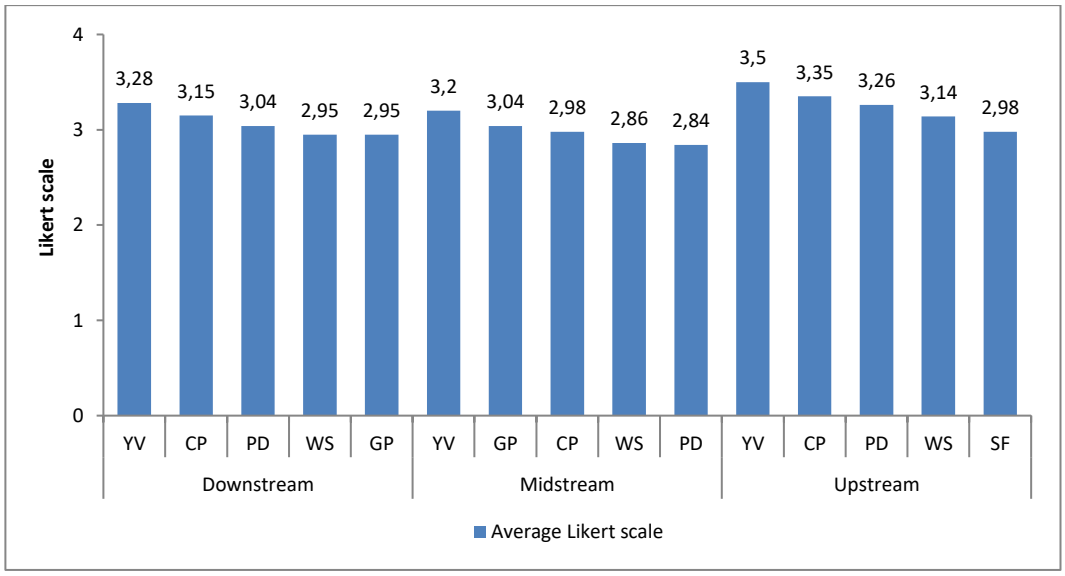
(1) Risk impact perception

(a) "Yield variability", "Commodity price", "Pests and diseases", and "Water scarcity" were common risks that had impacts on farming income in the downstream, midstream, and upstream areas.

(b) "Yield variability", "Commodity price', "Pests and diseases", and "Water scarcity" had impacts on farmers in the upstream area compared to farmers in downstream and midstream.

(c) "Government policy" was a common risk that impacted on farming income in the downstream and midstream areas.

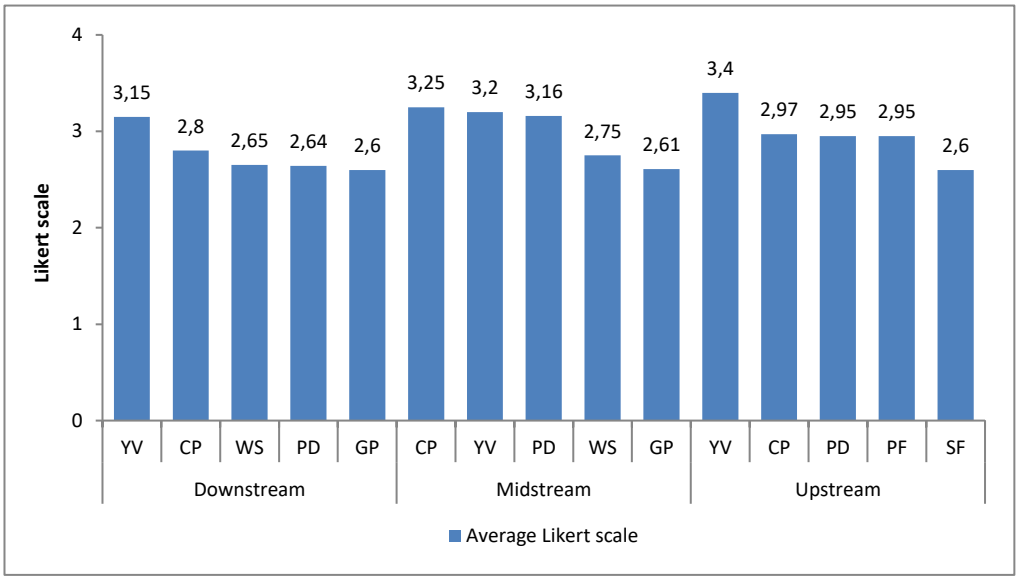
(d) "Soil fertility" risk was limited to farmers in the upstream area.



Note: YV = Yield variability; PD = Pests and diseases; CP = Commodity price fluctuation; WS = Water scarcity; GP = Government policy; SF = Soil fertility; 1= very low; 2 = low; 3 = high; 4 = very high.

Figure 6. Risk impact perception

(2) Risk probability perception
   (a) "Yield variability", "Commodity price', and "Pests and diseases" were common risks that occurred in the downstream, midstream, and upstream areas.
   (b) "Yield variability" was the risk with the highest probability to occur both in the downstream and upstream areas, while in the midstream area was "Commodity price fluctuation".
   (c) "Water scarcity" and "Government policy" were risks that commonly occurred in the downstream and midstream areas.
   (d) "Pollination failure" and "Soil fertility" were limited to farmers in the upstream area.



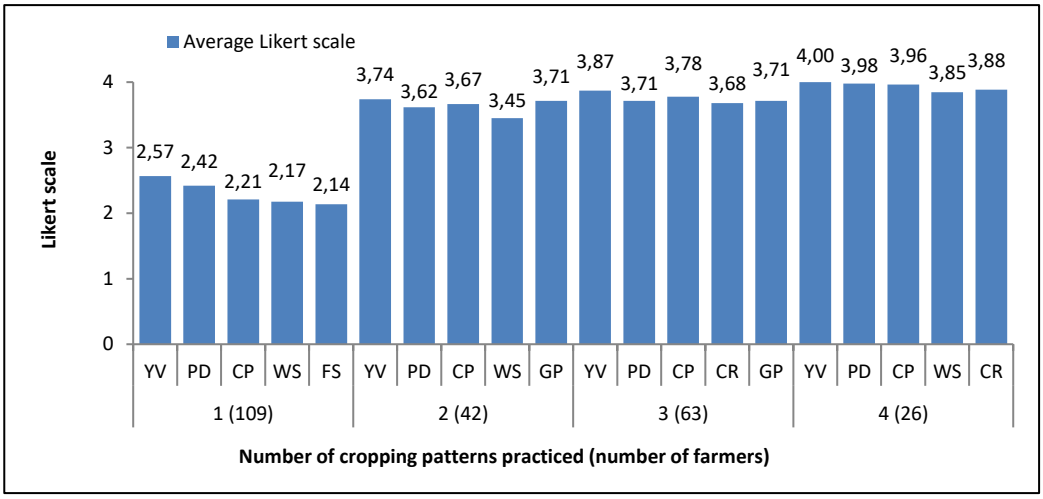
Note: YV = Yield variability; PD = Pests and diseases; CP = Commodity price fluctuation; WS = Water scarcity; GP = Government policy; PF = Pollination failure; SF = Soil fertility; 1= very low; 2 = low; 3 = high; 4 = very high.

Figure 7. Risk probability perception

It could be concluded that the type of risks perceived by farmers in the midstream and downstream areas was almost similar. Risks that were limited to farmers in the upstream area were "Pollination failure" and "Soil fertility".

The top five risk impact and risk probability perceptions are presented by the number of cropping patterns in Figures 8 and 9. As far as the top five perceptions were concerned, the following are the interesting findings:

(1) Risk impact perception
   (a) Farmers who practiced single cropping pattern (paddy-paddy-paddy) had an average Likert scale score of less than 2.5 (excluding 2.57 of "Yield variability"), while it was greater than 3.5 for the other groups (farmers practicing two, three, and four cropping patterns).
   (b) The average score of the Likert scale of risk impact perception of farmers who practiced four cropping patterns for each type of risk was higher compared to farmers practicing other cropping patterns.
   (c) "Yield variability", "Commodity price", and "Pests and diseases" risks were risks that had impacts on all groups.
   (d) "Water scarcity", "Government policy", and "Capital return" were risks that had impacts on farming income to three out of four farmer groups. "Farmers' skill" risk impacted on farmers who practiced single cropping pattern.
   (e) "Yield variability" was the top risk that impacted on farming income for each of the farmer groups.



Note: YV = Yield variability; PD = Pests and diseases; CP = Commodity price; WS = Water scarcity; FS = Farmers' skill; GP = Government policy; CR = Capital return; 1= very low; 2 = low; 3 = high; 4 = very high.

Figure 8. Farmers' risk impact perception by the number of cropping patterns

(2) Risk probability perception

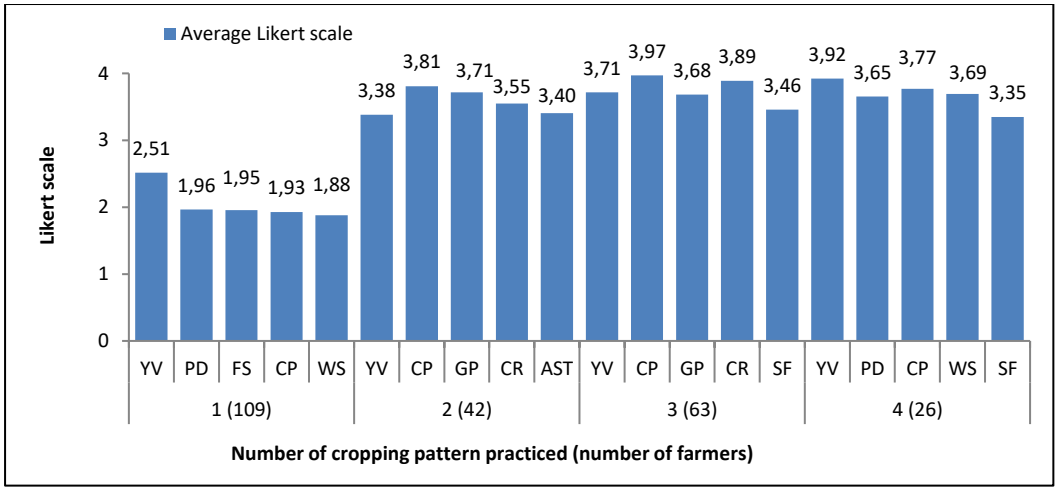
(a) Farmers who practiced a single cropping pattern (paddy-paddy-paddy) had an average Likert scale score of less than 2.0 (excluding 2.51 of yield variability), while it was greater than 3.5 for the other groups.

(b) "Yield variability" and "Commodity price fluctuation" were risks that had a probability to occur in all groups.

(c) "Pests and diseases", "Water scarcity", "Government policy", "Capital return", and "Soil fertility" were risks that commonly occurred for two out of four farmer groups. "Farmers' skill" was limited to the farmer group who practiced single cropping pattern (paddy-paddy-paddy), and "Asset" was limited to farmers who practiced two cropping patterns.

(d) The occurrence of the "Soil fertility" risk was common to farmers who practiced three or four cropping patterns.

(e) "Yield variability" was the top risk to occur for all groups.



Note: YV = Yield variability; PD = Pests and diseases; FS = Farmers' skill; CP = Commodity price; WS = Water scarcity; GP = Government policy; CR = Capital return; AST = Asset; SF = Soil fertility; 1= very low; 2 = low; 3 = high; 4 = very high.

Figure 9. Farmer risk probability perception by the number of cropping patterns

On the whole, there was a relationship between the number of cropping patterns practiced by farmers and their risk perception. Farmers who diversified their cropping patterns had a higher risk impact and risk probability perception than those practicing a single cropping pattern (paddy-paddy-paddy).

However, regarding risks of comparatively high interest, there was a slight difference between the risk impact perception and the risk probability perception of farmers practicing cropping pattern diversification. There were risks that were not considered as the top five risks in terms of impacts by farmers practicing cropping pattern diversification, but they were considered as one of the top five risks that had a high probability to occur; these are soil fertility and asset risk.

3.6 Association of Motivation for Farming, Risk Behavior, Risk Perception, and Cropping Patterns

As shown in Table 9, the association between motivation for farming, risk behavior, and risk perception behind cropping pattern diversification can be explained below:

(1) Risk behavior and risk perception (impact and probability) might influence the decision of farmers to practice a single cropping pattern or two cropping patterns. Although they had similar motivations (cultural and economic), the majority of farmers who practiced single cropping pattern had risk-neutral and risk-averse behavior, while those who practiced two cropping patterns had risk-averse behavior. Regarding risk perception, the impact and probability of risk of farmers who practiced a single cropping pattern (Likert score 2.0-2.5) were lower than the farmers who practiced two cropping patterns (Likert score > 2.5).

(2) Motivation for farming, risk behavior, and risk perception might influence the decision of farmers to practice a single cropping pattern or three cropping patterns. Farmers who practiced a single cropping pattern were driven by cultural and economic motivations, and the majority of them were risk-neutral and risk-averse, while farmers who practiced three cropping patterns were driven by economic and technical motivations, and the majority of them were risk-averse. They were different in risk impact perception and risk probability perception. Farmers who practiced single cropping pattern argued that "Water scarcity" and "Farmer skills" had impacts on income from farming, and the probability of "Pests and diseases", "Water scarcity", and "Farmer skills" risks to occur was high, while farmers who practiced three cropping patterns argued that "Capital return" and "Government policy" had impacts on income from farming, and the probability of "Government policy", "Capital return", and "Soil fertility" risk to occur was high.

Table 9. Major motivations for farming, risk behavior, and risk perception by the number of cropping patterns

Number of Cropping Patterns	Indicator				
				Risk Perception (3.0<)	
				Risk Impact Perception	Risk Probability Perception
1	1. Never change crop grown 2. Gain higher profit 3. Avoid commodity price fluctuation	Cultural Economic Economic	1. Risk-neutral 2. Risk-averse	1. Yield variability[3] 2. Pests and diseases[2] 3. Commodity price[2] 4. Water scarcity[2] 5. Farmers' skill)[2]	1. Yield variability[3] 2. Pests and diseases[1] 3. Farmers' skill[1] 4. Commodity price[1] 5. Water scarcity[1]
2	1. Never change crop grown 2. Gain higher profit 3. Attain higher yield	Cultural Economic Economic	1. Risk-averse	1. Yield variability[3] 2. Pests and diseases[3] 3. Commodity Price[3] 4. Water scarcity[3] 5. Government policy[3]	1. Yield variability[3] 2. Commodity price[3] 3. Government policy[3] 4. Capital resturn[3] 5. Asset[3]
3	1. Gain higher profit 2. Attain higher yield 3. Have knowledge and skill	Economic Economic Technical	1. Risk-averse	1. Yield variability[3] 2. Pests and diseases[3] 3. Commodity Price[3] 4. Capital return[3] 5. Government policy[3]	1. Yield variability[3] 2. Commodity price[3] 3. Government policy[3] 4. Capital return[3] 5. Soil fertility[3]
4	1. Gain higher profit 2. Attain higher yield 3. Avoid commodity price fluctuation	Economic Economic Economic	1. Risk-Averse 2. Risk-neutral	1. Yield variability[3] 2. Pests and diseases[3] 3. Commodity price[3] 4. Water scarcity[3] 5. Capital return[3]	1. Yield variability[3] 2. Pests and diseases[3] 3. Commodity price[3] 4. Water scarcity[3] 5. Soil fertility[3]

Note: [1] = Likert scale score is below 2.0; [2] = Likert scale score ranged from 2.0-2.5; [3] = Likert scale score was higher than 2.5; Likert scale: 1 = very low; 2 = low; 3 = high; 4 = very high.

(3) There were two variables that might influence the decision of farmers on practicing a single cropping pattern or four cropping patterns, which are motivation for farming and risk perception. Though

they had similar risk behavior (risk-averse and risk-neutral), they differed in motivation for farming. As mentioned above, farmers who practiced a single cropping pattern were driven by both cultural and economic motivations, while farmers who practiced four cropping patterns were driven by economic motivation. Regarding risk perception, farmers who practiced four cropping patterns argued that "Capital return" risk impacted income from farming, and the probability of "Soil fertility" risk to occur was high. Those risks were not considered to be in the top five risks of farmers who practiced a single cropping pattern.

(4) The variable that might determine the decision of farmers to select two or three cropping patterns was motivation. Farmers who practiced two or three cropping patterns had similar risk behavior (risk-averse) and similar risk impact and risk probability perception, though different in the number of cropping patterns. This might be due to a difference in their motivations. Farmers who practiced two cropping patterns had cultural and economic motivations, while farmers who practiced three cropping patterns had economic and technical motivations.

(5) Farmer motivation for farming, risk behavior, and risk perception might influence the decision of farmers to practice two cropping patterns or four cropping patterns. Farmers who practiced two cropping patterns were driven by cultural and economic motivations, and the majority of them were risk-averse, while farmers who practiced four cropping patterns were only driven by economic motivations, and the majority of them were risk-neutral and risk- averse. Regarding risk perception, there were risks that were considered by farmers who practiced two cropping patterns as the top five risks, but they were not considered as such for farmers who practiced four cropping patterns, which are risk impact perception of "Government policy" and risk probability perception of "Government policy", "Capital return", and "Asset". Conversely, there were risks that were considered by farmers who practiced four cropping patterns to be in the top five risks, but they were not considered as such by farmers who practiced two cropping patterns, which are risk impact perception of "Capital return" and risk probability perception of "Commodity price", "Water scarcity", and "Soil fertility".

(6) Farmer motivation for farming and risk behavior might influence the decision of farmers to practice three or four cropping patterns. The majority of farmers who practiced three or four cropping patterns had a similar risk perception (impact and probability). However, because they differed in motivation and risk behavior, they selected different cropping patterns. Economic motivations encouraged farmers to practice four cropping patterns, while technical and economic motivations encouraged farmers to practice three cropping patterns. Regarding risk behavior, the majority of farmers who practiced three cropping patterns were risk-averse, while those who practiced four cropping patterns were risk-neutral and risk- averse.

To identify the farmer groups that had similar characteristics in motivation for farming, risk behavior, risk perception, and CEI, cluster analysis (CA) was conducted. Before conducting the CA, the PCA was applied to determine the common factors of farmer motivation for farming and risk perception. The result of varimax-rotated factor analysis (Table 10) shows that there were four common factors of farmer motivation for farming. These factors explained 73.48 percent of the variance. The factors were given a label based on the main motivations loaded on each factor: economic factor (F1), technical factor (F2), environmental factor (F3), and cultural factor (F4). Table 11 presents the result of varimax-rotated factor analysis of risk perception. The 11 perceptions of risk impact on income of farmers could be integrated into two factors, which accounted for 82.9 percent of the variance. The first factor was production and price (F_1), while the second was farmer skill and government policy (F_2). Similarly, the 11 perceptions of risk probabilities of farmers could be integrated into two factors, which covered 83.2 percent of the variance: the production factor (F_1), and the farmer capacity and government policy factor (F_2).

Table 10. Rotated factor matrix of motivation for farming

Motivation	Factors		
	Factor Loading	Variance Explained (%)	Eigenvalues
Economic (F1)		33.59	3.69
Gain higher profit	0.518		
Attain higher yield	0.470		
Avoid commodity price fluctuation	0.518		
Get higher cash flow	0.312		
Technical (F2)		17.06	1.88
Reduce the occurrence of pests and diseases	0.651		
Improve soil fertility	0.667		
Environmental (F3)		13.31	1.47
Reduce the adverse impacts of the environmental factor change	0.662		
Follow market demand	0.660		
Cultural (F4)		9.52	1.05
Never change the crop grown	-0.540		
Avoid higher input cost	0.443		
Have knowledge and skill	0.699		
Total variance explained		73.48	

Note: Factor loading taken is over 0.3, and eigenvalues is over 1. Kaiser-Meyer-Olkin of sampling adequacy (KMO) = 0.73.

Table 11. Rotated factor matrix of risk impact and risk probability

Risk Impact Perception	Factor			Risk Probability Perception	Factor		
	Factor Loading	Variance Explained (%)	Eigen values		Factor Loading	Variance Explained (%)	Eigen values
Production and price (F1)		71.96	7.92	Production (F1)		67.60	7.44
Yield variability	0.347			Yield variability	0.449		
Pests and diseases	0.327			Pests and diseases	0.435		
Water scarcity	0.324			Water scarcity	0.417		
Soil fertility	0.357			Soil fertility	0.382		
Pollination failure	0.337			Pollination failure	0.434		
Commodity Price	0.331			Farmers' capacity and government policy (F2)		15.64	1.72
Input price	0.356						
Capital return	0.367			Farmers' skill	0.550		
Farmers' capacity and government policy (F2)		10.94	1.20	Asset	0.418		
				Government policy	0.362		
Farmers' skill	0.779			Capital return	0.351		
Asset	0.458			Commodity Price	0.358		
Government policy	0.387			Input price	0.362		
Total variance explained		82.90		Total variance explained		83.24	

Note: Factor loading is over 0.3 and eigenvalues is over 1. KMO risk impact perception = 0.93, KMO risk probability perception = 0.89.

Using the common factors of motivation for farming and risk perception (impact and probability) from the PCA, risk behavior, and the CEI, the farmers that had similar characteristics were grouped by the CA (Table 12 and Figure 10). Group 1 was farmers (8.75 percent of the total farmers) who had higher mean values for the cultural and economic motivations but lower technical and environmental motivations. In addition, they had low mean values of risk perception on both risk impact and risk probability (lower than 2.5). The mean value of the CEI and risk behavior of this group was 0.04 and Rp. 22,857, respectively, suggesting that they were risk-takers and practiced a single cropping pattern.

Table 12. Cluster analysis based on risk behavior, CEI, risk perception, and motivation

Cluster	Mean Values								CP	Number of Farmers	
					RPF					No (%)	Total
					RI		RP				
	E	T	EV	CT	P	FCG	P	FCG			
									1	19 (90.5%)	21
									2	1 (4.8%)	(8.75%)
									3	1 (4.8%)	
									4	0 (0%)	
									1	65 (70.7%)	92
									2	5 (5.4%)	(38.3%)
									3	13 (14.1%)	
									4	9 (9.8%)	
									1	25 (19.7%)	127
									2	36 (28.35)	(52.9%)
									3	51 (40.2)	
									4	15 (11.8%)	

Note: Cluster analysis uses hierarchical clustering method; CEI = Composite Entropy Index; RB = Risk behavior; MF = Motivation factor; E = Economic; T = Technical; EV = Environmental; CT = Cultural; RPF = Risk perception factor; RI = Risk impact; RP = Risk probability; P = Production and price; FCG = Farmers' capacity and government policy; CP = cropping pattern.

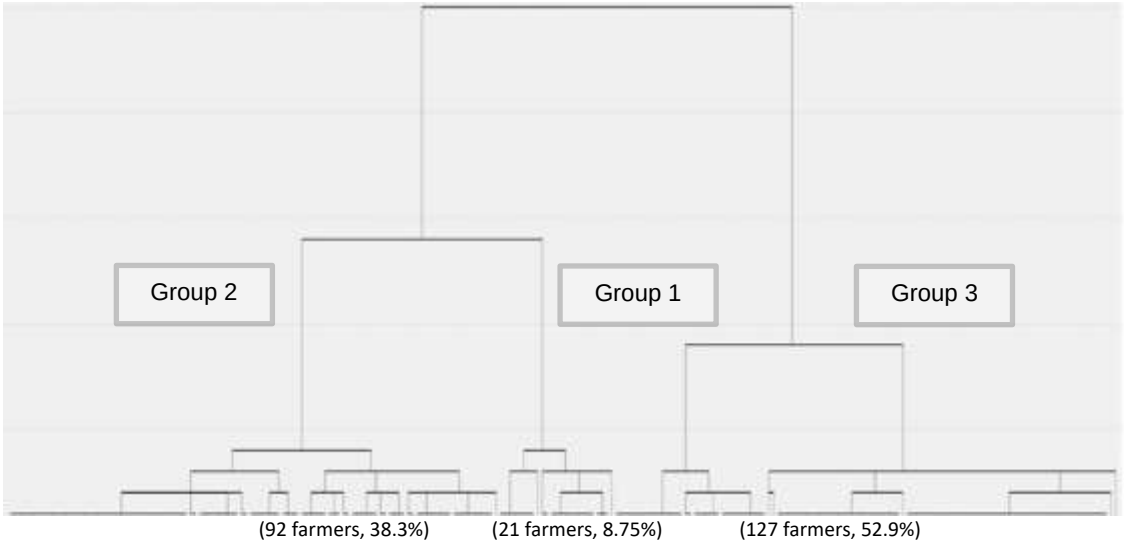


Figure 10. The dendrogram of CA

Group 2 was farmers (38.3 percent of the total farmers) who had a higher mean value for the economic and cultural motivations but lower technical and environmental motivations. The mean values of the economic motivation (0.38) and the cultural motivation (0.4) were slightly higher than those of Group 1. They had low mean values of risk perception, both risk impact and risk probability (lower than 2.5). Regarding risk behavior, they were risk-neutral, as their mean value of risk behavior was Rp. 11,304. The mean value of CEI (0.13) was higher than that of the CEI of Group 1, suggesting that Group 2 more diversified its cropping pattern than Group 1.

Group 3 was farmers (52.9 percent of the total farmers) who had a higher mean value for the economic and cultural motivations but lower technical and environmental motivations. The mean values of the economic motivation (0.49) and the cultural motivation (0.44) were slightly higher than those of Group 1 and Group 2. They had higher mean values of risk perception on both impact and probability perception (higher than 2.5) of production and price risk. They were risk- averse as they had a mean value of risk behavior of approximately Rp. 4,370. The mean value of CEI (0.28) was higher than those in Group 1 and 2, suggesting that Group 3 more diversified its cropping patterns than Group 1 and 2.

It can be found that the majority of farmers (77.1 percent, 84 out of 109 farmers) who practiced a single cropping pattern had low economic motivation as well as risk perception (impact and probability). The risk-neutral farmers dominated this group (59.6 percent, 65 out of 109 farmers). Meanwhile, the majority of farmers (77.9 percent, 102 out of 131 farmers) who practiced cropping pattern diversification

had high economic motivation and risk perception (impact and probability), and they were risk-averse farmers (80.3 percent, 102 out of 127 farmers).

4. Conclusions

Economic motivation was the major reason for farmers practicing cropping pattern diversification, particularly for farmers who practiced three or four cropping patterns. "Knowledge and skills" was a key factor in practicing cropping pattern diversification. There was a tendency when farmers were risk-averse to diversify the cropping pattern. Meanwhile, the majority of risk-neutral and risk-taker farmers practiced a single cropping pattern. Moreover, this study revealed a relationship between the number of cropping patterns practiced by farmers and their risk perception. Farmers who practiced cropping pattern diversification had a higher risk impact and probability perception than those practicing a single cropping pattern (paddy-paddy- paddy).

As a whole, these are the characteristics of farmers who practiced cropping pattern diversification: (1) high-risk perception (impact and probability); (2) risk-averse; and (3) economic motivation. This implies that to adopt a risk-coping strategy, farmers should aware that there are risks that may impact farming income and motivate to increase their prosperity (economic motivation). In this study, around one-third of farmers had risk-neutral characteristics (92 farmers, 38.3 percent) and low-risk perception (impact and probability), of whom around 70.7 percent practiced single cropping pattern. They may not adopt any risk-coping strategies unless they are aware of the risks that they face. Improving awareness about the negative impacts of risks on income from farming might encourage them to adopt risk-coping strategies for both on-farm risk coping (such as cropping pattern diversification) and off-farm risk coping (such as agricultural insurance).

This study clarified the feature of farmer psychological characteristics (motivation, risk behavior, and risk perception) underlying their practical cropping patterns. Other farmer characteristics such as socio-economic characteristics might also influence cropping patterns practiced by farmers. Therefore, it is necessary to integrate psychological and socio-economic characteristics (using a different framework) to find out how these characteristics influence cropping patterns (risk management) practiced by farmers in a future research.

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Reference

Anderson, R., Dillon, J. L., & Hardaker, J. B. (1988). *Agricultural Decision Analysis* (3rd ed.). Armidale, Australia: University of New England.

Asuransi Jasa Indonesia (Jasindo). (2017). *Agricultural Insurance Customer Data*. Jasindo. Unpublished.

Binswanger, H. P., & Rosenzweig, M. R. (2007). Behavioural and material determinants of production relations in agriculture. *The Journal of Development Studies*, *22*(3), 503–539. https://doi.org/10.1080/00220388608421994

Binswanger, H. P. (2012). Is there too much hype about index-based agricultural insurance? *Journal of Development Studies*, *48*(2), 187–200.

Carter, M. R. (1997). Environment, technology, and the social articulation of risk in West African Agriculture. *Economic Development and Cultural Change, 45*(3), 557–590. DOI:10.1086/452291

Central Bureau of Statistics (CBS). (2016). *Garut District in Figures*. Garut, Indonesia: CBS of Garut Distritc.

Central Bureau of Statistics (CBS). (2017). *West Java Province in Figures*. Jakarta, Indonesia: CBS of West Java Province.

Chand, & Ramesh. (1996). Diversification through high-value crops in Western Himalayan Region: Evidence from Himachal Pradesh. *Indian Journal of Agricultural Economics, 51*(4), 652–663.

Corbett, J. (1988). Famine and household coping strategies. *World Development*, *16*(9), 1099–1112. https://doi.org/doi.org/10.1016/0305-750X(88)90112-X

Di Falco, S., & Chavas, J. P. (2009). On crop biodiversity, risk exposure, and food security in the highlands of Ethiopia. *American Journal of Agricultural Economics*, *91*(3), 599–611. https://doi.org/10.1111/j.1467-8276.2009.01265.x

Feder, G. (1980). Farm size, risk aversion, and the adoption of new technology under uncertainty. *Oxford Economic Papers*, *32*(2), 263–283. https://doi.org/10.1093/oxfordjournals.oep.a041479

Gasson, R. (1973). Goals and values of farmers. *Journal of Agricultural Economics*, *24*(3), 521–542. DOI: 10.1111/j.1477-9552.1973.tb00952.x

Goetz, R. U., & Zilberman, D. (2007). The economics of land-use regulation in the presence of an externality: A dynamic approach. *Optimal Control Application and Methods*, *28*, 21–43. https://doi.org/doi.org/10.1002/oca

Greiner, R., Patterson, L., & Miller, O. (2009). Motivations, risk perceptions, and adoption of conservation practices by farmers. *Agricultural Systems*, *99*(2–3), 86–104. https://doi.org/10.1016/j.agsy.2008.10.003

Hardaker, J. B., Lien, G., Anderson, J. R., & Huirne, R. B. M. (2015). *Coping with Risk in Agriculture: Applied Decision Analysis* (3rd ed.). Boston, USA: CABI.

Harwood, J, Heifner, R., Coble, K. H., Perry, J., & Somwaru, A. (1999). *Managing risk in farming: Concepts, research, and analysis*. Washington, D.C, USA: U.S Departement of Agriculture.

Kabede, Y., & Bogale, A. (1992). Risk behavior and new agricultural technologies: The case of producers in the central highlands of Ethiopia. *Quarterly Journal of International Agriculture*, *31*, 510–520.

Kelley, T. G., & Ryan, J. G. (1995). Applied participatory priority setting in international agricultural research: Making trade-offs transparent and explicit. *Agricultural System*, *49*, 177–216. https://doi.org/10.1016/0308-521X(94)00030-U

Leemans, R., & Born, J. V. D. (1994). Determining the potential distribution of vegetation, crops, and agricultural productivity. *Water, Air, and Soil Pollution*, *76*(1–2), 133–161. https://doi.org/10.1007/BF00478338

Loomis, R. S., Williams, W. A., & Hall, A. E. (1971). Agricultural productivity. *Annual Review of Plant* Physiology, *22*, 431–468. DOI:10.1146/annurev.pp.22.060171.002243

Mandal, R. (2010). Cropping patterns and risk management in the flood plains of Assam. *Economic and Political Weekly*, *45*(33), 78–81.

Mariano, M. J., Villano, R., & Fleming, E. (2012). Factors influencing farmers' adoption of modern rice technologies and good management practices in the Philippines. *Agricultural System*, *110*, 41–53. https://doi.org/doi.org/10.1016/j.agsy.2012.03.010

Menezes, C., Geiss, C., & Tressler, J. (1980). Increasing downside risk. *The American Economic Review*, *70*(5), 921–932.

Moscardi, E., & de Janvry, A. (1977). Attitudes toward risk among peasants: An economic approach. *American Journal of Agricultural Economics*, *59*(4), 710–716. https://doi.org/doi.org/10.2307/1239398

National Disaster Management Authority (BNPB). (2017). *Natural hazards in Indonesia*. BNPB. Retrieved October 16, 2017, from http://dibi.bnpb.go.id

Naylor, R., Battisti, D., Vimont, D., & Burke, M. (2007). Assessing risks of climate variability and climate change for Indonesian rice agriculture. *Proceedings of the National Academy of Sciences of the United States of America*, *104*, 7752–7757.

O'Donoghue, E. J., Nigel, K., & Roberts, M. J. (2005). *Does risk matter for farm businesses? The effect of crop insurance on production and diversification*. Presented at Annual Meeting of American Agricultural Economics Association on July 24-27, 2005, Providence, Rhode Island, USA. DOI:10.22004/ag.econ.19397

Rogers, R. W., & Prentice-Dunn, S. (1997). Protection motivation theory. In Gochman, D.S. (Eds.), *Handbook of health behavior research* (Vol. 1, pp. 113–132). New York, USA: Plenum.

Schechter, L. (2007). Traditional trust measurement and the risk confound: An experiment in rural Paraguay. *Journal of Economic Behavior and Organization*, *62*(2), 272–292. https://doi.org/10.1016/j.jebo.2005.03.006

Shiyani, R., & Pandya, H. (1998). Diversification of agriculture in Gujarat: A spatio-temporal analysis. *Indian Journal of Agricultural Economics*, *53*(4), 627–639. DOI:10.22004/ag.econ.297638

Supari, Salimun, E., Aldrian, E., Sopaheluwakan, A., Juneng, L., & Tangang, F. (2018). ENSO modulation of seasonal rainfall and extremes in Indonesia. *Climate Dynamics*, *51*(7–8), 2559–2580. https://doi.org/doi.org/10.1007/s00382-017-4028-8

The Ministry of Agriculture of the Republic of Indonesia (MoA). (2017). *Statistics of Climate, Crop Pests and* Diseases*, and Climate Change Impact 2012-2014*. Jakarta, Indonesia: The Ministry of Agriculture of the Republic of Indonesia.

The Ministry of Agriculture of the Republic of Indonesia (MoA). (2018). *The evaluation of rice and livestock insurance in 2018*. Presented at the Evaluation of Agricultural Insurance Implementation on May 16, 2018, the Ministry of Agriculture, Jakarta, Indonesia.

Zimmerman, F. J., & Carter, M. R. (2003). Asset smoothing, consumption smoothing, and the reproduction of inequality under risk and subsistence constraints. *Journal of Development Economics*, *71*, 233–260. https://doi.org/doi.org/10.1016/S0304-3878(03)00028-2

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Research Paper

The Urgency of Indonesia Social Media Regulation in the Vortex of Terrorism

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Abstract

Social media becomes a very important and strategic tool for terrorists to do propaganda, recruitment, funding, and facilitation of other terrorist activities. Both international level and national level, no regulation explicitly regulates the use of social media for terrorism. Since many incidents of terrorism using social media in Indonesia, the more vigorous terrorists' propaganda and recruitment through social media, and considering opened terrorist access to pursue their targets, especially the youth generation, it is vital to specifically regulate social media and terrorism. Although social media and terrorism issues need to be addressed by the increasing of local government's role in combating terrorism and the strengthening parental supervision in the use of social media by children, the need for social media and terrorism regulation is an urgent matter to do first, as a guide to tackling the social media use in the vortex of terrorism.

Keywords: Radicalism, Radicalization, Regulation, Social Media, Terrorism

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1. Introduction

> *"I remind to all of you, a message, an advice from me, do not live like a goat in an infidel country, but live your life, die like a lion. Run, press them, pounce them on their bases, spy on them in their camps. InsyaAllah if you are honest, then Allah will help all of you."*
> (Tribunnews.com)

Social media was employed by Nur Rohman (31 years), a resident of Semanggi Village, Surakarta City, to broadcast the words above to his friends. The network utilized was pro-ISIS (Islamic State of Iraq and Syria) (tujuhinterior.com). His address encouraged the infiltration of infidel countries while still living the true faith, even to the point of fighting and dying for it. More directly, he urged them to attack and overwhelm Indonesian police headquarters. An expert in terrorism studies at the University of Indonesia, Ridlwan, believed that Nur Rohman was a devotee of the Khilafah of Al Bagdadi. In 2016, on July 11, true to his own words, Nur Rohman killed himself as the result of bombing the Surakarta Police Office while riding a motorcycle (rappler.com). A policeman was also wounded in the attack.

Soon after that, on August 28, Father Albert Pandiangan (60) was delivering a sermon in St Joseph's Roman Catholic Church, Medan, Indonesia, when he was attacked by Ivan Armadi Hasugian (18), whose bomb had failed to explode. It was reported by General Tito Karnavian, the former Chief of Indonesia's National Police, that this youth had been in contact with a well-known Southeast Asian ISIS supporter, Bahrun Naim (antaranews.com). Suhardi Alius, the Head of the National Agency for Combating Terrorism (Badan Nasional Penanggulangan Terorisme/BNPT), later confirmed that Ivan's radicalism had been incited by visiting several social media sites (radartegal.com). Ivan Hasugian used the internet to study religion independently and to make a bomb. The bomb that failed to explode was a product of his independent learning from the internet.

Prior to this, there had been a number of warnings. Weimann (2014) asserted that online media facilitated not only terrorist propaganda and extremism but actual recruitment. This was supported by Marcu & Balteanu (2014), who noted the promotion of terrorist ideologies via social media. Wu (2015) confirmed that such platforms were being used for terrorist publicity and recruitment. Nur Rohman and Ivan Armadi Hasugian became prophetic examples of their research, proving that forms of social media were instrumental to the witnessed acts of terrorism. Social media can encourage remote individuals to execute acts of terrorism physically (Droogan et al., 2018).

It cannot be denied that social media is an integral part of the digital industry, termed by Schwab (2016) as the Industrial Revolution 4.0. Social media collectively has a very important role in communication relations, information traffic, and data movement that is presently so fast. It can be stated that we live in a hyper-connected world when information, ideas, and people move so quickly (Schwab, 2016). Schwab (2016) predicts that a hyper-connected world can create a dangerous phase if it ultimately results in increased fragmentation and global segregation that can trigger violent extremism. This is in line with five clusters that will be affected by the 4.0 Industrial Revolutions, namely in the fields of economy, business, national-global relations, society, and individuals (Schwab, 2016). In the case of terrorism, social media has a real negative impact on the cluster of national-global relations, especially in national and international security. The spread of the ideology of terrorism, as echoed by ISIS, for example, including the distribution of bomb-making content, is cross-border, which of course endangers national security. According to Schwab (2016), Industrial Revolution 4.0 has played a role in increasing the scale of the conflict. For example, how ISIS operated in the Middle East was enabled it to recruit foreign fighters from more than 100 countries using social media facilities.

Based on this reality, as well as the fact that social media facilitates online radicalization in Indonesia, it has become necessary to regulate social media so that it cannot be used as a tool of terrorism. However, there are no regulations that integrally control social media in relation to terrorism, both at international and national levels.

2. Methodology

Since that online radicalization in Indonesia is facilitated by social media, regulating social media so it cannot be terrorism's tools has many complexities. In order to parse the intricacies, the qualitative method is used in this research. Initially, this research outlines the legal principles, rules, doctrines, and concepts at the international and national levels in the terrorism issues. An extensive literature study is conducted by studying relevant journals, books, news items, and reports as a foundation to analyze the

problem objectively. As terrorism is a cross-sectoral issue, so that it performs a comprehensive analysis, this research focuses on the interdisciplinary approach to analyze the law, legal phenomena, and relationships among these and the wider society.

3. Result and Discussion

Social media, radicalism, and terrorism

Understanding of terrorism today is very diverse and there is no standard consensus. However, in principle, there are three components that underlie any action or activity that can be categorized as an act of terrorism, namely: 1) there is an element of violence; 2) random casualties occur; and 3) fear or terror arises within the community for the sake of social and political change (BNPT, 2016). Based on Article 1 number 2 of Law Number 5 of 2018, which concerned an amendment to Law Number 15 of 2003 in regard to Stipulation of Government Regulations in lieu of Law Number 1 of 2002 concerning Eradication of Terrorist Crimes into Laws, terrorism is considered to be an act that employs intimidation or actual violence to create widespread fear. This can lead to the impairment or destruction of strategic international facilities, as well as the environment and public resources, causing ideological, political, and security interference.

BNPT (2016) expressly states that the embryo of terrorism is radicalism. Radicalism itself is an attitude and behavior that seeks a revolutionary and total change to match what is understood as truth, through violence (BNPT, 2016). The radicals, or people who have been radicalized, usually have the characteristics of intolerance (not respecting different beliefs), fanaticism (regarding what he/she believes to be absolute truth), exclusivity (elevating himself and his group to be the most correct), and revolutionary actions (accustomed to being violent) (BNPT, 2016). More explicitly, Precht (2007) explains the relationship between radicalism and terrorism. Precht (2007) divides the phase of radicalization into four stages, namely the stages of pre-radicalization, conversion and identification, beliefs and indoctrination, and action. In addition, Precht (2007) also explained the factors that influence each stage of radicalization, namely background, triggers, and opportunities.

Pre-radicalization involves a close relationship to personal background factors that lead to opportunities for an individual to be open to radical views before radicalization itself can take place. The conversion and identification phase is the phase of change in an individual, both in terms of behavior and identity. At this stage, the trigger factor and the chance factor appear to be dominant. The internet, including social media, is an opportunity factor that makes one enter radicalization. The stage of belief and indoctrination is the stage when a person begins to accept a militant view of radicalization. This stage closes with an action phase, which is when someone is ready to act. Precht (2007) describes that this action is not only manifested in attacks or bride bombs, but can include planning, selecting targets, making bombs, or funding terrorism.

As an opportunity factor in the stage of radicalization, the internet, including social media, is maximally utilized by terrorist groups. Weimann (2014) noted three reasons why social media is ideal for this purpose: 1) it is very popular among the target group; 2) it costs little and is very easy to use; and 3) it provides direct access to the target group, being a lot more personal than a general website. Social media is the fruit of technological advancements that can connect people with other people who already know each other, or even do not know each other. Social media crosses boundaries, generations and even ideologies. With enormous benefits, to communicate, to search information, to entertain, as a trend and others, social media is very attached and popular with young people. As stated by Weimann (2014), with the terrorists' recruitment target, which is youth people, it is appropriate for terrorists to use social media to approach their targets. In addition to be a popular medium and tending to be a necessity for young people, social media is also a very cheap and very easy tool to use. Most social media applications are free. Several social media set a certain premium category to get greater facilities and of course, it attracts certain fees, for example, is Line Business. But in general, social media applications are free applications, excluding the use of internet quotas. The vendors of social media applications are also competing to make it easy for users to use social media applications with abundant facilities such as telephone, video call, and even the confidentiality/security of private conversations. So, it is not surprising, social media is not only popular among young people, but also for children and the old generation. Finally, from the explanation of Weimann (2014), before the era of social media developed, terrorist network groups used websites as a means of propaganda. At that time, the website became a mainstay for terrorist groups to find their targets based on who visited the website. It could be that those who visit are those who

coincidently visit the website or who intend to find the website. Of course, with website facilities, terrorist networks must wait for targets to enter their websites. This is certainly different from the era of social media when social media allows people to connect even though they do not know each other. YouTube became one of the most effective platforms when ISIS aired the lives of its fighters on the battlefield. This then moved many young people who were disturbed by the element of heroism and later joined ISIS. Social media paved the way, terrorist groups knock on the door of their target rooms freely.

The study of the media's role, including social media, and terrorism is extremely vital, concerning the rise of terrorism incidents (Fahmy, 2017). Social media has made the communication and distribution of terrorist propaganda so much easier. It is employed by around 90% of internet-active terrorist groups (cbc.ca). Even though Facebook has addressed the issue of propaganda crimes, other social media forms, such as Twitter, still permit the accounts of ISIS members to disseminate terrorist propaganda and endorse related crimes (Shaaban, 2015). If only a tiny percentage of their followers are 'turned', that is still many new acts of terrorism that would not otherwise have occurred. Additionally, Morris (2016) pointed out the danger of even children, in their own bedrooms, being indoctrinated by foreigners with extremist ideologies. Consequently, it is no shock that the stories of Nur and Ivan in Indonesia have been repeated around the globe. One example alone, from US State Department figures, is that ISIS has been joined in Syria by at least 12,000 foreigners from 50 different countries.

There are no mechanisms that integrally regulate social media and terrorism

There is a global legal framework to counter terrorism in place according to United Nations Office on Drug and Crime (UNODC, 2009). Despite these 16 conventions/protocols/amendments, no preventive measures have been initiated in regard to social media. Instead, as dealt with in Resolution Number 1373, they regulate international co-operation, they address the criminalization of support for terrorist groups, including financial support for terrorist acts as well as their actual perpetration, and they cover extradition. These are all focusing on dealing with crimes after they have been committed rather than trying to prevent them in the first place. Only Resolution Number 1624 (UNODC, 2012) provides rules about incitement to terrorist acts and their glorification, which can include the use of social media. However, UNODC (2012) provides the conclusion that there is no national or international mechanism for addressing the use of the internet by terrorists because crime, terrorism and social media are all regulated separately when, in fact, they are inter-connected. It is impossible to consider an action of intent as a crime when there is no specific regulation to cover that.

In May 2018, an amendment to Act Number 15 of 2003 of Anti-terrorism was ratified in Indonesia but, to date, this has not provided regulation of any preventive measures in relation to terrorist use of social media. Instead, it merely provides a better definition of terrorism and addresses issues such as military involvement in counterterrorism, application of the death penalty, utilization of phone-tapping, and locations of detention. It seems to have been enacted as an instant reaction to the church bombings in Surabaya and the riot at Mako Brimob (the Command Centre of the Mobile Brigade – a police section that handles terrorism). It was undeniable, the bombing incident in Surabaya that killed 14 people with a new terrorism model which involved all family members: a father, a mother, and children, as bombing perpetrators (tempo.com) and the riots of terrorism prisoners in Mako Brimob that killed 5 police officers (detik.com), became public pressure for the emergence of a new anti-terrorism law. It did not take a long time, that 17 days after the Surabaya bombing, the Law Number 5 of 2018 of Anti-Terrorism was enacted.

According to Law Number 5, Article 13A, in the Year 2018, it is regulated that, "Anyone who has a relationship with a terrorist organization and intentionally spreads words, attitudes or behaviors, writings, or displays with the aim of inciting people or groups of people to commit violence or threat of violence can result in (*the conviction of committing*) a criminal act of terrorism (*and*) being sentenced to a maximum imprisonment of 5 (five) years". This provision tries to ensnare the act of incitement through speech and writing for the crime of terrorism. However, these provisions do not specifically regulate what media are used. If what is used is cross-border social media this article is unlikely to ensnare propaganda from other countries aimed at inciting Indonesian citizens to carry out acts of terrorism.

In other laws, the matter of sedition has also been regulated. Article 28 Paragraph (2) of Law Number 11 in the Year 2008, concerning Information and Electronic Transactions, regulates prohibited acts, namely disseminating information intended to incite hatred or hostility of certain individuals and/or groups based on ethnicity, religion, race, and intergroup. However, this provision only regulates the

prohibition of electronic information that spreads hatred. Social media falls within this regulation, but terrorism does not. In other words, it does not regulate social media or terrorism *per se*.

President Joko Widodo, in May 19, 2017, formed the National Cyber and Coding Agency, which is under the responsibility of the Coordinating Ministry for Politics, Law, and Security. One of the tasks of the National Cyber and Coding Agency is to filter online content (kominfo.go.id). The Act and the National Cyber and Coding Agency permit the restriction or prohibition of access to unlawful content, such as hate speech, defamation, or pornography, but amendments to such laws accommodate only violations in the aspects of pornography, defamation, and religious extremism rather than terrorism (torproject.org; freedomhouse.org).

In parallel, the Criminal Act covers actual violence as a crime, without deliberation as to its incitement. This is in contradiction to the way, for example, a hacker is deemed to be a criminal for using the internet to commit credit card fraud. The regulations are specific to separate issues. They cannot be applied in an uncomplicated manner to the coupling of social media with terrorism.

The above explanation confirms that both at the international and national levels, no regulation explicitly regulates the use of social media for terrorism. This is a gap that requires attention from policymakers, considering that terror acts using social media are still ongoing and occurs across national borders. For example, in 2020, two Indonesian women workers in Singapore were sentenced to two years in jail for being proven supporting Jamaah Ansharut Daulah (JAD), a terrorist group in Indonesia, by transferring around Rp. 1,300,000,- (kompas.com). Both women did that after being radicalized online. Social media is a means for Indonesian citizens to enter the vortex of terrorism and commit criminal acts related to terrorism.

Social media facilitates online radicalization

In 2016, the Wahid Foundation in collaboration with the Indonesian Survey Institute conducted a national survey entitled "Potential Intolerance and Social Radicalism of Indonesian Muslim Religion" (kompas.com). The survey involving 1,520 respondents aged over 17 years, or married, across the 34 provinces produced several survey results, one of which was that 7.7% of respondents were willing to take radical action if the opportunity arose. In his presentation of the survey results, Yenni Wahid as Director of the Wahid Foundation revealed that the 7.7% figure was quite alarming. When projected over a total of 150 million Muslims in Indonesia, according to Yenni Wahid, there are around 11 million Muslims who are willing to act radically. The projections made will certainly be very worrying to this very diverse country.

A research study was conducted by PPIM UIN Jakarta, covering 34 provinces of Indonesia in early 2018, on how the Z generation (those children born between 1996 and 2012) seek religion. The research drew upon the experiences of 2,181 people (1,522 high school pupils, 337 university students, and 264 teachers/lecturers in 34 provinces of Indonesia) and disclosed that the Z generation spent 3-5 hours per day using the internet. One third of the Moslem students believed that Jihad (holy war) refers to war waged upon non-Moslem infidels who must be killed. One in five students agreed that holy war includes suicide bombing. The fact that 50.89% of the respondents grew their understanding from social media highlights the situation that social media has a dramatic influence on the people who access it (Nisa et al., 2018). Radicalization is a stepwise process, initiated by an intolerant movement with a radical ideology and culminating in the extreme, behavior of a violent act (Ashour, 2009)

The respondent believes that intolerance is the foundation of any terrorism movement, but social media is the means by which people's perceptions can be poisoned by the violent and extreme contents that are posted by terrorist groups such as ISIS. This is particularly relevant in the case of children who could be accessing the information without adult supervision.

The findings of the two studies above illustrate that the problem of radicalism and intolerance in Indonesia is a problem that needs to be addressed immediately and effectively. The embers of terrorism reside in Indonesian society, among both adults and children. One thing that keeps the embers burning is the facilities provided by social media. The results of the PPIM UIN Jakarta research provide a quite frightening fact that students study religion and utilize radicalism to understand it because of learning from social media, blogs, and websites. Social media has become a powerful tool for terrorists or terrorist groups to create generations that initially recognize and then approve radicalism, which ultimately leads to a new generation of terrorists.

In this dilemmatic situation, when social media becomes a double-edged knife, on one side, social media is important for social and economic life, but on another side, social media is a powerful tool for

the development of radicalism that leads to terrorism. Responding to this issue, three things can be done to overcome this problem. These three things include increasing the role of local governments in combating terrorism, strengthening parents' supervision in the use of social media by children, and finally, enacting a regulation of social media and terrorism.

Increasing the role of local governments in combating terrorism

Based on Article 43E Paragraph (1) of Law Number 5 the Year 2018, the institution that has the authority in the field of combating terrorism is BNPT. Explanation of the duties and functions of the BNPT in Law Number 5 the Year 2018 tends to be "ministry-centric" in which coordination of combating terrorism is emphasized only to the affairs of BNPT and related ministries. There are no clauses in the amendments to this law about the role of local governments in combating terrorism. It is understandable that in terms of security, the central government holds primary control. However, given the terrorism prevention efforts stipulated in Article 43A of Law Number 5 the Year 2018 carried out in three components, namely national preparedness, counter-radicalization, and deradicalization, it is very naive if this law does not regulate the involvement or participation of regional governments in the implementation of prevention terrorism. National preparedness will certainly require the implementation of a national action plan and will then need to be followed up with regional action plans. The implementation of the regional action plan will certainly not be separated from the role of the regional government. Likewise, with the counter-radicalization which is the main prevention effort. Indonesia with a relatively large area would certainly not be able to be reached by BNPT institutionally given the limitations of human resources, let alone the third component, deradicalization, requiring extra supervision of ex-convicts of terrorism that spread throughout Indonesia.

Regions have a strategic role in combating terrorism. During this time, the region is the source of national scale terror events. The suicide bombers came from areas and carried out acts of terror in Jakarta, Bali, and so on. The regions have also been affected by terror incidents. The tragedy of the Bali bombings I and II are clear examples. The Bali bombings not only caused many fatalities but also resulted in the tourism sector which was the mainstay of Bali's source of income being destroyed. As a result, certainly, the negative multiplier effect of the event was felt by most Balinese people. Several terrorists who have died also left their families in the area. The family's social condition of the perpetrators of terror, the education of the children of this family, and the stigma of the community in such families is also a problem for the regional government. Former terrorism prisoners who have been released from prison and decided to return to the area, start life again, also leave homework for the local government.

Given the significant role of local governments in the "mosaics" of terrorism, the synergy between BNPT and local governments is a necessity. It is not enough just to synergize or advise as conveyed by the Coordinating Minister for Politics, Law, and Security as well as the Minister of Home Affairs who stressed that regional governments must participate in combating terrorism (merdeka.com). This is like the central government attaching obligations to local governments but does not include the rights that should be owned by local governments in carrying out the mandated obligations. It would be more assertive and explicit if the synergy was set out normatively, namely the role of the regional government contained in the law on combating terrorism. This is important considering that local governments have limitations. When a law mandates the implementation of certain policies, local governments will be freer to move to create programs and allocate funding. If the role of the regional government in combating terrorism is contained in the law, the regional government will not be hesitant in taking the necessary steps, including increasing and empowering the participation of the community in the region in preventing terrorism together.

One example of initiatives in tackling terrorism by local governments that should be appreciated is the efforts of the Surakarta City Government to institutionalize the problem of radicalism and terrorism in a regional regulation. In Surakarta City Regulation Number 1 of 2019 concerning Amendment to Surakarta City Regulation Number 2 of 2010 concerning the Surakarta City Regional Long-Term Development Plan 2005-2025, the Surakarta City Government has explicitly formulated that the threats faced by the City of Surakarta in the context of realizing the conductivity of the city are also influenced by the influx of radicalism and terrorism. Of course, this can be understood given the existence of suicide bombers in Jakarta and terrorist prisoners who came from the city of Surakarta, including the suicide bombing at Surakarta Police Station by Nur Rohman in 2016. Although it has not been included in efforts

to combat terrorism that are explicitly implemented in programs and activities, because there is no legal umbrella for local governments in combating terrorism, the inclusion of a threat clause of radicalism and terrorism in a regional regulation can encourage the issuance of regulations that accommodate the role of local governments more technically in preventing terrorism.

The role of the regional government is nothing more than the role of preventing terrorism. After the terror attacks in Paris in November 2015, countries in Europe increased the role of local governments in the context of early detection of individuals who have the potential to commit extreme acts of violence (van de Weert & Eijkman, 2019). The role of local governments in Europe is limited to the supervision and early detection. However, given that regions in Indonesia have broader links to the terrorism dimension, particularly in terms of prevention, the role of local governments can be further explored. The effort to supervise residents is the capacity of the regional government through its long arms, namely sub-districts, sub-districts / villages, and neighborhoods. Early detection of suspicious persons who are at risk of being exposed to terrorism will be more effectively carried out by local governments compared to the BNPT or Special Anti-Terror Detachment (Densus 88) which from the aspect of human resources may be limited to reach all regions of Indonesia.

The involvement of local governments in preventing terrorism will also have an impact on the use of social media for the terrorism purposes. Local government programs and activities can be focused on increasing supervision in each community. The program can be started by increasing awareness in Youth Organization activities, children's forums, and Family Welfare Empowerment (Pemberdayaan Kesejahteraan Keluarga/PKK) activities. On a small scale, namely the community, supervision among the society will be effective. Vigilance efforts as a solid communal awareness will isolate the use of social media for terrorism purposes. Early detection of individuals who are at risk of being exposed to radicalism and terrorism will be relatively easier to do.

The importance of parental supervision in the use of social media by children

The popular saying that social media bring it closer and keep it closer. Many people are drowned in social media to communicate with people in other cities or countries than communicating with family members in their home. This phenomenon is one of the effects of the inevitable progress of digital technology. The use of social media could set up barriers for a family communication. One result of this obstruction of communication is that parents do not know who their children are chatting with. Parents do not understand what material their children are talking about on social media. This is a concern when communication partners and the material or content being discussed is negative, such as terrorism.

One example of obstruction of communication between parent and child due to the role of social media and terrorism is in the case of Rasheed, who was born on April 26, 1996, with his mother, Nicola Benyahia. The mother and child live in Birmingham, England. Rasheed who was once a funny and generous child turned into a lonely child in his room. Rasheed communicated through social media with ISIS and then solidified his intention to fly to Syria to fight with ISIS against Bashar al-Assad (nytimes.com). Rasheed, 19 years old at the time, was killed in fighting in Syria. Nicola Benyahia regretted why she could not prevent Rasheed from being connected to NIIS, which caused Nicola Benyahia to lose Rasheed forever. Moving on from his own life experience, finally, Nicola Benyahia together with parents who have the same story founded Families for Life, a non-profit organization that focuses on deradicalization and support for families.

The lack of communication within the family and weak supervision by parents over the use of social media experienced by Rasheed and Nicola Benyahia were also experienced by Ivan Armadi Hasugian, the suicide bomber in Medan in 2016, or Rofik Asharudin, the suicide bomber at the Kartasura police station, Sukoharjo, on 3 June 2019 (cnnindonesia.com), and other terrorists. The family plays an important role in this regard because the family is the first ring of supervision of children's behavior. When a family cannot reach out to their children, one of the biggest risks that may arise is the loss of the child as experienced by Nicola Benyahia, Ivan's family, and Rofik's family.

With a strategic role in supervising children over the use of social media so as not to deviate toward terrorism, parents become the first bastion. This big role requires parents to implement good communication with their children. With more open communication, it will be easier for parents to know who and what children usually communicate through social media. Parents have the most important position to keep their children away from the incitement of terrorists through social media. In addition to building more intense communication with children, parents also need to quickly learn technology that also develops quickly, so parents are not stutter in accompanying their children.

The urgency of social media regulation in the issue of terrorism

White (2016) stressed that the successes of counter-terrorism measures rely strongly on their preventive effects. It has been comprehensively demonstrated that social media interactions (through propaganda and recruitment) have been fundamental to the radicalization of future terrorists, including many of the lone wolves that have arisen in various countries. There is an urgent need to prevent the use of social media as tools for terrorism. This message of taking preventive measures has been reiterated by Richardson (2007), who emphasized that any fight against terrorism must address, and thus prevent, the underlying cause of the terror itself.

As a preventive effort that is quite important in the fight against terrorism, the next question is "What will be regulated in the rules of social media and terrorism?" The relevant scope is, of course, the ability of social media to be a tool for propaganda, recruitment, funding, and facilitation of other terrorist activities. It is also important to look at what level these arrangements are made, whether on an international scale (considering the character of social media across borders), nationally, or only in a private capacity (the social media provider itself). Who will be the subject of this regulation: recipient, sender, provider, and so on? Social media providers in using Artificial Intelligence to block terrorist content should be subject to regulations (Macdonald et al., 2019). How to prove terrorism's propaganda and recruitment is a part that needs to be arranged in more detail.

Besides, it should also be discussed regarding restrictions on access to social media and social media tapping whether included in human rights violations or not. For example, the temporary closure of social media access (Facebook, Instagram, WhatsApp, YouTube, Snapchat, and Viber) by the Sri Lanka government after eight bombs exploded in churches and hotels in Sri Lanka, when Christians were celebrating Easter on April 21, 2019 (washingtonpost.com). The incident itself killed 290 people (cnnindonesia.com). The closure of social media by the Sri Lanka Government has the aim of avoiding social media being used by irresponsible people to spread rumors and misinformation. Restrictions on social media will certainly have huge implications for users who truly utilize social media as a means of business and friendship in earnest.

Dissemination of information or news on social media could be a regulatory component. Considering that one of the goals of terrorism is to cause public fear as well as propaganda of terrorist acts, the rejection of terrorism is not only done by the society, but also the government, even the media.

In this kind situation, Indonesia can learn from a terrorism case in New Zealand that shocked the world on March 15, 2019. Brenton Tarrant, 28, a terrorist who is an Australian citizen, carried out the shooting of worshipers who were worshiping at Al Noor Mosque and Linwood Mosque, City of Christchurch, Zealand Baru (cnnindonesia.com). The bloody terror resulted in 50 people died. They are citizens of Saudi Arabia, Pakistan, Malaysia, Indonesia, Turkey, and Jordan. While 50 people reported suffering from injuries (kompas.com). Before committing an act of terror, Brenton Tarrant had released a manifesto document, namely The Great Replacement, on his Twitter account. From the 73-page document, it was found that Brenton Tarrant deliberately attacked Muslims. He wants to create fear and incite violence against Muslims (cnnindonesia.com). Another reason for Tarrant's motive was to revenge for the death of Ebba Akerlund, 11, who was killed in a terror attack in Stockholm by Rakhmat Akilov in 2017 (line.me). The worst was when Brenton Tarrant had broadcasted his live action on Facebook for about 17 minutes and the video was shared about 1.5 million times before finally being deleted by Facebook within 24 hours after the tragedy (theguardian.com).

When the Brenton Tarrant case entered the trial process, the media in New Zealand agreed not to provide news space for Tarrant, even for the trial process (cnnindonesia.com). The absence of a stage for terrorists in the media, sociologically, of course, extinguishes the terror propaganda itself. These efforts will make people free from negative and frightening news, as well as there is no access for terrorist supporters to be inspired or provoked to do the same. The steps taken by the New Zealand media are certainly not useful if they are not followed by the media in other countries. Action and the Tarrant trial process, for example, are not given space by the New Zealand media, but when in other countries it is still being reported, it is likely to cause a reaction from Tarrant supporters in other countries. Terrorism is the enemy of all countries. Therefore, a country's efforts to fight terrorism will be more effective if it is carried out jointly by all countries as an international community. Social media also has an important role to play in this regard, as social media spreads the news more quickly. New Zealand media policy in the Tarrant case might be adopted in social media settings to disseminate information about terrorism.

After all the components have been identified and followed up in a legal framework, according to Walker (2017) then tested those views with criminal, administrative, and ideological approaches. These three approaches are very closely related to each other. Walker (2017) explains the three approaches in terms of examples of propaganda carried out by terrorists. First, the criminal approach aims to criminalize the messenger propaganda of terrorism. Second, the administrative approach, which is carried out to control the messages voiced by terrorists. In this case, it could be an action so that the terrorist message cannot reach a wider audience. This administrative approach could be a synergistic effort with social media providers to immediately delete terrorist messages. The consequence is that social media providers need to develop algorithms to track content related to terrorism such as images of violence, hate propaganda and extremist incitement (Asongu et al., 2019). The experience that has happened is that Facebook deleted the live record of Brenton Tarrant after 24 hours, even though it had lived 17 minutes, and was shared 1.5 million times. The last is the ideological approach which is an act as an effort to counter-narratives of the message conveyed by terrorists. The three approaches can be a guide in every component that is to be regulated in regulation, and certainly, it is in an effort for prevention. These three approaches will be good guidelines in seeking a more effective legal framework for social media to fight terrorism.

With the clarity of social media and terrorism regulation in advance, it will provide clear directions for local governments and parents in carrying out their role in responding to the use of social media in the interests of terrorism. This regulation is very urgent to be made immediately.

4. Conclusions

The Industrial Revolution 4.0, according to Schwab (2016), will have an influence on the escalation of conflict, one example of which is how social media plays a significant role in the conflicts in the Middle East, especially in the way ISIS is able to recruit thousands of foreign fighters from more than 100 countries. Social media also demonstrates its severity in terrorism cases in Indonesia. Meanwhile, Indonesia has not managed social media as an integral part of the terrorism issue, even though the threat is real.

Three things can be done to respond to social media and terrorism issues, namely increasing the role of local governments in combating terrorism, strengthening parents' supervision in the use of social media by their children, and finally the enacting of social media dan terrorism regulation. The last thing is an important step that needs to be done immediately, given that the regulation is made, it will provide clear guidelines and directions on how local governments and communities, in this case, people must take action in anticipating the use of social media in the interests of terrorism. Social media and terrorism regulation will strengthen two other things: giving authority to local governments in the domain of preventing the use of social media at the education/community level and strengthening or forcing parents to be able to provide more supervision to their children in the use of social media.

It is so complex to regulate social media and terrorism, given that social media has a regional dimension that crosses national borders and it is difficult to prove in determining a crime committed through social media. However, that is a gap needs to be studied in more depth. Further study will discuss privacy rights, human rights, international law and so on. That is the challenge in creating a comprehensive legal framework for social media and terrorism.

Online radicalization is burning many children of the nation and spreading the ideology of terrorism through an easy and free platform. It takes real efforts from policymakers to address this, including the work of researchers, to deepen an effective legal framework so that social media is no longer eroded in the vortex of terrorism.

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References

Ashour, O. (2009). *Votes and Violence: Islamists and the Processes of Transformation* (H. Rubin (ed.)). the International Centre for the Study of Radicalisation and Political Violence (ICSR). https://icsr.info/wp-content/uploads/2010/01/Votes-and-Violence_-Islamists-and-The-Processes-of-Transformation.pdf

Asongu, S. A., Orim, S.-M. I., & Nting, R. T. (2019). Terrorism and Social Media: Global Evidence. *Journal of Global Information Technology Management*, *22*(3), 208–228. https://doi.org/10.1080/1097198X.2019.1642023

BNPT. (2016). *Strategi Menghadapi Paham Radikalisme Terorisme-ISIS*. http://belmawa.ristekdikti.go.id/wp-content/uploads/2016/12/Strategi-Menghadapi-Paham-Radikalisme-Terorisme.pdf

Droogan, J., Waldek, L., & Blackhall, R. (2018). Innovation and terror: an analysis of the use of social media by terror-related groups in the Asia Pacific. *Journal of Policing, Intelligence and Counter Terrorism*, *13*(2), 170–184. https://doi.org/10.1080/18335330.2018.1476773

Fahmy, S. S. (2017). Media, Terrorism, and Society: Perspectives and Trends in the Digital Age. *Mass Communication and Society*, *20*(6), 735–739. https://doi.org/10.1080/15205436.2017.1382285

Macdonald, S., Correia, S. G., & Watkin, A.-L. (2019). Regulating Terrorits Content on Social Media: Automation and the Rule of Law. *International Journal of Law in Context*, 15. https://doi.org/doi:10.1017/S1744552319000119

Marcu, M., & Balteanu, C. (2014). Social Media-A Real Source Of Proliferation Of International Terrorism. *Annales Universitatis Apulensis Series Oeconomica*, *1*(16), 14. https://ideas.repec.org/a/alu/journl/v1y2014i16p14.html

Morris, E. (2016). Children: extremism and online radicalization. *Journal of Children and Media*, *10*(4), 508–514. https://doi.org/10.1080/17482798.2016.1234736

Nisa, Y. F., Hendarmin, L. A., Lubis, D. A., Syafrudin, D., & Ropi, I. (2018). *Gen Z: Kegalauan Identitas Keagamaan*. KPG, Ecole, Masyarakat Pernaskahan Nusantara, dan Pusat Pengkajian Islam dan Masyarakat UIN.

Precht, T. (2007). *Home Grown Terrorism and Islamist Radicalisation in Europe*. https://www.justitsministeriet.dk/sites/default/files/media/Arbejdsomraader/Forskning/Forskningspuljen/2011/2007/Home_grown_terrorism_and_Islamist_radicalisation_in_Europe_-_an_assessment_of_influencing_factors__2_.pdf

Richardson, L. (2007). *What Terrorists Want, Understanding the Enemy, Containing the Threat*. Random House Trade Paperbacks.

Schwab, K. (2016). The Forth Industrial Revolution, What It Means and How to Respond. *World Economic Forum*. https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/

Shaaban, E. (2015). *Controlling the Other Edge of Social Media, Hate Speech and Terrorism Propaganda*. https://ssrn.com/abstract=2589254

UNODC. (2009). *Universal Legal Framework against Terrorism*. https://www.unodc.org/documents/southeastasiaandpacific/2009/05/Universal-Legal-Framework-against-Terrorism-Workshop/1_General.pdf

UNODC. (2012). *The Use of the Internet for Terrorist Purposes*. English, Publishing and Library Section, United Nations Office at Vienna. https://www.unodc.org/documents/frontpage/Use_of_Internet_for_Terrorist_Purposes.pdf

van de Weert, A., & Eijkman, Q. A. M. (2019). Subjectivity in detection of radicalisation and violent extremism: a youth worker's perspective. *Behavioral Sciences of Terrorism and Political Aggression*, *11*(3), 191–214. https://doi.org/10.1080/19434472.2018.1457069

Walker, C. (2017). The War of Words with Terrorism: An Assessment of Three Approaches to Pursue and Prevent. *Journal of Conflict and Security Law*, *22*, 523–551. https://doi.org/10.1093/jcsl/krx009

Weimann, G. (2014). *New Terrorism and New Media*. https://www.wilsoncenter.org/publication/new-terrorism-and-new-media

White, J. R. (2016). *Terrorism and Homeland Security* (9th ed.). Cengage Learning, Inc.

Wu, P. (2015). Impossible to Regulate: Social Media, Terrorists, and the Role for the U.N. *Chicago Journal of International Law*, *16*. https://chicagounbound.uchicago.edu/cjil/vol16/iss1/11

Online Sources

https://www.antaranews.com/berita/582710/pelaku-bom-medan-punya-kontak-langsung-ke-bahrun-naim
https://www.cnnindonesia.com/internasional/20190315173452-113-377668/penembak-masjid-christchurch-rilis-manifesto-sebelum-beraksi
https://www.cnnindonesia.com/internasional/20190501112628-134-391089/media-selandia-setuju-tak-beri-ruang-teroris-di-pemberitaan
https://www.cnnindonesia.com/internasional/20190422102917-113-388388/korban-tewas-bom-paskah-sri-lanka-melonjak-jadi-290-jiwa?
https://www.cnnindonesia.com/nasional/20190604112804-20-400873/keluarga-terduga-pelaku-tak-tahu-aksi-peledakan-bom-kartasura
http://www.cbc.ca/news, Terrorist Groups recruiting through Social Media, CBC News (Jan 10, 2012)
https://news.detik.com/berita/d-4013086/polri-kerusuhan-di-mako-brimob-bukti-pembangkangan-teroris
https://freedomhouse.org/report/freedom-net/2017/indonesia
https://www.kominfo.go.id/content/detail/9800/bssn-jadi-lembaga-utama-keamanan-siber/0/sorotan_media
https://www.kompas.com/global/read/2020/03/07/133325370/tki-di-singapura-dipenjara-karena-kucurkan-dana-ke-teroris?page=all
https://internasional.kompas.com/read/2019/03/17/07180711/korban-tewas-serangan-teror-di-masjid-selandia-baru-jadi-50-orang?page=all
https://nasional.kompas.com/read/2016/08/01/13363111/survei.wahid.foundation.indonesia.masih.rawan.intoleransi.dan.radikalisme?page=all
https://today.line.me/id/pc/article/The+Great+Replacement+yang+Melandasi+Aksi+Teror+Brenton+Tarrant-aWQ5DW
https://www.merdeka.com/peristiwa/mendagri-tegaskan-peran-pemerintah-dalam-penanggulangan-terorisme.html
https://www.nytimes.com/2017/07/08/opinion/sunday/my-son-the-jihadist.html?emc=edit_th_20170709&nl=todaysheadlines&nlid=13405362&referer=
https://ooni.torproject.org/post/indonesia-internet-censorship
https://radartegal.com/berita-nasional/pelaku-teror-medan-belajar-rakit-bom-dari.9269.html
https://www.rappler.com/indonesia/139383-polisi-pastikan-nur-rohman-pelaku-bom-bunuh-diri-solo
https://www.theguardian.com/world/2019/mar/17/facebook-removed-15m-videos-new-zealand-terror-attack
https://nasional.tempo.co/read/1090460/korban-meninggal-bom-surabaya-bertambah-menjadi-14-orang/full&view=ok
http://www.tribunnews.com/regional/2016/07/08/isi-rekaman-suara-nur-rohman-mengejutkan-jangan-hidup-seperti-kambing-matilah-seperti-singa?page=2
http://www.tujuhinterior.com/2016/07/wasiat-pelaku-bom-surakarta-sebelum.html
https://www.washingtonpost.com/politics/2019/04/23/shut-down-social-media-if-you-dont-like-terrorism/?noredirect=on&utm_term=.ede676bc7a4b

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Research Paper

Assessment of Knowledge, Attitude and Practice of University Students towards Sustainable Development Goals (SDGs)

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Abstract

This study was performed to determine the awareness level of University of Malaya students towards Sustainable Development Goals (SDGs). A set of survey questionnaires based on knowledge, attitude, and practice (KAP) was distributed among all the students of University of Malaya and 382 responses were obtained to analyze the awareness level (95% confidence level with ±5% margin of error). Data analysis was performed SPSS Statistics version 20. Descriptive statistics showed that the respondents have high knowledge with a positive attitude towards SDGs. Spearman's rho coefficient correlation was applied to determine the relationships between variables (knowledge with practice and attitude with practice). The results revealed a weak negative correlation between the knowledge and practice towards SDGs (r = -.264, N = 382, p = .00). However, there is a strong positive correlation between the attitude and practice towards SDGs (r = .440, n = 382, p =. 00).

Keywords: Environmental Sustainability, Sustainable Development Goals, University

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1. Introduction

In September 2015, the United Nations Summit on Sustainable Development in New York established a worldwide agenda for sustainable development until 2030 and defined a list of objectives on which to focus and achieve by the upcoming fifteen years. These objectives were later established as Sustainable Development Goals (SDGs), providing a shared blueprint for peace and prosperity for the people and the planet of today and future generations. It is also known as the 2030 agenda, with "no one left behind". 193 countries agreed to move toward these goals. They agreed on setting 17 Sustainable Development Goals (SDGs), which is imperative to be adopted by all countries over the world immediately. Within the goals, 230 indicators and 169 targets were set to improve global conditions ("17 Sustainable Development Goals", 2019). The goals are interconnected with each other, as achieving on one will accelerate the growth of tackling common issues within the goals. Here it is identified that eradicating poverty and other deprivations must go together with strategies that improve health and education, reduce inequality, and offshoot economic growth, while simultaneously tackling climate change and preserving oceans and forests ("Sustainable Development Goals", n.d.). The SDGs are a striving step to bring the view of sustainability upon the people in places that have never been achieved before, yet implementation of the changes among the people is a major concern (Fleming et al., 2017). The enactment of the SDGs requires constant participation of all individuals.

Malaysia has stepped in the direction of sustainable development since the 1970s, when the New Economic Policy (NEP) was announced to reduce deprivation and balance social equity. In 2009, the country formulated the New Economic Model (NEM), whose initiatives mirrored the three elements (economic, social and environmental) of the 2030 agenda. Furthermore, they formed the Eleventh Malaysia Plan (11MP) with the vision of "Anchoring Growth on People" ("Malaysia Sustainable Development Goals Voluntary National review", 2017). The vow to the 2030 Agenda for Sustainable Development has been aligned with the tactics and initiatives of the Eleventh Malaysia Plan. Therefore, sustainable development is not new to Malaysia. In fact, things have already been in motion on this path for decades. According to the Department of Statistics of Malaysia, the country is on the right track to achieve the goals (Sustainabledevelopment.un.org, 2019). Thus, it is necessary to involve the university students of the country to achieve the goals faster because they are the future leaders responsible for a sustainable planet (Joshi and Rahman, 2017; Asmuni et al., 2012).

Campuses of universities can be imagined as small towns, and it is possible to convert such spaces as habitats for the experimental enactment of a new social and technological paradigm that can work as a center point in managing sustainability (Ilham et al., 2018b). There are many initiatives that can be taken by the universities to bring the global agenda one step ahead. For instance, Kyoto University in Japan applied the simple idea of placing trash bins of recyclables near lecture rooms to grab the attention of every passers-by. By adopting this strategy, greater amounts of waste can be collected with less effort since cleaners do not need to enter each lecture room to collect the rubbish. Some universities in Malaysia have also installed motion sensors for restroom lights, which means that their lights are by default off unless someone enters the room, which is a great mode of energy consumption and CO2 emission reduction (Ávila et al., 2017). These kinds of activities and approaches will involve students in practicing environment sustainability, while at the same time making them aware of its consequences (Ilham et al., 2019). The implementation of sustainability at universities can expand the potentials and horizons of students, both within and outside the campus territories (Trencher et al., 2014).

Therefore, it is rational to focus on the knowledge, attitude, and action of students towards SDGs. Knowledge is the insights of people about certain topics, such as SDGs. Attitude is then what they feel about SDGs and practice can be the results of their feelings and what they do about it (Kaliyaperumal, 2004). Numerous Knowledge, Attitude, and Practice (KAP) studies have been conducted to identify the awareness level of individuals on environmental sustainability, for instance studies on measuring the awareness level of SDGs on prospective elementary teachers (Borges, 2019), energy consumption (Paço & Lavrador, 2017), awareness levels of a university community in Southwestern Nigeria (Omisore, Babarinde et al. 2017), sustainable consumption among university students (Ahmad and Arifin, 2018), environmental knowledge, attitude, and practices of students and teachers (Esa, 2010), environmental awareness among secondary school students (Noordin et al., 2010), and others. According to Sybille (2011), these kinds of studies show not only characteristics of knowledge, attitude, and behaviors, but also the perceptions of each person on the content. This can be considered as an educational diagnosis

of a community (Kaliyaperumal, 2004.). Hence, KAP studies offer a way to measure the awareness levels of certain communities in an effective manner (Ahmad et al., 2015).

University of Malaya (UM) is the oldest public research university located in Kuala Lumpur, Malaysia, and currently aspires the way forward in sustainability agenda. In 2019, UM ranked 34th in the UI Green Metric World University rankings. However, no specific research has been found on the awareness level of SDGs among students of the University of Malaya ("UM living lab achievement report", 2019). Thus, this study attempts to provide information about the current position of students of the University of Malaya on the aspect of awareness on SDGs and intends to enlighten them about the 2030 agenda, which demands an urgent call for actions to sustain the world.

1.1. Reflections on Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) are a collection of 17 goals that have been endorsed by the United Nations (United Nations, 2015). These expansive targets are interrelated, but each needs their own focus to be achieved. The SDGs, as illustrated in Figure 1, cover a wide range of social and financial advancement issues such as poverty, education, climate change, environment, and others (Griggs et al., 2013). The SDGs, which are known as the 2030 Agenda, was created to supplant the Millennium Development Goals (MDGs) that ended in 2015 (Anger, 2010; Sachs, 2012). In fact, unlike MDGs, the SDGs do not differentiate between developed and developing nations, and they apply to all nations.

Figure 1: Sustainable Development Goals (2016-2030)

1.1.1. Goal 1: No Poverty

Since 1990, poverty has been cut by more than half but more than 1 in 5 people still make a living with less than $1.25 per day. That target may not be satisfactory for human subsistence, in any case. It may be essential to raise income figure to as high as $5 per day (Fan & Polman, 2014). Poverty is more than the need for wages or assets. Individuals who live in poverty on the off-chance may need fundamental services such as healthcare and education. They also encounter starvation, social segregation, and prohibition from making choices. Sexual orientation imbalance plays an expansive part in propagating poverty and its dangers. Achievement of goal 1 is hampered by development disparity, progressively delicate statehood, and the impacts of climate change (Le Blanc, 2015).

1.1.2. Goal 2: Zero Hunger

Globally, approximately 1 in 9 individuals are underfed, which is the larger part of individuals who live in developing countries (Fan & Polman, 2014). Agriculture is one of the biggest fields of employment in the world and is the major source of salaries for destitute family units of nine countries, giving jobs for 40% of the worldwide population. Women make up almost 43% of the agrarian labor in developing nations and over 50% in parts of Asia and Africa, and yet women only claim 20% of the land as being owned by them (Keesstra et al., 2016). The target of goal 2 is that by 2030 starvation and related health

ailments ought to end. This would be done by multiplying rural efficiency and livelihoods of small-scale nourishment producers, as well as guaranteeing feasible nourishment generation frameworks and continuously improving land and soil quality. Other targets bargain with maintaining genetic diversity as well as anticipating exchange limitations and changes in rural world markets to restrain extreme nourishment cost instability (Nilsson et al., 2016).

1.1.3. Goal 3: Good Health and Well-Being

Goal 3 is to accomplish widespread health coverage to incorporate fundamental medicines and vaccines. Critical strides have been made in expanding life expectancy and decreasing some of the common reasons for child and maternal mortality. Furthermore, advanced studies have been performed on clean water access and sanitation, as well as reducing jungle fever, tuberculosis, polio, and the spread of HIV/AIDS; however, only half of women in developing countries have obtained essential health care, and the need for family planning is expanding exponentially as the population increases. While needs are being tended to steadily, more than 225 million women have been neglected for contraception (Boerma et al., 2015). By 2030, this goal proposes the reduction of preventable death of infants and children below 5 years old, and scourges such as tuberculosis, intestinal sickness, and water-borne maladies by 2030 (Liu et al., 2016). In addition, health and well-being should be considered to incorporate targets related to the anticipation and treatment of substance abuse, deaths and injuries from traffic accidents, hazardous chemicals, greenhouse gas emissions, water pollution, and soil contamination (Schmidt et al., 2015; Tangcharoensathien et al., 2015).

1.1.4. Goal 4: Quality Education

Education, although easily and widely accessible, has only been achieved today specifically in primary schools. Access to education is not limited only to men; it is also open to women (Hajer et al., 2015). One realization is that this vast access is not a guarantee of the quality of education. Currently, it is estimated that over 60% of women of the total youth world population (103 million) still lack knowledge such as reading skills (Griggs et al., 2014). Hence, the primary objective for goal 4 is to promote balance between men and women, especially in obtaining free and most importantly quality education.

1.1.5. Goal 5: Gender Equality

Women in terms of their involvement in various sectors such as health, education, and politics can help a country generate a sustainable economic, societal, and humanitarian status. In 2014, it was recorded that a total of 143 countries pledged to secure the balance of engagement between men and women in their constitution (Nillson et al., 2016). Among the issues that still persist among women is exploitation as sexual tools, forced marriages, and public views that degrade them. To achieve this goal, there is a need for legislation to protect women. It should also be remembered that the involvement of women is as agents of change rather than recipients of change (Sachs, 2012).

1.1.6. Goal 6: Clean Water and Sanitation

In 2017, records show that 4.5 billion people in the world still have not managed safe sanitation systems. Goal 6 has the aim of giving impetus to the importance of clean water use and environmental sanitation in everyday life. To that end, the parties involved have conceived many indicators for sanitation, such as toilets in schools and offices (Hák et al., 2016). This goal also emphasizes the cleanliness of water, specifically for drinking, and reduction of the open release of dirty water or sewage.

1.1.7. Goal 7: Affordable and Clean Energy

The target of SDGs is that at the end of its implementation period, access to affordable and sustainable energy use can be achieved entirely. The aim is to increase the production and use of renewable energy internationally (Lu et al., 2015). To achieve this, there is the need for holistic cooperation from all countries to facilitate access to this goal. If this goal is achieved, an economic spike and development will occur not only progressively but also sustainably.

1.1.8. Goal 8: Decent Work and Economic Growth

For Goal 8, it is estimated that at least 7% of the change in Gross Domestic Product (GDP) annually is to increase economic productivity in less-developed countries. Thus, the existence of agents such as innovation, entrepreneurship, and growth of small and medium-sized enterprises (SMEs) is essential for the success of this productivity. The target is divided into two periods, to 2020 and to 2030 (Griggs et al., 2013). By 2020, the target is that youth unemployment can be reduced by implementing a global strategy to create employment opportunities for youths. Meanwhile, for the year 2030, the target is providing sustainable tourism-related policies and to open new job opportunities. Furthermore, the strengthening of domestic financial institutions and increased trade assistance for developing countries is considered and referred to as a means of achieving sustainable economic growth (Griggs et al., 2014; Kellogg, 2017).

1.1.9. Goal 9: Industry, Innovation and Infrastructure

According to the sources, manufacturing-related industries are a major source of household income worldwide. Nevertheless, less-developed countries recorded a relatively low per-capita income rating ($100) compared to developed countries in Europe and North America, which recorded a revenue value of $4,621. For the record, the product manufacturing industry contributes the most (80%) to the total manufacturing output and 10% in less-developed countries in the industrial economy. In terms of infrastructure, this goal expects many facilities such as mobile cellular signals to be improved, especially in remote areas or less-developed countries (Lu et al., 2015; Kellog, 2017).

1.1.10. Goal 10: Reduced Inequalities

Goal 10 has the target of reducing the cost of exporting goods from less-developed countries. In 2015, 65% of products exported from less-developed countries were tax-free, compared to 2005 (41%) (Griggs et al., 2013; Hajer et al., 2015). Meanwhile, in the case of transfers, the target for transfers is only 3% of the charge to migrant workers who send money to their respective countries. However, a 6% transfer charge is charged by some companies involved and 11% is imposed by commercial banks. Although there are services that charge between 2% to 4%, there are not many of these services (Nilsson, 2016).

1.1.11. Goal 11: Sustainable Cities and Communities

By 2030, this goal has the aim of wider access to safe and affordable housing. To achieve this target, the percentage of individuals living in slums or informal settlements is used as the measurement. By records, the percentage decreased from 39% (2000) to 30% (2014) (Griggs et al., 2013). Furthermore, some rural movements into urban areas have accelerated the process towards achieving this goal when better alternative housing is provided (Lu et al., 2015).

1.1.12. Goal 12: Responsible Consumption and Production

This goal encourages the usage of eco-friendly products and at the same time ensuring that waste generation is reduced. The goal targets increased participation in the recycling of materials and waste by 2030. In addition, companies should implement green practices and hence publishing their sustainable practice reports (United Nations, 2015).

1.1.13. Goal 13: Climate Change

In December 2015, the climate change issue was identified and discussed by the UN during the climate change conference in Paris. The report summarized that in order to tackle climate change, it is not impossible if the SDGs are being complied with. In addition, the climate issue is linked to a few factors such as poverty, gender equality, and energy. Hence, the UN proposed the public sector to instigate initiatives to reduce negative impacts on the environment (Lu et al., 2015).

1.1.14. Goal 14: Life Below Water

Oceans cover 71% of the earth's surface and contain more than 200,000 species that contribute as major sources of protein for the world. However, approximately 30% of marine habitats have been annihilated and 30% of marine life in the world is over-exploited. Oceanic contamination is even more stunning, as 15 tons of plastic are discharged into the seas directly each minute (Griggs et al., 2013). A few nations including Kenya and different communities around the world have prohibited the use of plastic for retail purchases. Progress in ocean improvement contributes to poverty diminishment of low-income families and sound nourishment (Anger, 2010). The target incorporates avoiding and decreasing marine contamination and destruction, ensuring marine and coastal environments, and managing fishing activity.

1.1.15. Goal 15: Life on Land

The main purpose of this goal is to protect biodiversity, including forest, desert, and mountain eco-systems, from further destruction. Accomplishing a "land degradation-neutral world" can be achieved by recovering corrupted forests and lost lands due to droughts and surges. This goal calls for more consideration to avoiding invasive species and protecting endangered wildlife. “The Mountain Green Cover Index” is utilized to monitor the restoration activity of biodiversity towards achieving the goal (Hák et al., 2016).

1.1.16. Goal 16: Peace, Justice and Strong Institutions

The target of this goal to diminish savage crimes, sex trafficking, forced labor, and child abuse. The UN has recognized that more women became victimized in 2017. However, female victims had declined from 84% (2004) to 71% (2014). The major targets are to end sex trafficking, forced labor, and child abuse during the achievement of the goal, though achieving the goal might be challenging because of the dependence only on reported crimes (Kellog, 2017).

1.1.17. Goal 17: Partnerships for the Goals

The final goal (goal 17) was established due to problems that might arise in the implementation of the previous 16 goals. Hence, this goal was included to guarantee that nations and organizations cooperate instead of compete for the goals. Creating large stakeholder organizations to share information, expertise, innovation, and economy is seen as fundamental for the success of the SDGs (United Nations, 2015; Le Blanc, 2015).

A proper understanding on the 17 goals of the SDGs is paramount in this study in order to gauge the level of awareness among university students as the main respondents involved.

2. Methodology

2.1. Sample Size and Method

In this study, both online and paper-based survey were conducted among all students of the University of Malaya, both undergraduate and postgraduate students. First, the total number of enrolled students in UM was identified (UM fact sheet, 2019). Then, the minimum sample size (378 respondents) was set based on a simplified formula in the study of Yamane (Israel, 1992), and 382 respondents were obtained at 95% confidence level with ±5% margin of error. The study was first decided to be conducted only by online survey to conserve the use of paper, but due to the lack of online respondents, both methods were applied. The online survey was distributed through SISWA mail (siswa.um.edu.my) which is the official e-mail application system provided to all students of University of Malaya and throughout all University of Malaya online groups. Paper-based questionnaires were distributed throughout the UM campus. The targeted areas were student residences, student lounge, library, and cafes. The responses were collected in a period of four weeks. The study was inferential, distribution was random, and responses were kept confidential.

2.2. Item Development

A knowledge, attitude, and practice (KAP) questionnaire (with a 5-point Likert scale) was designed by adopting the previous studies conducted by Ahmad and Arifin (2018), Borges (2019), and Omisore (2017). There were 5 sections in the questionnaire. Section A was about the demographic background of the respondents. Section B, C, and D involved knowledge, attitude, and practice towards the Sustainable Development Goals, while Section E involved respondent opinions. The overall number of items were adjusted accordingly after consequent validity and reliability tests were taken.

2.3. Item Validity and Reliability

Among several reliability test methods, Cronbach's Alpha internal consistency method was employed for the analysis. From the conducted reliability test, all the variables of knowledge, attitude, and practice on SDGs had fair internal consistency, with the Cronbach alpha coefficient reported to be .905. The Cronbach alpha values for each variable were also reported to show good internal consistency under the satisfactory level of reliability, as presented in Table 1.

Table 1: Reliability test

Variables	No. of Items	Cronbach's Alpha
Knowledge	10	.844
Attitude	14	.933
Practice	14	.741
Total	38	.905

2.4. Data Analysis

The awareness level of the students was measured by using descriptive analysis using the Statistical Package for the Social Sciences (SPSS) program. For inferential analysis, Spearman's rho correlation coefficient was utilized to determine the relationships between variables (knowledge with practice, and attitude with practice). The data between knowledge and practice level was to be analyzed using rank-biserial, as the data was nominal (knowledge variable) and ordinal (practice level variable) (Chua., 2013) but Spearman's coefficient was utilized instead (Glass., 1966). In order to measure the relationship between student attitudes and their practice level, Spearman's coefficient was utilized as both variables are ordinal data (Chua., 2013). The correlation was significant at $p < 0.01$. Items that were negatively composed were recoded accordingly. The interpretation of the r value of Spearman's rho correlation is stated in Table 2 to indicate the strength level of the relationship between the variables.

Table 2: Interpretation of Spearman's rho correlation r value (Dancey and Reidy, 2004)

Spearman's rho	Correlation
≥ 0.70	Very strong relationship
0.40-0.69	Strong relationship
0.30-0.39	Moderate relationship
0.20-0.29	Weak relationship
0.01-0.19	No or negligible relationship

*This descriptor applies for both positive and negative relationships.

3. Results and Discussion

3.1 Sustainable Development Goals Adoption in Malaysia

3.1.1 Ninth Malaysian Plan (9MP)

Malaysia through its Ninth Malaysian Plan (9MP) exposed the blueprint of government agenda for a period of five years (2006-2010). This comprehensive plan explained the distribution of budgets for various sectors (Saadatian et al., 2012). Furthermore, Malaysia always takes seriously sustainable development through the 9MP, and it was proven that Malaysia was ranked 38th among 146 nations and

second in Asia for its efforts in enforcing sustainable development. Next, Malaysia was ranked ninth among 133 countries based on the endeavors taken to diminish environmental impact on human well-being and for environmental assurance imperativeness (Foo, 2013). In Malaysia, there are many programs that have been planned by the government for environmental sustainability, but as for other countries, there are challenges in conserving the environment and especially in financial development. Hence, Malaysia recognized the sustainable development concept and implied the concept within policies, visions, missions, and plans. Moreover, Malaysia adapted Agenda 21 as part of the important factor for improving sustainable development implementation (Saadatian et al., 2009).

3.1.2 Malaysia National Vision Policy (NVP)

The Malaysian National Vision Policy (NVP), which was proposed by the government for the years from 2001 to 2010, implemented the sustainable development concept. The policies related to sustainable development are encouraging more equitable society, sustaining economic development, and pursuing environmental protection. However, there were weaknesses in the implementation, even though Malaysia had made many plans related to sustainable development, where there is a lack of comprehensive engagement and insufficient indicators for sustainable development (Saadatian et al., 2012).

3.1.3 Malaysia Sustainable Assessment Approaches

The importance of assessing sustainable development has been recognized by scholars and policy planners. Hence, some frameworks and mediums were created to conduct such an assessment.

3.1.4 Malaysia Quality of Life Index (MQLI)

MQLI was developed by the Economic Planning Unit (EPU) under the Department of Prime Minister in 1999 as a tool to assess not only the life quality of Malaysians but also sustainable development approaches. It was then updated in 2004. MQLI assesses sustainable development through 14 practices, which are air quality, deforestation, water cleanliness, finance, working life, transportation and communication, well-being, education, housing, environment, family, social involvement, public condition, and culture with leisure (Hassan, 2017).

3.1.5 Malaysia Urban Quality of Life (MUQL)

Another assessment, MUQL, was created in 2002 by the same department as MQL. MUQL, as with MQLI, focuses on the same approaches but particularly on Malaysians who live in urban areas. The assessment was expanded with extra rubrics such as urban service, solid waste generation, and river quality. This assessment implied the four themes of the air, water, land, and environment itself, including the inland and offshore (Saadatian et al., 2009; Saadatian et al., 2012).

3.1.6 Malaysia Urban Indicator Network (MURNINet)

MURNINet focuses on urban development towards sustainable development, and this approach was developed by the Federal Municipality Council. This assessment contains 11 rubrics related to sustainable development, such as infrastructure, transport, environmental management, affordable housing, and others (Foo, 2013; Hassan, 2017).

3.1.7 Green Building Index (GBI)

The Green Building Index (GBI) was created as an assessment approach for building construction. The approach targets to encourage developers, architects, and engineers in embedding sustainable activity during the building construction process. The main focus of GBI is on energy saving, recycling, climate-friendliness, and protection of the ecosystem, whether at local or global levels. GBI consists of six rubrics such as energy and water efficiency, indoor quality, sustainable planning, and others (Abidin, 2010).

All the policies and plans executed by the government of Malaysia as stated beforehand may have directly or indirectly affected communities, including university students in their knowledge, attitude, and practice towards the sustainable development goals.

3.2 University students' Knowledge, Attitude and Practice towards Sustainable Development Goals (SDGs)

The majority of the respondents were female, with a percentage of 63.35%, and the remaining 36.65% were male respondents (Table 3). Most of the students had ages from 22 to 32 (59%) and 21 and under (35%). The majority of the students were undergraduate students (64.66%). The knowledge background of the respondents was divided according to sciences (60%) and non-sciences (40%).

Table 3: Demographic backgrounds

Variables		Percentage (%)
Gender	Male	36.65
	Female	63.35
Age	21 and under	35
	22 to 32	59
	33 to 43	5
	44 to 54	1
Education Level	Diploma	12.83
	Undergraduate	64.66
	Postgraduate	14.40
	Ph.D.	8.12
Faculty	Science	60
	Non-science	40

The level of knowledge of UM students is high (Table 4). Most of the students responded positively, ranging from 49.5% to 97.1%, highlighted with a grey color in Table 4. The highest percentage of positive responses (Yes) was for item K6 "Healthy oceans and seas are essential to our existence" with a percentage of 97.1%, which means that UM students possess good knowledge about oceans and water quality. One reason behind this could be that UM had taken the eco-campus initiative since 2016, by which several campus activities are conducted with the help of outputs from UM living laboratories that focus on minimizing harmful environmental impacts. In addition, the students and staff of UM are continuously updated with the achievements of eco-campus through e-mail and an official social media platform by which they acquire knowledge of water and oceans, climate change, and other essential news that requires promotion of sustainability ("UM eco campus" 2019). 95% of students were affirmative with the statement "The overuse of natural resources is affecting the well-being of future generations", which is the gist of SDGs. Subsequently, when they were asked with statement K1 about their knowledge of "Sustainable Development Goals", most of the respondents answered "Yes", but unexpectedly, when they were asked if they knew that the goals are targeted to be achieved by 2030, the majority of the students did not know (50.5%).

Table 4: Percentages of student knowledge on Sustainable Development Goals

#	Items	Yes (%)	No (%)
K1	I have heard about the term "Sustainable Development Goals (SDGs)" before.	63.9	36.1
K2	I recognize that the meaning of the word "Sustainability" is the ability to be maintained at a certain rate or level.	92.1	7.9
K3	I am aware of the fact that Sustainable Development Goals are targeted to [be] achieve[d] by the year 2030.	49.5	50.5
K4	The overuse of natural resources is affecting the well-being of future generations.	95.0	5.0
K5	To achieve sustainable development, all people in the world must have access to a good education.	89.8	10.2
K6	Environmental protection, economic growth, and social equity are the fundamental element[s] of a nation.	96.9	3.1
K7	Healthy oceans and seas are essential to our existence.	97.1	2.9
K8	Increased use of renewable resources can reduce greenhouse gas emissions.	93.5	6.5
K9	Income inequality is a global problem that requires global solutions.	85.9	14.1
K10	Maintaining good relationship[s] with various countries is crucial to preserve peace around the world.	96.1	3.9

Table 5 represents the level of student attitudes toward SDGs. As the statements were positive and the negative statements were recoded accordingly, most of the respondents responded "Agree" or "Strongly Agree" to the statements. Both "Agree" and "Strongly Agree" responses are considered as positive attitudes, highlighted with a grey color in Table 5. The highest percentage of "Strongly Agree" responses by students was for statement A7, "Environmental problems are a matter of my concern" (56.5%). This indicates that the students of UM know the value of the environment and are aware of the consequences associated with environmental problems. The majority of the respondents also agreed with the fact that functioning and resilient infrastructure is the foundation of every successful community (52.6%). However, when they were asked whether basic environmental courses should be a part of a university curriculum, there were mixed responses, with 39.8% of students responding "Agree" and 24.1% of students responding "Neutral". Yet overall, the respondents showed a positive attitude towards SDGs. Parallel results were also observed in studies such as those by Biassuti (2017), Gündüz (2017), Keles (2017), Al-Naqbi and Alshannag (2018), and Borges (2019).

Table 5. Percentage of students' attitudes on Sustainable Development Goals.

#	Items	SD*(%)	D*(%)	N*(%)	A*(%)	SA*(%)
A1	Reducing poverty and hunger in the world are more important than increasing the economic welfare of the industrialized countries.	2.6	3.9	22.8	41.9	28.8
A2	To me, society should be provided with the best free basic health services.	2.9	3.1	10.7	38.2	45.0
A3	To me, raising awareness on Sustainable Development Goals among the university students is necessary.	5.8	8.9	14.7	36.6	34.0
A4	I feel basic environmental courses should be a part of our university curriculum.	3.9	4.2	24.1	39.8	28.0
A5	I think in society, males and females should be treated equally in all aspects of life.	3.1	6.8	15.7	34.3	40.1
A6	The rise of global temperature has increased water scarcity.	3.7	2.6	18.8	45.5	29.3
A7	Environmental problems are a matter of my concern.	4.5	6.5	8.1	24.3	56.5
A8	People from varying cultural backgrounds must be treated with the same respect.	3.7	2.1	10.7	30.4	53.1
A9	I try to conserve the use of electric energy at my place.	3.4	2.9	19.9	48.4	25.4
A10	I try to reduce the amount of waste at home by collecting materials that can be recycled.	3.9	6.3	29.6	41.1	19.1
A11	Functioning and resilient infrastructure is the foundation of every successful community.	2.1	3.1	22.5	52.6	19.6
A12	The government should take greater account of sustainability within their political decision.	2.6	1.3	10.7	47.1	38.2
A13	Research and educational institutions should take greater account of sustainability in their activities and campaigns.	2.6	1.6	8.1	45.3	42.4
A14	I believe that participation in a sustainable lifestyle will bring peace and justice globally.	3.9	1.6	14.1	41.9	38.5

*SD= Strongly Disagree, *D= Disagree, *N= Neutral, *A= Agree, *SA= Strongly Agree

A different scenario was observed for the practice level of students (Table 6). The majority of the student criteria of practicing SDGs fell under "sometimes" and "often" as highlighted in Table 6. A large portion of students responded "sometimes" on statements such as P1, "I avoid using plastic straws at restaurants/cafes" (43.5%); P2, "I bring my own reusable bag for grocery shopping" (33.5%); P6, "I prefer public transport rather than a private one" (38.2%); and P11, "I am interested to pay more on environmentally friendly products" (39.5%). These are some of the crucial commitments people must make to achieve the goals, especially goal number 13 (climate action) which is the most urgent area of struggle among all other goals. If reusable bags are not used, the use of single-use plastic bags will keep increasing in the market and thus increasing the amount of non-degradable waste. Next, by using public transport, the amount of carbon footprint can be reduced; if not, global warming is likely to reach 1.5°C in the upcoming years ("The Sustainable Development Goals Report, 2019). As people face extreme weather changes, ocean acidification, sea level rise, catastrophes, and species extinctions, there is no alternative to using environmentally-friendly products. Furthermore, when they were asked whether they participate in environmental sustainability-related workshops or seminars, a majority of the students said they sometimes (28.8%) and rarely do (25.4%). On the contrary, 52.4% of students answered they always conserve the use of electrical appliances at their home, 43.2% always turn off the air conditioner and

lights of the classroom after the class finishes, and 40.3% are willing to utilize renewable energy, which are good attributes to reach the targets of goal 7 (affordable and clean energy) and goal 12 (responsible consumption and production). Nevertheless, integrated action is required to achieve all the goals. Therefore, it was shown overall that the practice level of students was slightly low. Similar results were also found by Ahamad and Arifin (2018) at the University of Putra Malaysia.

Table 6. Percentage of student practice levels on Sustainable Development Goals.

#	Items	N*(%)	R*(%)	S*(%)	O*(%)	A*(%)
P1	I avoid using plastic straws at restaurants/cafes.	4.7	12.8	43.5	25.1	13.9
P2	I bring my own reusable bag for grocery shopping.	11.0	17.3	33.5	24.9	13.4
P3	I discard recyclable material (ex: [as] plastic bottle, newspaper, glass) separately at home.	8.9	19.6	34.0	22.3	15.2
P4	I conserve the use of water supply at my place.	1.3	6.5	25.9	39.3	27.0
P5	I treat people from all caste, creed and religion equally.	1.0	3.4	16.5	31.2	47.9
P6	I prefer public transport rather than a private one.	3.7	10.7	38.2	26.2	21.2
P7	I switch off electrical appliances of my home that I don't need when I am not around.	0.3	3.4	14.4	29.6	52.4
P8	I turn off the air-conditioner and lights of the classroom after the class finish[es] and gets [is] empty at my university.	2.9	4.2	20.2	29.6	43.2
P9	I am willing to utilize renewable energy.	1.0	3.9	19.6	35.1	40.3
P10	I avoid using the animal skinned [animal skin] product.	3.4	8.1	14.9	24.3	49.2
P11	I am interested to pay more on environmentally friendly products.	3.1	12.0	39.5	26.2	19.1
P12	I have taken courses related to environmental sustainability.	23.6	17.5	18.8	18.8	21.2
P13	I participate in events (ex: [as] seminar, talk, workshop[s]) that relates [relate] to environmental sustainability.	14.1	25.4	28.8	20.4	11.3
P14	I talk about environmental sustainability with my friends and family.	7.1	17.8	35.9	24.1	15.2

*N= Never, *R= Rarely, *S= Sometimes, *O= Often, *A= Always

Table 7: Correlation between knowledge and practice and attitude and practice

Correlation between	N	Spearman's rho correlation coefficient	Inference
Knowledge and practice	382	-.264**	correlated
Attitude and practice	382	.440**	correlated

**. Correlation is significant at the 0.01 level (2-tailed).

There is a weak negative correlation between student knowledge and practice level towards SDGs (r= -.264, N = 382, p = .00) (Table 7), which indicates that even though UM students have high knowledge about SDGs, their practice level is low. This proves that possession of great knowledge on the environment does not always translate into positive action (Mahat et al., 2017). The students may need to know how to use the resources rather than only having the knowledge about them in their head. Another study by Jamilah et al. (2011) also asserted that having high knowledge about SDGs failed to ensure a high level of practice among students. On the other hand, there was a significant strong positive correlation between student attitude and practice level towards SDGs (r=.440, n=382, p=.00) (Table 7) which indicates that a positive attitude towards SDGs will encourage them to have a good level of practice.

Cross-tabulation was done to monitor knowledge, attitude, and practice level in relation to multiple variables in detail. Cross-tabulation of average positive knowledge of students based on their gender showed that the knowledge of female students (87.89%) was higher compared to male students (82.65%). Likewise, female students possessed a higher positive attitude (78.35%) compared to male students (72.2%). The inclination of practicing SDGs was also higher among female students (56.38%) than male students (48.31%). Additionally, science students of UM possessed greater knowledge (science 85.8%, non-science 81.9%) and positive attitude (science 78.29%, non-science 68.84%) towards SDGs than non-science students. On the contrary, non-science students of UM possessed a slightly greater percentage for practicing SDGs than science students (science 53.3%, non-science 54.6%). This is unusual, because it is expected that science students would practice SDGs more because they are more familiar with nature preservation and science compared to non-science students.

The students were asked to state their opinion on which goal is of immediate concern to them; many of them stated goal 2 (zero hunger) and goal 4 (quality education). Students of UM are aware of the vulnerable consequences of malnutrition and food waste. Many activities of saving food are also held at UM, for example My Save Food and UM Food Bank among others. Moreover, since they are university students, they know the value of education, which can work as a catalyst to solve global problems. The results also showed that social media was the most preferred platform for them for obtaining environmental knowledge. Overall, most of the students commented that the implementation of SDGs will offer a beautiful world and a peaceful life.

4. Conclusion

The overall awareness level of UM students toward SDGs is high, shown by a significant number of students who possess high knowledge with a positive attitude. Nonetheless, they showed slightly low performance in practicing SDGs. There is a weak negative correlation between student knowledge and practice level, which indicates that although UM students possess high knowledge about SDGs, their practice level is slightly lower, but this can be increased by strategic approaches and intervention programs by the university. However, there is a strong positive correlation between student attitude and practice level. This showed that by having a positive attitude, students will be more driven towards practicing actions aligned with SDGs. It should be noted that environmental approaches vary between institutions, and thus students may have different levels of awareness towards SDGs. On a positive note, several leading universities in the Asian region already started producing annual sustainability reports and this trend will hopefully soon lead to the introduction of sustainability policies. Therefore, future research could investigate deeper into the barriers of converting knowledge and attitude of SDGs into practices.

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References

Asmuni S., Khalili J.M., Zain Z.M. 2012, Sustainable consumption practices of university students in Selangor, Malaysia. J Asian Behav. Stud., 2 (6) (2012), pp. 73-82. Doi: 10.1016/j.sbspro.2012.03.078

Ahamad, N. R., & Ariffin, M. (2018). Assessment of knowledge, attitude and practice towards sustainable consumption among university students in Selangor, Malaysia. Sustainable Production and Consumption, 16, 88-98. doi: Doi: 10.1016/j.spc.2018.06.006

Ahmad, J., Noor, S. M., & Ismail, N. (2015). Investigating Students' Environmental Knowledge, Attitude, Practice and Communication. Asian Social Science, 11(16), 284.

Al-Naqbi, A., & Alshannag, Q. (2018). The status of education for sustainable development and sustainability knowledge, attitudes, and behaviors of UAE university students. International Journal of Sustainability in Higher Education, 19(3), 566-588. Doi: 10.1108/IJSHE-06-2017-0091

Ávila, L., Leal Filho, W., Brandli, L., Macgregor, C., Molthan-Hill, P., Özuyar, P., & Moreira, R. (2017). Barriers to innovation and sustainability at universities around the world. Journal Of Cleaner Production, 164, 1268-1278. doi: 10.1016/j.jclepro.2017.07.025

Biasutti, M., & Frate, S. (2017). A validity and reliability study of the attitudes toward sustainable development scale. Environmental Education Research, 23(2), 214-230. Doi: 10.1080/13504622.2016.1146660

Borges, F. (2019). Knowledge, Attitudes and Behaviours Concerning Sustainable Development: A Study among Prospective Elementary Teachers. Higher Education Studies, 9(2), 22. Doi: 10.5539/hesv9n2p22

Chua, Y. P. (2013). Mastering research statistics. McGraw-Hill Education.

Cohen, 2006 B. Cohen Urbanization in developing countries: current trends, future projections, and key challenges for sustainability Technol. Soc., 28 (1–2) (2006), pp. 63-80.

Dancey, C. and Reidy, J. (2004) Statistics without Maths for Psychology: using SPSS for Windows. Prentice Hall, London

Esa, N. (2010). Environmental knowledge, attitude and practices of student teachers. International Research In Geographical And Environmental Education, 19(1), 39-50. doi: 10.1080/10382040903545534

Etzkowitz, 2003 H. Etzkowitz Innovation in innovation: the triple helix of university-industry-government relations. Soc. Sci. Inf., 42 (3) (2003), pp. 293-337.

Fleming, A., M.Wise, R., Hansen, H. and Sams, L. (2017). The sustainable development goals: A case study. Marine Policy, [online] 86, pp.94-103. Available at: https://www.sciencedirect.com/science/article/pii/S0308597X17304414 [Accessed 16 Sep. 2018].

Gündüz, S. (2017). A Research about attitudes and behaviors of university students with having different cultures towards the environment through sustainable development. EURASIA Journal of Mathematics Science and Technology Education, 13(6), 1881-1892. Doi: 10.12973/eurasia.2017.01206a

Geels, F.W. (2004) From sectoral systems of innovation to socio-technical systems: insights about dynamics and change from sociology and institutional theory. Res. Policy, 33 (6–7) (2004), pp. 897-920

Glass, G. V. (1966). Note on rank biserial correlation. Educational and Psychological Measurement, 26, 623-631. Retrieved from here: http://journals.sagepub.com/doi/pdf/10.1177/001316446602600307

Ilham, Z., Jamaludin, A.A., Zulkifli, N.E.I., Kamar. M.F., Zuki, F.M. & Jani, R. (2018a). Issues and challenges in organizing an effective campus energy saving culture, In: Yusoff, S. (ed) UM Living Lab (Vol. 1). Sustainability Science Research Cluster, University of Malaya Press, pp. 39-47.

Ilham, Z., Hakimi, M.I. & Khalid, N. (2018b). RCE Central Semenanjung: A study on local community sensitivity towards climate change risk events in Fraser's Hill, In: Yusoff, S. (ed) UM Living Lab (Vol. 2.) Sustainability Science Research Cluster, University of Malaya Press, pp. 116-127.

Ilham, Z., Jamaludin A.A. & Hakimi, M.I. (2019). Youth for Environmental Sustainability (YES) Malaysia. In Hardiman, B. & Yuniarti, E. (Eds.), 1st Asia-Pacific RCE SDG Youth Challenge 2018 on "Youth for the Goals: Climate Action and Life Below Water", Western Sydney University Press, pp. 6.

Israel, G. D. (1992). Gainesville: University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS, Determining sample size, pp. 1-5.

Joshi Y., Rahman Z. (2017). Investigating the determinants of consumers' sustainable purchase behaviour. Sustain. Prod. Consump., 10 (2017), pp. 110-120, Doi: 10.1016/j.kjss.2018.01.007

Jamilah, H.A., Hasrina, M., Hamidah, A.H., Juliana, A.W., 2011. Pengetahuan, sikap dan amalan masyarakat Malaysia terhadap isu alam sekitar. Akademika, 81 (3),103–115.

Keles, Ö. (2017). Investigation of pre-service science teachers' attitudes towards sustainable environmental education. Higher Education Studies, 3(7), 171-180. Doi: 10.5539/hes.v7n3p171.

Kaliyaperumal, K. Guideline for conducting a knowledge, attitude and practice (KAP) study. AECS Illumination [Internet]. 2004 [cited 2017 May 20]; 4 (1): 7-9.

Malaysia Sustainable Development Goals Voluntary National review 2017. (2017). Retrieved from https://sustainabledevelopment.un.org/content/documents/15881Malaysia.pdf

Mahat, H., Hashim, M., Nayan, N., Saleh, Y., Haron, S.M.S., 2017. Sustainable consumption practices of students through practice oriented approach of education for sustainable development. Int. J. Acad. Res. Bus. Soc. Sci., 7 (6), 703–720. Doi: 10.6007/IJARBSS/v7-i6/3031.

Mont, O., Neuvonen, A., Lahteenoja, S., 2014. Sustainable lifestyles 2050: stakeholder visions, emerging practices and future research. J. Cleaner Prod. 63 (2014), 24–32. http://dx.doi.org/10.1016/j.jclepro.2013.09.007

Noordin, T. A., & Sulaiman, S. (2010). The status on the level of environmental awareness in the concept of sustainable development amongst secondary school students. Procedia-Social and Behavioral Sciences, 2(2), 1276-1280.

Omisore, A. G., et al. (2017). "Awareness and Knowledge of the Sustainable Development Goals in a University Community in Southwestern Nigeria." Ethiopian Journal of Health Sciences, 27(6): 669-676.

Paço, A., & Lavrador, T. (2017). Environmental knowledge and attitudes and behaviours towards energy consumption. Journal Of Environmental Management, 197, 384-392. doi: 10.1016/j.jenvman.2017.03.100

Sustainabledevelopment.un.org. (2019). Malaysian Sustainable Development Knowledge Platform. Retrieved from https://sustainabledevelopment.un.org/memberstates/malaysia.

Sustainable Development Goals. Retrieved from https://sustainabledevelopment.un.org/?menu=1300 Section for Education for Sustainable Development (ED/PEQ/ESD) Division for the Promotion of Quality Education, UNESCO.[http://portal.unesco.org/education/en/file_download.php/c087fbc95b175f1776b748036352e65fbrief+on+ESD.pdf] (2006, December 13).

Saleh, A. A., Kamarulzaman, N., Hashim, H., Hashim, S. Z. 2011. An Approach to Facilities Management (FM) Practices in Higher Learning Institutions to Attain a Sustainable Campus (Case Study: University Technology Mara-UiTM). Procedia Engineering, Vol. 20, pp. 269-821 278

Sybille, G., 2011. The KAP survey model (knowledge, attitude and practices). Retrieved from https://issuu.com/medecinsdumonde/docs/mdm_guide_kap_ survey_2011.

Trencher et al., 2014 G. Trencher, X. Bai, J. Evans, K. McCormick, M. Yarime University partnerships for co-designing and co-producing urban sustainability Glob. Environ. Chang., 28 (2014), pp. 153-165

The-Sustainable-Development-Goals-Report-2019.pdf Retrieved from https://unstats.un.org/sdgs/report/2019/

UM fact sheet (2019). Retrieved from https://www.um.edu.my/about-um/um-fact-sheet. UM eco campus (2019). Retrieved from https://www.google.com/search?q=UM+eco+campus&rlz=1C1CHBF_enMY793MY793&oq=UM+eco+campus+&aqs=chrome..69i57j0j69i60l2.3858j0j8&sourceid=chrome&ie=UTF-8

UM living lab achievement report (2017-2018). Retrieved from https://www.um.edu.my/docs/default-source/UM-Sustainability-Reports/um-campus-sustainability-report-2017-2018-(um-living-labs-achievement-report).pdf?sfvrsn

Wright, T., Horst, N., 2013. Exploring the ambiguity: what faculty leaders really think of sustainability in higher education. Int. J. Sustain. Higher Educ. 14 (2013), 209–227. http://dx.doi.org/10.1108/14676371311312905

17 Sustainable Development Goals. (2019). Retrieved from https://www.eda.admin.ch/post2015/en/home/agenda-2030/die-17-ziele-fuer-eine-nachhaltige-entwicklung.html

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Research Paper

How Can Local Government Sustain a Terminated National Development Project?

An Exit Strategy for the Techno Park Project in Tasikmalaya Regency, West Java, Indonesia

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Abstract

The sixth of nine Indonesian national development agendas under the President Joko Widodo administration is to increase productivity and competitiveness, one of which is by the establishment of Techno Parks. The projects will be terminated in 2019; however, exit strategies that contribute to sustainable development have been rarely considered throughout the history of development studies and practice. This paper examines the concept of exit strategies within the context of a case study of the Indonesian Institute of Sciences (LIPI)-assisted project of the Tasikmalaya Techno Park (TP) from 2015-2019. It addresses two questions: (1) How has LIPI executed the TP project in Tasikmalaya throughout the period? (2) What is the recommended exit strategy for regional policymakers after project termination? To overview the implementation of TP activities, an internal- external analysis was conducted, and to formulate exit strategies, SWOT and QSPM were employed. Data were collected from July-September 2018, consisting of primary data collected from competent respondents by semi-structured and in-depth interviews selected by the purposive sampling method as well as secondary data compiled from relevant institutions. The conclusion is that the Tasikmalaya TP has five core businesses and its mission is to become a center for dissemination, technology transfer, and agribusiness incubator. The TP was present in quadrant I, meaning that aggressive strategies were recommended. There were four future management options and independent management was considered as the most appropriate. Its role should be more supported by middle- to long-term strategies and a well prepared legal system. Policy implications are discussed.

Keywords: Exit Strategy, Regional Development, SWOT Analysis, Tasikmalaya District, Techno Park

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1. Introduction

The sixth of the 2014-2019 Indonesian national development agendas - called Nawacita (Sanskrit term, meaning nine goals) - under the President Joko Widodo administration is to increase productivity and competitiveness, one of which is by the establishment of Techno Parks (TPs) (Kusharsanto & Pradita, 2016). TPs are incubators to encourage regional innovation and competitiveness in increasing the contributions of science and technology to economic development. TPs can also be media for creating a conducive environment for technopreneurship in local communities. The development of the Techno Parks supports the achievement of the Sustainable Development Goals (SDGs). The eighth goal of the SDGs is to promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.

As stated in the National Middle-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional/RPJMN) in 2015, the government had targeted to develop 100 TPs (Kusharsanto & Praadita, 2016). However, over the period from 2015-2019, the National Government had only developed 22 Techno Parks across the country. The low number of TPs is due to limitations on many aspects such as funding, time, infrastructure, and urgent needs at each ministry or non-ministry government institution. The 22 TPs were established by three Ministries and four National Institutions. They are the Ministry of Industry/Kemenperin (5), Ministry of Research, Technology, and Higher Education/Kemenristek Dikti (4), Ministry of Agriculture/Kementan (1), National Nuclear Energy Agency/BATAN (4), Agency for Assessment and Application of Technology/BPPT (6), and Indonesian Institute of Sciences/LIPI (2). The projects had been developed at three levels: Science Techno Parks (STPs) at the national level, Science Parks (SPs) at the provincial level, and Techno Park (TPs) at the city or regency level (Asmara et al., 2018).

The Tasikmalaya TP is one of the TPs that had been developed by the Indonesian Institute of Sciences (LIPI) in 2015, as LIPI had been conducting many studies in the region for years, especially in the field of animal husbandry and dairy products. The project will be terminated in 2019 and the Techno Park will be acquired by the Local Government.

However, the exit strategy that contributes to sustainable development has been rarely considered throughout the history of development studies and practice. An exit strategy is important and critical as it is a specific plan describing how a program is intended to be withdrawn from a region while assuring that the achievement of development goals is not jeopardized and that further progress toward these goals is made. The goal is to assure sustainability of impacts and activities after the project has been withdrawn.

This paper examines the concept of exit strategies within the context of a case study of the LIPI-assisted Tasikmalaya TP project from 2015-2019. It address two questions: (1) how the TP project in Tasikmalaya has been executed by LIPI throughout the period, and (2) what is the recommended exit strategy for regional policy makers after project termination. Moreover, it offers decisive perspectives on factors responsible for sustaining the project.

2. Methodology

To overview the implementation of Tasikmalaya TP activities, an internal-external analysis was conducted. In portraying the internal condition, Value chain analysis was utilized to explore the internal activities of a business in an effort to understand costs, to locate the activities that add the most value, and to differentiate from the competition (Porter, 2001). The VRIO method was also employed to identify and evaluate resources in the institution (Cardeal & Antonio, 2012). In scrutinizing external circumstances, PEST analysis was utilized to identify significant changes in the Political, Economic, Social, and Technological landscapes (Gupta, A, 2013). Porter's five forces analysis was also utilized to identify and analyze the five competitive forces that shape a business and to determine its weaknesses and strengths (Porter, 2008).

Furthermore, in formulating exit strategies, SWOT analysis was utilized (Pickton & Wright, 1998) within the Quantitative Strategic Planning Matrix (QSPM), which is employed for comparing feasible alternative actions (David, 2017). SWOT analysis provides the basic frame within which is performed analyses of decision situations (Kangas et al., 2003). It should lead to a balanced view of the technique and yield ideas for necessary theory building. (Helms & Nixon, 2010). This analysis is the highest ranked set of tools or techniques of analysis used by firms in UK. (Glaister & Falshaw, 1999).

2.1 Data Description

The data as described in Table 1 were collected from July to September 2018, consisting of primary data collected from competent stakeholders and the regency government staff by semi-structured and deep interviews using the purposive sampling method. Secondary data were collected from relevant institutions, which are LIPI, the Regency Government Secretariat (Sekretariat Daerah), the Regional Development Planning Agency (Bappeda), the Department of Agriculture, Department of Industry and Trade, and the Department of Cooperatives and SMEs.

Table 1 Data Description

Data	Type	Character	Technique
PRELIMINARY DATA			
Vision, mission, and general condition of the Tasikmalaya TP	Secondary	Qualitative	Literature study
INTERNAL ACTIVITIES			
Material procurement & technology provision	Primary	Qualitative	In-depth interview
Product & product processing	Primary	Qualitative	In-depth interview
Marketing process	Primary	Qualitative	In-depth interview
Customer service	Primary	Qualitative	In-depth interview
Human resources & administrative service	Primary	Qualitative	In-depth interview
RESOURCE OR CAPABILITY			
Value	Primary	Qualitative	Semi-structured question
Rareness	Primary	Qualitative	Semi-structured question
Inimitability	Primary	Qualitative	Semi-structured question
Organization	Primary	Qualitative	Semi-structured question
ENVIRONMENTAL SHAPE			
Political landscape	Primary & Secondary	Qualitative	Interview & Literature study
Economic landscape	Primary & Secondary	Qualitative	Interview & Literature study
Social landscape	Primary & Secondary	Qualitative	Interview & Literature study
Technological landscape	Primary & Secondary	Qualitative	Interview & Literature study
COMPETITIVE SOURCE			
Competitive rivalry	Primary & Secondary	Qualitative	Interview & Literature study
Threat of new entrants	Primary & Secondary	Qualitative	Interview & Literature study
Supply power	Primary & Secondary	Qualitative	Interview & Literature study
Buyer power	Primary & Secondary	Qualitative	Interview & Literature study
Threat of substitution	Primary & Secondary	Qualitative	Interview & Literature study

Source: Worksheet Preparation

2.2 Designs

The logical framework in this paper is depicted in Figure 1, showing the research flowchart with the methods and instruments used at each stage. The first step was the identification of the vision, mission, and policies of the Tasikmalaya TP as the research background and problem statement, which were obtained by a series of literature studies, observations, and interviews. The second step was internal assessment by using the Supply Value Chain method to identify the main activities of the Tasikmalaya TP based on the product and service processing stages. This step was carried out by in-depth interviews with the Tasikmalaya TP employees and LIPI liaison officers. Furthermore, with the questionnaire instrument that had been tested for validity and reliability, semi-structured interviews were conducted to identify internal strengths and weaknesses in running the business cycle by the weighting aspects of Value, Rareness, Imitability, and Organization (the VRIO method).

The next step was external assessment by conducting PEST analysis to capture the political, economic, social, and technological outlooks that shape the business climate. By performing similar data collection to the internal assessment process, the next phase was Porter's five forces analysis to determine external opportunities and threats. The quadrant position of Tasikmalaya TP was defined by the intersection of the calculated Total Weighted Internal Factors Evaluation (IFE) and Total Weighted External Factors Evaluation (EFE). The results were discussed in a Focus Group Discussion (FGD) to conduct SWOT analysis in order to design alternatives of exit strategies.

The last step was calculating the Total Attractive Scores (TAS) to obtain a Quantitative Strategic Planning Matrix (QSPM) for evaluating Tasikmalaya TP exit strategy options for LIPI post-management assistance.

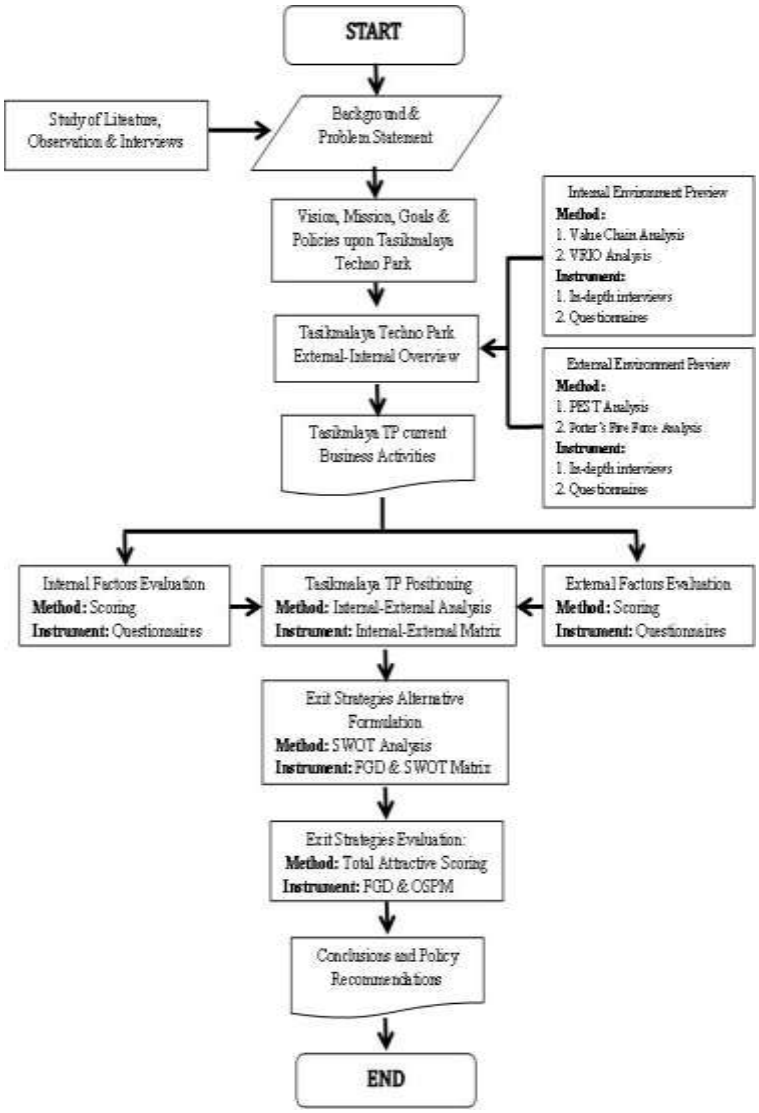


Figure 1. Design and Logical Framework Source: Research Design

2.3 Procedures

In this study, primary data were collected by interviews while secondary data were obtained by literature studies. Preliminary data were used for the background of the study and the following analysis. Data of internal activities for the supply value chain analysis and Resource or Capability data for the VRIO analysis were integrated into a matrix, as represented in Table 2, by yes/no questions in order to define the competitive implication of each resource or capability. Further, economic performance and SWOT categories were pulled out into the Internal Overview Matrix.

Resources or Capability	V	R	I	O	Competitive Implications	Economic Performance	SWOT Category
Material Procurement & Technology Provision							
Convinent technology used	Yes	No	-	-	Competitive Parity	Normal	Strength or weakness
Complete production equipment	Yes	No	-	-	Competitive Parity	Normal	Strength or weakness
Handily raw materials	Yes	No	-	-	Competitive Parity	Normal	Strength or weakness
Easy equipment maintenance	Yes	No	-	-	Competitive Parity	Normal	Strength or weakness

Resources or Capability	V	R	I	O	Competitive Implications	Economic Performance	SWOT Category
Adequate Production Place	Yes	Yes	Yes	Yes	Sustained Competitive Advantage	Above normal	Strength & long-term competence
Product & Product Processing							
Good quality products*	Yes	Yes	No	-	Temporary Competitive Advantage	Above Normal	Strength and Special Competence
Un-copyright brands	No	No	No	No	Competitive disadvantage	Below Normal	Weakness
Good packaging	Yes	No	-	-	Competitive Parity	Normal	Strength or sweakness
Un-sertified** products	No	No	No	No	Competitive disadvantage	Below Normal	Weakness
Local raw materials	Yes	No	-	Yes/ No	Competitive Parity	Normal	Strength or sweakness
Marketing							
Domestic & local market	Yes	No	-	-	Competitive Parity	Normal	Strength or sweakness
Generic customer, no segmentation	Yes	Yes	No	-	Temporary Competitive Advantage	Above Normal	Strength and Special Competence
intermittent customer care	No	No	No	No	Competitive disadvantage	Below Normal	Weakness
Competitive selling price	Yes	Yes	Yes	Yes	Sustained Competitive Advantage	Above normal	Strength & long-term competence
Costumer Service as agrobusiness Incubator	Yes	Yes	Yes	Yes	Sustained Competitive Advantage	Above normal	Strength & long-term competence
Insufficient infrastructure	No	No	No	No	Competitive disadvantage	Below Normal	Weakness
Limited tenant	No	No	No	No	Competitive disadvantage	Below Normal	Weakness
Little local government support	No	No	No	No	Competitive disadvantage	Below Normal	Weakness
Human Resources & Administration service							
Experienced researchers	Yes	Yes	Yes	Yes	Sustained Competitive Advantage	Above normal	Strength & long-term competence
Non-permanent field officer	Yes	No	-	-	Competitive Parity	Normal	Strength or sweakness

Note: * Dairy Product (Yoghurt), Mushroom & Organic Fertilizer
** Indonesian National Standard (SNI) & Halal Sertification
Source: Data Analysis

By using the questionnaire that had been tested for validity and reliability, the environmental shape data for PEST analysis were assessed to define the degree of importance. Likewise, the competitive force data for Porter's five forces analysis were rated by their degree of power. The two analyses were then summarized into the External Overview Matrix. The next step was Internal and External Factor Evaluation to conduct SWOT analysis in a Focus Group Discussion (FGD). In the FGD, there were debates on exit strategy formulation. In the end, the exit strategy options were rated by their total attractive scores and each future management option was compared by the aspects of legal bases, expenditure, revenue, debts, and investment.

3. Results and Discussion

The Tasikmalaya TP was developed by LIPI through the Biology Research Center in 2015. Built on 3.5 hectares of land provided by the regency government, it runs five core businesses: 1) an agribusiness training center, 2) organic farming research and development (specifically pilot organic vegetable and mushroom cultivation, and organic fertilizer production and laboratory), 3) a pilot dairy product center, 4) an agroforestry development center, and 5) a pilot post-harvest center (including product branding and packaging).

Organized by a coordinator, eight researchers, and three administrative staff, and supported financially by 9.5 billion IDR from the regency government budget, the Tasikmalaya TP operates a green house, a post-harvest building, a mushroom production plant, a fertilizer laboratory, a cowshed, a milk

processing plant, a training center, and a fully furnished office. Its mission is to become a center for dissemination, technology transfer, and agribusiness incubator.

3.1 Internal Overview

In running its business, based on value chain analysis, the identified main activities of Tasikmalaya TP are material procurement & technology provision, product processing, marketing, and customer or client services. With the subsequent VRIO method, the six elements of strengths and weaknesses were determined in Table 3.

Table 3 implies that as a leading institution in science and technology, LIPI can develop the Tasikmalaya TP as an agribusiness incubator equipped with exhaustive and applicable technology. Supported by abundant local resources for provision of raw materials, the TP can produce good quality products at competitive selling prices.

Table 3: Overview of Internal Strengths and Weakness

No	Strengths	No	Weaknesses
1	Agribusiness Incubator	1	Insufficient infrastructure
2	Complete and easy maintenance of equipment	2	Little local government support
3	Usage of convenient technology	3	Non-permanent field officers
4	Local raw materials	4	Intermittent customer care
5	Good-quality products	5	Non-certified products
6	Competitive selling prices	6	Limited tenants

Source: Data Analysis

Despite those strong points, there were still weak points, encompassing stagnant infrastructure provision and little government support that lead to insufficient infrastructure, non-certified products (Indonesian National Standard/SNI & halal certification), and limited tenants. In the human resource aspect, Tasikmalaya TP still employs non-permanent officers that leads to suboptimal marketing and poor customer care. Those strengths and weaknesses were then evaluated by a scoring method to result in an Internal Factors Evaluation (IFE) Matrix as presented in Table 4. It was discovered that the usage of convenient technology applied was the greatest strength, while infrastructure condition was the greatest weakness.

Table 4: Internal Factors Evaluation (IFE) Matrix

No	Internal Factors	Weight	Rating	Score
	STRENGTHS			
1	Usage of convenient technology	0.098	3.634	0.358
2	Complete and easy maintenance of equipment	0.091	3.634	0.330
3	Local raw materials	0.088	2.884	0.255
4	Good-quality products	0.092	3.634	0.335
5	Agribusiness incubator	0.093	2.884	0.270
6	Competitive selling prices	0.082	3.000	0.246
	WEAKNESSES			
1	Insufficient infrastructure	0.080	2.884	0.229
2	Little local government support	0.080	2.289	0.195
3	Limited tenants	0.074	2.621	0.195
4	Non-certified products	0.073	2.080	0.152
5	Non-permanent field officers	0.069	2.000	0.139
6	Intermittent customer care	0.078	1.587	0.124

Source: Data Analysis

3.2 External Overview

The need to address societal issues within market activities pressures organizations to incorporate the social environment as an operational variable (Krzyżanowska & Tkaczyk, 2015). The external shape of Tasikmalaya TP encompasses political, economic, social, and technological environments. As described in Table 4, both the national and local governments have political will in TP development, which is shown by the signing of a Memorandum of Understanding (MoU) between LIPI and the Tasikmalaya Regency Government for Tasikmalaya TP management. However, political uncertainties at the national, regional, and local levels lead to a discontinuous development policy.

In the perspective of economics, Tasikmalaya Regency provides supporting natural resources for the TP business, but on the other hand, competition for high-quality raw materials and strict selling prices takes place. The data shows that annual market share increased gradually due to the large population, but the customer characteristic tends to be of a low product loyalty. The characteristic of the local community is that there is native entrepreneurship that on one hand can endorse the TP business, but on the other hand can create competition for product innovation and marketing.

Geographically, the Tasikmalaya TP has a strategic position as it is near to an agricultural zone (natural resources), having the advantage of bordering the City of Tasikmalaya as a market and East Parahyangan as a center of trading and economic activities. The geographic position can also be a disadvantage as it leads to easy availability of substitute products from competitors. Other identified opportunities and threats were availability of advanced technologies as a supporting factor and land degradation or conversion as a threat to business sustainability.

Table 5: Overview of External Opportunities and Threats

No	Opportunities	No	Threats
1	MoU between LIPI and Tasikmalaya Government for Tasikmalaya Techno Park Management	1	Discontinuous development policy due to political uncertainty
2	Natural resources supporting agribusiness	2	Competition for high-quality raw materials and strict selling prices
3	Annual increase of market share	3	Low customer loyalty
4	Local community entrepreneurship	4	Competition for product innovation and marketing
5	Strategic location	5	**Easy availability of substitute products**
6	Technology and innovation availability	6	Land degradation and land conversion

Source: Data Analysis

By using a scoring method to evaluate external opportunities and threats, the result was the External Factors Evaluation (EFE) Matrix as in Table 6. It was determined that the highest scores were for political aspects for both opportunities and threats, while the lowest were for economic aspects.

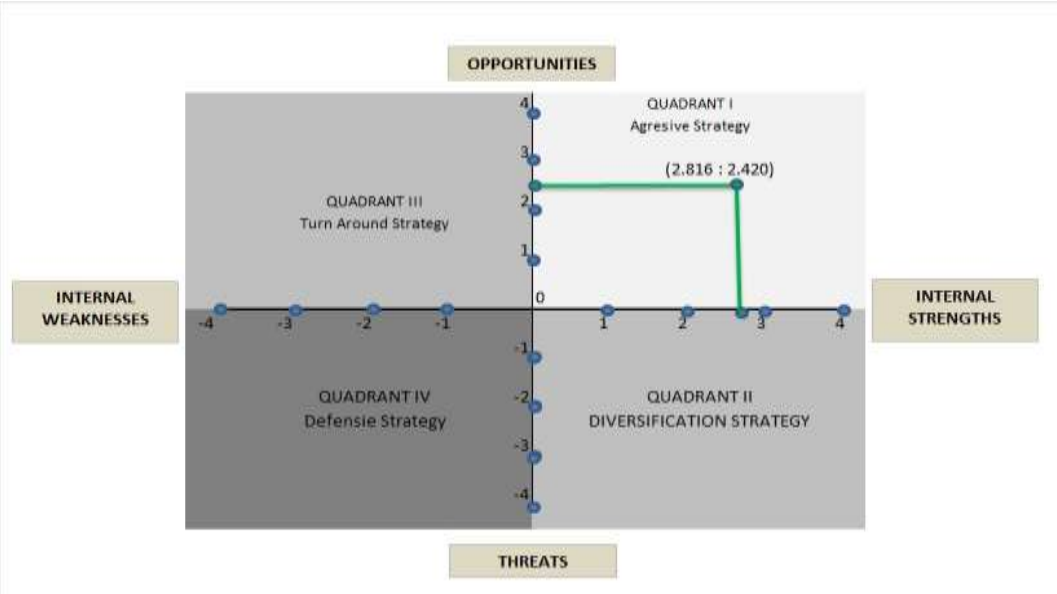
Table 6: External Factors Evaluation (EFE) Matrix

No	External Factors	Weight	Rating	Score
	OPPORTUNITIES			
1	MoU between LIPI and Tasikmalaya Government for Tasikmalaya Techno Park Management	0.096	3.302	0.317
2	Natural resources supporting agribusiness	0.090	2.884	0.259
3	Strategic location	0.093	3.000	0.280
4	Technology and innovation availability	0.110	3.634	0.399
5	Annual increase of market share	0.086	2.621	0.225
6	Local community entrepreneurship	0.092	2.621	0.242
	THREATS			
1	Discontinuous development policy due to political uncertainty	0.087	1.587	0.138
2	Land degradation and land conversion	0.062	1.817	0.112
3	Competition for product innovation and marketing	0.086	1.817	0.156
4	Competition for raw materials and strict selling prices	0.087	2.000	0.157
5	Easy availability of substitute products	0.058	1.260	0.073
6	Low customer loyalty	0.62	1.000	0.062

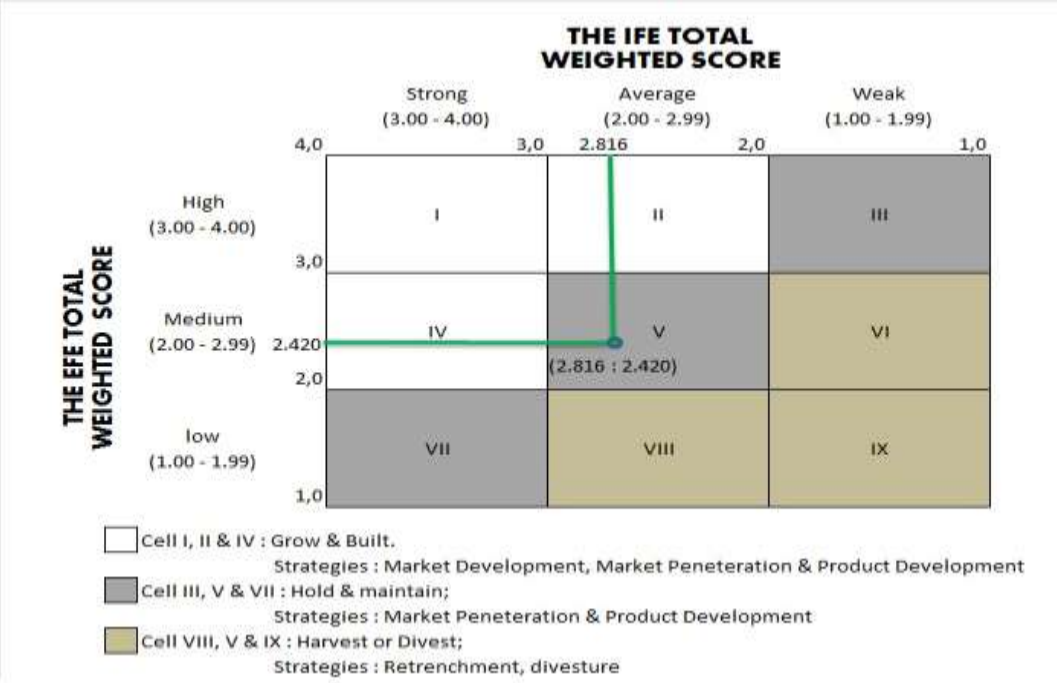
Source: Data Analysis

3.3 Tasikmalaya TP Positioning

The IFE Matrix (Table 4) and EFE Matrix (Table 6) were combined to define the positioning of the Tasikmalaya TP. It was found that the TP is present in quadrant I with an internal strength score of 2.816 and opportunity score of 2.420, implying that S-O or aggressive strategies are the most appropriate, as shown in Figure 2.



The IFE total weight score (2.816) signifies that Tasikmalaya TP has an average internal strength; likewise, the EFE total weight score (2.420) is a sign that there are medium external opportunities that shape the TP environment. The intersection of those scores places Tasikmalaya TP in cell V, pointing to hold-and-maintain strategies as the most appropriate for future development. Figure 3 shows the further positioning of the Tasikmalaya TP, delineating specific proper strategies such as market penetration and product development. The subsequent definition of the proper strategy for future TP development, exit strategy formulation, and evaluation for future Tasikmalaya TP operators are elaborated in the following subsection.



3.4 Exit Strategy Formulation

In formulating a suitable exit strategy, a long list of strategy options were discussed by competent stakeholders in a Focus Group Discussion. The SWOT analysis matrix as displayed in Table 7 combines Table 4 and Table 6 in order to address S-O, W-O, S-T, and W-T strategies.

Table 7: SWOT Analysis Matrix

INTERNAL FACTORS / EXTERNAL FACTORS	STRENGTHS	WEAKNESSES
	S1. Convinient technology used S2. Complete and easy maintenance of equipment S3. Local raw materials S.4 Good quality products S.5 as agribusiness Incubator S.6 Competitive selling prices	W.1 Insufficient infrastructure W.2 Little local government support W.3 Limited tenant W.4 Un-certified products W.5 Non-permanent field officer W.6 intermittent customer care
OPPORTUNITIES	S-O STRATEGIES	W-O STRATEGIES
O.1 MOU between LIPI and Tasikmalaya Government upon Tasikmalaya Techno Park Management	Implementation of MOU as the government support (S1, O1)	Infrastructures provision and maintenance (W1, O1)
0.2 natural resources supporting agriculture	Good Agriculture Practise (GAP) Implementation from on-farm to off-farm (S1, O2)	Local government programs corresponding with TP activities (W2, O2)
0.3 strategic location	Agro-tourism & edu-tourism development (S4, O3)	independent and professional management formation (W2, O1)
0.4 Technology and innovation availability	Agribusiness incubator revitalization (S5, O4)	Business partnership with private sector / business actors for investment and market development (W3, O3)
O.5 Annual increase of market share	Intensive promotion (S4, O5)	
O.6 Local community entrepreneurship	Agribusiness training centre revitalization (S6, O6)	
THREATS	S-T STRATEGIES	W – T STRATEGIES
T.1 Discontinuous development policy due to political uncertainty	Partnership with research institutions for applied technology invention and dissemination (S3, T1)	Intensive promotion (W6, T4)
T.2 land degradation and land conversion	Partnership with research institutions for applied technology invention and dissemination (S3, T2)	Sustainable, ecological and professional management (W5,T2)
T.3 Competition for product innovation and marketing	Partnership with research institutions for applied technology invention and dissemination (S3, T3)	Providing roadmap and business plans (W3,T1)
T.4 Competition for raw materials and strict selling price competition	Partnership with local communities (S3,T4)	Segmenting and differentiating products (W6,T5)
T.5 Ease for substitute products	Intensive Promotion (S4,T5)	independent and professional management formation (W2,T1)
T.6 Low costumer loyalty	customer service improvement (S5,T6)	

Source: FGD 2018

Next, the long list of strategies in Table 7 were then separated into Generic Strategy Tiers to shorten the list in order to formulate the appropriate exit strategy. Table 8 clusters the strategy formula defined in the SWOT analysis matrix into the three categories of corporation strategy, business strategy, and functional strategy.

Table 8: Exit Strategy Formulation

Generic Strategy Tiers	Strategy Formulation
Foreward & Backward Integration	Good Agriculture Practise (GAP) Implementation from on-farm to off-farm (S1, O2)
Market Penetration	Intensive Promotion (S4,O5). (S4, T5), (W6, T4)
Market Development	Agro-tourism & edu-tourism development (S4, O3) Agrobusiness incubator revitalization (S5, O4)
Lead overrall cost	Partnership with research institutions for applied technology invention and dissemination (S3, T3)
Producting and operating strategy	Segmenting and differentiating products (W6,T5) Partnership with local communities (S3,T4) Infasturucters provision and maintenance (W1, O1) Implementation of MoU as the government support (S1, O1) Providing roadmap and business plans (W3,T1) independent and professional management formation (W2, O1) independent and professional management formation (W2,T1) Sustainable, ecological and professional management (W5,T2)

Source: FGD 2018

Enright (2001) found that small enterprises usually utilized intuitive approaches in both market orientation and product development. Traditional concepts of sales management, account management, and customer service are being overtaken by initiatives such as customer business development, strategic

sales organization, and strategic customer management (Piercy & Lane, 2009) Greenly (1994) highlights the dichotomy between strategic planning as a determinant of performance and strategic planning as a process to improve the effectiveness of management. This study used scientific approaches in order to define a more proper strategy option.

3.5 Exit Strategy Evaluation

In the Focus Group Discussion, four options were obtained regarding the future of Tasikmalaya TP management, differentiated among aspects of legal bases, revenue, expenditure, debts, and investment. The first option is that the Tasikmalaya TP would be operated by a Local Government Institution (Organisasi Perangkat Daerah/OPD). The TP may be operated by the Department of Agriculture (Dinas Pertanian), or the Department of Industry and Trade (Dinas Perindustrian dan Perdagangan). Inclusion of TP activities as a part of an OPD functions requires local parliament legalization by a Regional Regulation as the legal basis. In this setting, the Tasikmalaya TP would be a part of public service. An OPD will never be locked out of capital as it utilizes the government budget for initial capital and business operations. However, this option would result in the least independent management, as expenditures would be limited by a strict and rigid government budget and investment for business development will never occur.

Another option would be to become a public service agency (Badan Layanan Umum/BLU). A BLU is an ad hoc government institution that is formed to provide public goods or services based on the principles of efficiency and productivity without being profit-oriented. A BLU is more professional than an OPD in terms of service delivery and management but still demands government budget for operations, and expenditures must adhere to government rules. A BLU can be established by a Regent Decree without approval from the Local Parliament. The hybrid management model is another alternative exit strategy for the Tasikmalaya TP similar to a BLU but is more business-oriented, as the expenditures are based on business calculations. However, some government employees are still required to be present in the board of directors.

The last choice is to become a Regionally-Owned Enterprise (Badan Usaha Milik Daerah/BUMD), which is the most independent institution compared to the others as it applies business calculations for the aspects of revenue, expenditures, debts, and investment. However, a BUMD needs a well-prepared business plan and local parliament approval for establishment. Table 9 elaborates the four alternative circumstances that were discussed in the FGD.

Table 9: Forthcoming Tasikmaya Management Comparison Matrix

Aspects	Local Government Institution (OPD)	Public Service Agency (BLU)	Hybrid Management Model	Regional-State-Owned Enterprise (BUMD)
Legal bases	The Regional Regulation	The Regent's Decree	The Regent's Decree	The Regional Regulation
	As the Regional Government Income	As business income	As business income	As business income
	Government budget as an investment (not a revenue)	Government budget as a revenue	Government budget as a revenue	Government budget as an equity capital
	Government budget is mandatory	Government budget is demanded	Government budget could be an one an income sources	Government budget is not conditional
Expenditure	Based on ceiling budget	May exceed the ceiling budget (conditional)	Based on business calculation	Based on business calculation
Debts	May not be in a debt	May be in a long-term dept on the Regent's endorsement		Based on business calculation
Investment	Prohibited from investing	May perform a long-term investment on the Regent's endorsement	May perform a long-term investment on the Regent's endorsement	Based on business calculation

Source: FGD 2018

Based on the organization characteristics in Table 9, it is implied that the management options closer to the right side of the table indicate a more independent and more professional organization.

In addition to the qualitative approach, the FGD also employed a quantitative method to measure the appropriateness of strategy options. The Total Attractive Score (TAS) of each strategy is provided in a Quantitative Strategic Planning Matrix (QSPM), which is shown in Table 10.

Table 10: Quantitative Strategic Planning Matrix

No	Strategy option	Total Attractive Score
1	independent and professional management formation (W2, O1) (W2,T1)	7.19
2	Sustainable, ecological and professional management (W5,T2)	7.17
3	Providing roadmap and business plans (W3,T1)	6.81
4	Intensive Promotion (S4,O5). (S4, T5), (W6, T4)	6.77
5	Implementation of MoU as the government support (S1, O1)	6.24
6	Infasturucters provision and maintenance (W1, O1)	6.12
7	Local government programs corresponding with TP activities (W2, O2)	5.98
8	Partnership with research institutions for applied technology invention and dissemination (S3, T1), (S3,T2), (S3, T3)	5.94
9	Partnership with local communities (S3,T4)	5.85
10	Business partnership with private sector / business actors for investment and market development (W3, O3)	5.80
11	Agribisniss training centre revitalization (S6, O6)	5.78
12	Good Agriculture Practise (GAP) Implementation from on-farm to off-farm (S1, O2)	5.55
13	Agro-tourism & edu-tourism development (S4, O3)	5.52
14	Agrobusiness incubator revitalization (S5, O4)	5.47
15	Segmenting and differentiating products (W6,T5)	5.45
16	customer service improvement (S5,T6)	4.15

Source: Data Processing

The most attractive score in the matrix is recommended for determining the business development of the Tasikmalaya TP as well as choosing a future TP management organization. The study is concluded with encouragement for the local government to establish an independent and professional institution with application of aggressive business strategies.

4. Conclusion

The current condition of the Tasikmalaya TP is that it has five core businesses and its mission is to become a center for dissemination, technology transfer, and agribusiness incubator. The TP is present in quadrant I by SWOT analysis, recommending the use of aggressive strategies such as market penetration and product development. Market penetration can be performed by intensive promotion, while product development can be implemented by agribusiness incubator revitalization or the development of agro- tourism and edu-tourism on the site.

There are four future management options and independent management is considered as the most appropriate and recommended exit strategy. It may become a Regionally-Owned Enterprise (BUMD) or have a hybrid management. One of the success stories in Techno Park hybrid management is that of the Samosir Techno Park. The role of the future management of the Tasikmalaya TP should be more supported by middle- to long-term strategies and a well prepared legal system.

As legal system preparation for a BUMD establishment takes a couple of years, it is recommended to apply a transitional management for Tasikmalaya TP in 2020 and 2021. When a Regional Regulation (Peraturan Daerah/Perda) for the establishment of the BUMD Tasikmalaya TP is proposed to be approved by the local parliament, the local budget for the most appropriate OPD for taking over the TP management would be needed in the transitional years. Moreover, revision of the Strategic Plan (Renstra SKPD) and annual work plan (RKPD) of the OPD is concomitantly required.

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References

Asmara, A. Y., Oktaviyanti, D., Alamsyah, P., & Zulhamdani, M. (2018). *Science-techno park and industrial policy in Indonesia.* Scholars' Press.

Cardeal, N., & Antonio, N. S. (2012). *Valuable, rare, inimitable resources and organization (VRIO) resources or valuable, rare, inimitable resources (VRI) capabilities: What leads to competitive advantage?.* African Journal of Business Management 6(37), 10159-10170

David, M. E., David, F. R., & David, F. R. (2017). *The quantitative strategic planning matrix: a new marketing tool. Journal of Strategic Marketing*, 25(4), 342-352.Enright, M. (2001). Approaches to market orientation and new product development in smaller enterprises: a proposal for a context-rich interpretive framework. *Journal of Strategic Marketing*, *9*(4), 301-313.

Glaister, K. W., & Falshaw, J. R. (1999). *Strategic planning: still going strong?. Long Range Planning, 32*(1), 107-116.

Greenley, G. E. (1994). *Strategic planning and company performance: an appraisal of the empirical evidence. Scandinavian Journal of management*, *10*(4), 383-396.

Gupta, A. (2013). *Environment & PEST analysis: an approach to the external business environment*. International Journal of Modern Social Sciences, 2(1), 34-43.

Helms, M. M., & Nixon, J. (2010). *Exploring SWOT analysis–where are we now?. Journal of strategy and management.*

Kangas, J., Kurttila, M., Kajanus, M., & Kangas, A. (2003). *Evaluating the management strategies of a forestland estate—the SOS approach. Journal of environmental management*, *69*(4), 349-358.

Krzyżanowska, M., & Tkaczyk, J. (2015). *Redefining products as a positioning strategy: A case of the partnership for health. International Journal of Management Cases*, *17*, 81-97.

Kusharsanto, Z. S., & Pradita, L. (2016). *The important role of science and technology park towards Indonesia as a highly competitive and innovative nation. Procedia-Social and Behavioral Sciences,* 227, 545-552.

Pickton, D. W., & Wright, S. (1998). *What's swot in strategic analysis?. Strategic change*, 7(2), 101-109.

Piercy, N. F., & Lane, N. (2009). *Strategic customer management: Strategizing the sales organization. OUP Oxford.*

Porter, M. E. (2001). *The value chain and competitive advantage. Understanding Business Processes*, 50-66.

Porter, M. E. (2008). *The five competitive forces that shape strategy. Harvard business review*, 86(1), 25-40.

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Policy Paper

The Development of Social Forestry in Indonesia:
Policy Implementation Review, 2007-2019

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Abstract

The phenomenon of sustainable forest management failure in Indonesia faces the reality of incompatible economic, social, and environmental approaches. Conventional forest management always assumes that good forests are only managed by the government through concession permit policies to large capital owners that are top-down and accompanied by a minimum condition of community involvement, which should be a key factor. Learning from the experience, Indonesia began to see the concept of social forestry as one of the efforts in the progress of a more sustainable development. Social forestry positions that the party that feels the greatest success or failure from forest management is the community around the forest itself. Communities must obtain the greatest access and incentives to manage forestry businesses as a source of life while preventing damage. In recent years, the agrarian reform program through social forestry is a breakthrough government program that is becoming increasingly demanded by communities. The rights to manage their surrounding lands in accordance with ancestral local wisdom are expected to be able to answer economic and ecological challenges. This paper specifically presents the development of social forestry and its issues and recommendations in the context of national development in Indonesia. The ecological harmony between humans and nature is a consideration of the importance of social forestry as a program to be continuously supported by the government, as well as to prioritize economic aspects in the principle of sustainable development.

Keywords: : Social Forestry, Policy, Development, Achievement

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1. Introduction

The forestry sector of a developing country was once one of the drivers of economic development as well as a life buffer controlled by state management with minimal access for rural communities (Peluso & Poffenberger, 1989). Indonesia has approximately 125.9 million hectares (ha) of forest area (Ministry of the Environment and Forestry, 2019a). In fact, looking through previous policies covering 42.25 million ha of forests managed by the private sector and community, the portion has been very uneven, with 95.75 percent being through the private sector and only 4.14 percent of the forest area provided for and utilized by local farmers or microbusinesses (Kuncoro *et al.,* 2018). The next fact is that the degradation of the environment in the form of deforestation is not only a social problem for the Indonesian local environment, but has already become a serious national or even global problem (Arif, 2016). As has been known, in the period from 2000-2005, Indonesia was once the country with the fastest rate of deforestation in the world, with 1.8 million ha of forests destroyed per year. The rate of forest destruction was 2 percent every year or equivalent to 51 square kilometers per day. The phenomenon of the failure of sustainable forest management in Indonesia faces the reality of incompatible economic, social, and environmental approaches.

Conventional forest management always assumes that good forests are only managed by the government through concession permit policies to large capital owners that are top- down and accompanied by a minimum condition of community involvement, of which the latter should be a key factor. This condition seems to ignore the ecological theory conveyed by environmentalists so far, in that good interaction among components in the ecosystem becomes important. According to Miller and Spoolman (2015), the main idea of environmental science involves the interaction between organisms or living things with each other and with their environment. This interaction involves ecosystems with organized components as abiotic and biotic factors. The environment is defined as the region of the boundary of economic activity, which influences the development of life within it (Common & Stagl, 2005). Therefore, in order to achieve sustainability, integrative efforts are needed on conservation priorities to reduce environmental degradation without ignoring the welfare of the community (Barendse *et al.,* 2016). This is in line with the mandate of Article 33 Paragraph (3) of the 1945 Constitution of the Republic of Indonesia (UUD 1945) which states that the earth, water, and natural resources contained therein are used for the greatest prosperity of the people. Furthermore, regional autonomy is one of the foundations of democratization that has the ultimate goal of realizing community welfare (Hirawan, 2007). The distribution of the "welfare pie" is not from top to bottom, but that the wealth of the regions flows to the center. This is a form of the results of neo-classical economic theory practices that gave birth to income inequality (Bonet, 2006).

In recent times, several countries in Asia, Africa, and Latin America have given wider recognition to local communities in order to provide opportunities for improving welfare through sustainable forest management (Firdaus, 2018). However, this initiative has not been evenly distributed in all regions. Learning from the experience, Indonesia began to see the concept of social forestry as one of the efforts in the progress of a more sustainable development. Social forestry changes fundamentally the previous practice of forest management, where the party that feels the greatest success or failure in forest management is the communities around the forests themselves (Kumar, 2015). Experience proves that social forestry will succeed if the community gets the greatest access and incentives to manage the forestry business as a source of life while preventing damage. This paper seeks to present the development of social forestry, as well as issues and recommendations in the context of national development planning in Indonesia. The ecological harmony between humans and nature leads to the consideration of the importance of social forestry as a program to be continuously supported by government, as well as to prioritize economic aspects in the sustainable development principle.

2. Methodology

This paper utilized literature study through referencing relevant theories and information-based policies of forestry and social forestry. The utilized secondary data were obtained or collected from various existing sources as books, documents, and applicable laws and regulations related to social forestry, both in the context of Indonesia and the world. Analysis of the gap or suitability between targets and realization was used as a basis for providing research recommendations in addition to the problems or obstacles encountered in social forestry policy in Indonesia.

Development of Social Forestry in Indonesia

a. The Concept of Social Forestry

According to Westoby (1989), social forestry is forestry that has the aims of creating flows of production and recreation benefits for the community, which in general involves forestry activities that guarantee the smooth production of benefits and pleasure to a community without discrimination, whether on publicly owned (state) land or private land. Meanwhile, Tiwari (1983) defines that social forestry has in principle the objective to meet the basic needs of the local population from the forest, such as fuel, fodder, food, timber, income, and environment. Tiwari put more emphasis on the fulfillment of daily needs of the local community. Wiersum (1984) differentiates four operational forms rather than social forestry, which are (1) Forestry, where forest management activities are designed with professional management with a high level of control over forest areas (lands); (2) Village Forestry, where the management of forest and tree resources are carried out by unprofessional (unskilled) workers on both participating public (state) land and private land; (3) Communal or Community Forestry, which is Village Forestry that is managed together by a community; and (4) Farmer Forestry, which is a form of Village Forestry where the responsibility of management lies on farmers themselves.

Meanwhile, the Ministry of Environment and Forestry itself defines social forestry as a system of sustainable forest management implemented in state forest areas, or forest rights or customary forests implemented by local communities or customary law communities as the main actors to improve their welfare, environmental balance, and social cultural dynamics in the form of Village Forests, Community Forests, Community Plantation Forests, Customary Forests, and Forestry Partnerships (Article 1, Paragraph 1 of the Ministry of the Environment and Forestry Regulation Number P.83/ MenLHK/Sekjen/Kum.1/10/2016).

b. Regulation of Social Forestry in Indonesia

An important historical moment regarding the role of the community in social forestry in Indonesia was the enactment of Law No. 41/1999 replacing Law No. 5/1967 on Forestry, which is considered to be less attentive to the rights of people because the authority to manage forests, including control over planning, administration, exploitation, and forest protection, was in the hands of the central government Indonesia. Law No. 41/1999 is more attentive to community involvement in forest management through a new forest management model based on empowerment of forest communities. Simply put, the management of state forests has now shifted to Community Forests. The law also specifically mentions about Customary Forests as State Forests managed by original inhabitants. Development of social forestry in forest management is no longer from the top down, but now from the bottom up by focusing on the participation of local communities. If this can offer opportunities for better forest management and provide incentives for efficiency and sustainability, more promising results will be achieved.

Law Number 41 of 1999 on Forestry (Article 3 Letter d) mandates that social forestry is intended to increase capacity-building development and empowerment of the community in a participatory, equitable, and environmentally friendly manner in order to be able to create social resilience and economic resilience to the consequences of external changes. Social forestry is closely related to the agenda of community-based economic independence, which is a program that has the aim to realize community welfare by increasing the incomes of communities around forests through providing access to conflict-free social forestry management and the support of stakeholders, as local governments, Forest Management Units (KPH), Non-Government Organizations (NGO), and business entities. Social forestry is expected to be an enabling condition for the process of decentralizing forest resources management at the province level, involving the parties. Social forestry is expected to prove itself as a unique model of forest management in Indonesia: it is more humane and equitable, strengthens the democratization process and community cooperation, and provides balanced and proportionate benefits among economic, ecological, and socio-cultural interests.

Approximately 37% (10.2 million) impoverished people live surrounding forest areas in Indonesia (MoEF, 2017). Social Forestry began to be advocated since 1999; the condition of Indonesia that was still uncertain after the Reformation diverted away attention from this big agenda. In 2007, the Social Forestry Program began to be implemented, but less than seven years later in 2014, the program stalled. The

Ministry of the Environment and Forestry noted that during the period from 2007-2014, forests covered by community management access only had an area of 449,104.23 ha. After this period, acceleration was carried out, and less than 3 years after the creation of the Working Cabinet (Kabinet Kerja), 604,373.26 ha of forest area was established, legally opening access for community management.

Since 2016, a new, more equitable, and more simplified social forestry policy was issued by the Minister of the Environment and Forestry through Minister of the Environment and Forestry Regulation No. P83 of 2016 on Social Forestry. The implementation of social forestry policies after 2016 can be said to be far better than the concept of social forestry in previous years. This is especially because the location where a social forestry permit is granted can be in areas of not only production forests and protected forests, but also conservation forests.

Reform of regulatory and institutional arrangements of social forestry in Indonesia can be differentiated as the eras before 2016 and after 2016. This is given that when President Joko Widodo was elected in the 2014 general election, massive changes were made in relation to social forestry as part of his directive to develop the country from peripheral areas. The seriousness of the acceleration and improvement of social forestry targets is strengthened through a) setting a target area of social forestry covering an area of 12.7 million hectares and b) upgrading the status of social forestry responsibility from 2015 from previously being under work units equivalent to Echelon II to become Echelon I level (Directorate-General) at the Ministry of Environment and Forestry. These institutional changes and targets required the Ministry of the Environment and Forestry to improve internally and to issue regulations that support presidential directives. The target area of social forestry covering an area of 12.7 million hectares was also set as a national target in the 2015-2019 National Middle-Term Development Plan (RPJMN). The Ministry of the Environment and Forestry took a little over a year to finalize the concept and issue important regulations in the form of Minister of the Environment and Forestry Regulation No. P83 of 2016 on Social Forestry. This regulation became a new milestone for the development of social forestry in Indonesia, especially in supporting efforts to accelerate sustainable forest development. The fundamental differences between the eras before 2016 and after 2016 are explained in Table 1.

Legal access to forest area management is divided into five management schemes. Village Forests are state forests for which the management rights are given to village institutions for village welfare. Community Forests are state forests that are mainly utilized to empower local communities. Community Plantation Forests are forest plantations in production forests established by community groups to increase the potential and quality of production forests by applying silviculture in order to ensure the preservation of forest resources. Customary Forests are forests within the territories of indigenous communities. The last scheme, Forestry Partnership, involves a cooperation between local communities and the forest management, the holder of a Forest Utilization Business License, forest services, the permit holder for a lease of forest area usage, or the holder of a business permit for an industry of primary forest products.

Table 1. Reform of Social Forestry Regulations in Indonesia

	Before 2016	After 2016
Form/Scheme	Community Forest, Village Forest, Forestry Partnership, Community Plantation Forest (*Hutan Tanaman Rakyat*)	Community Forest, Village Forest, Forestry Partnership, Community Plantation Forest (*Hutan Tanaman Rakyat*), Customary Forest
Location	Production Forest, Protected Forest	Production Forest, Protected Forest, Conservation Forest
Establishing Authority	Divided among Ministers, Governors, and Regents	Minister, but with authority represented by the governor under certain conditions
Cause of Action	Each forest management scheme is differently regulated	Arranged in a special regulation with additional customary forests
Application Procedure	Complicated and slow	Simple and fast

Source: Firdaus, 2018

Social forestry is now a national program that has the aims to achieve economic equality and reduce economic inequality through the three pillars of land, business opportunities, and human resources. Social forestry is also a legal object for communities around forest areas to manage the 12.7 million ha of state forest areas. Historically, social forestry is a national priority of Indonesia for rural development and poverty alleviation in areas surrounding forests (Rakatama & Pandit, 2020). Of the various types of social

forestry patterns in Indonesia, the pattern of Community Forests is a popular one. This pattern is simply defined as state forests with the main purpose to empower communities. Parties that can apply for this pattern are chairpersons of community groups, chairpersons of joint forest farmer groups, and chiefs of cooperatives. Applicants who are given approval will then obtain a business permit for community forest utilization. Meanwhile, the forests that can become Community Forest objects are production forests and protection forests.

c. Achievements of Social Forestry Policy in Indonesia

In general, during the period from 2015-2019, the proportion of forest area utilization for communities increased dramatically from 1.24 percent to 54.96 percent. Even so, the government still has work to do for achieving the 2015-2019 National Middle-Term Development Plan (RPJMN) target for social forestry. The government has targeted an increase in community management access to 12.7 million ha of social forests. Even in the fourth year of the implementation of the RPJMN 2015-2019, the progress of achievement is still low and is not expected to reach 100 percent until the end of the fifth year of the RPJMN 2015-2019.

There is still the remaining amount of ten million ha to achieve the social forestry target. The achieved progress of the 12.7 million ha target set in the RPJMN 2015-2019 was 2,625,520.04 ha or 20 percent of the target as of April 22, 2019. The achieved realization per social forestry scheme were 1,324,419.21 ha of Village Forests, 637,735.82 ha of Community Forests, 338,105.68 ha of Community Plantation Forests, 292,416.79 ha of Forestry Partnerships, and 28,286.34 ha of Customary Forests. The realization of customary forests is the smallest, being 1 percent of the other social forestry schemes. With the achievements of social forestry at present, the government still has work to do to realize ± 10.1 million ha of forests to achieve the target. Meanwhile, the granting of access to forest management to communities since 2015 has gradually increased.

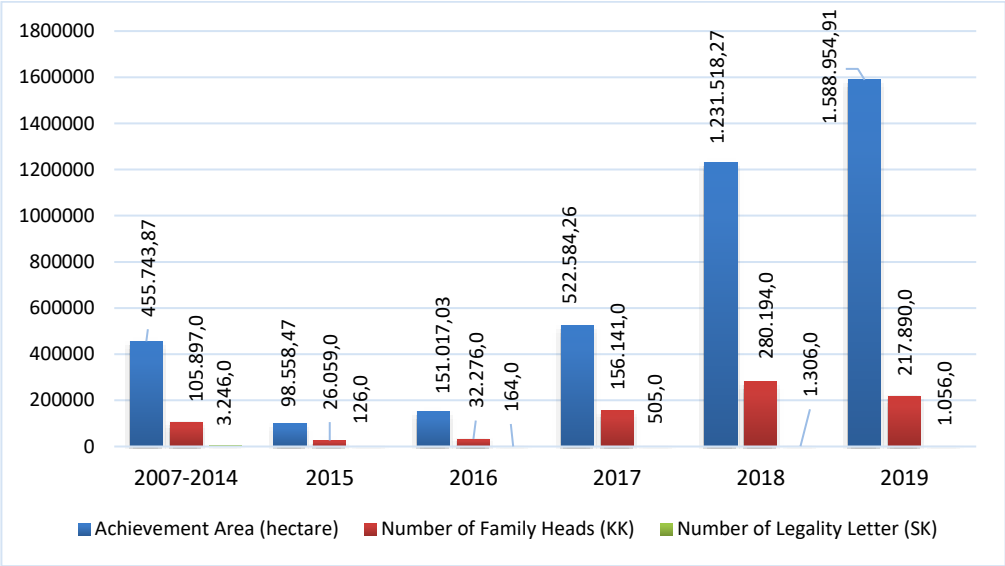

Figure 1. Achievements of Social Forestry in Indonesia from 2007 to 2019 (December 31)
Source: Ministry of the Environment and Forestry, 2019b

The number of licenses granted to the communities in each year fluctuates, whereas the areas covered in 2015 was 98,558.47 ha, in 2016 was 151,017.03 ha, in 2017 was 522,584.26 ha, in 2018 was 1,231,518.27 ha, and in 2019 (by December 31) was 1,588,954.91 ha (Ministry of the Environment and Forestry, 2019b). This includes the achievements in the President Susilo Bambang Yudhoyono administration from 2007- 2014. Although there was an acceleration in 2018, in comparison to the target of 12.7 million ha, as Figure 1 above indicates, there is a large gap between the target and the realized areas of social forestry. With a target of 12.7 million hectares, the government would ideally need to

provide access to manage 2.5 million hectares per year. In 2018, the Ministry of the Environment and Forestry revised its target from 12.7 million ha to 4.38 million ha. In 2019, as the final year of the RPJMN 2015-2019, the government through the Ministry of the Environment and Forestry targeted social forestry to cover 1 million ha. Overall, the realization of social forestry from 2007 to 2019 reached 4,048,376.81 ha or only 31.88 percent of the initial RPJMN 2015-2019 target. The cumulative number of Permit Notices (SK) from 2007-2019 was 6,403 units of Permit or Rights Notices (SK) received by 818,457 Heads of Households.

Table 2. Achievements of Social Forestry in Indonesia Period 2007-2019

Number	Province	Progress		Number of Legality Unit/SK (Unit)	Number of Family Heads (KK)*
		Target	Achievement		
		Area (Hectare)	Area (Hectare)		
1	Aceh	494,765	208,068.38	47	15,862
2	Sumatera Utara	573,146	6,626.09	119	15,138
3	Sumatera Barat	633,782	226,948.70	235	126,135
4	Riau	1,190,483	108,420.36	54	21,420
5	Jambi	340,839	197,477.73	403	31,024
6	Sumatera Selatan	332,196	119,002.95	168	25,153
7	Bengkulu	157,494	64,245.63	123	13,154
8	Lampung	367,069	214,312.71	324	74,238
9	Kepulauan Bangka Belitung	143,503	40,391.82	364	9,330
10	Kepulauan Riau	197,740	32,695.00	25	3,444
11	Jakarta	-	-	-	-
12	Jawa Barat	27,308	27,648.45	97	16,300
13	Jawa Tengah	33,244	35,449.06	80	17,710
14	Yogyakarta	3,383	1,565.88	45	5,005
15	Jawa Timur	87,265	138,619.80	272	90,178
16	Banten	4,769	16,365.48	25	10,213
17	Bali	16,383	14,390.31	83	44,923
18	Nusa Tenggara Barat	312,767	32,797.77	132	22,161
19	Nusa Tenggara Timur	526,582	51,213.34	206	15,933
20	Kalimantan Barat	1,356,549	456,168.30	171	63,488
21	Kalimantan Tengah	1,375,478	252,173.20	175	22,803
22	Kalimantan Selatan	173,505	59,837.29	114	12,780
23	Kalimantan Timur	386,574	170,171.18	87	7,628
24	Kalimantan Utara	235,997	380,911.27	67	9,118
25	Sulawesi Utara	118,850	33,048.35	179	3,400
26	Sulawesi Tengah	366,824	197,958.11	1,208	20,822
27	Sulawesi Selatan	331,797	291,668.77	579	48,962
28	Sulawesi Tenggara	306,224	82,277.32	173	13,374
29	Gorontalo	58,513	18,178.01	124	9,844
30	Sulawesi Barat	95,531	43,229.82	458	3,782
31	Maluku	231,787	183,728.72	111	22,805
32	Maluku Utara	151,284	137,272.83	88	17,194
33	Papua Barat	589,129	51,666.19	36	2,204
34	Papua	2,404,952	93,547.99	31	2,932
Total		13,625,710	4,048,376.81	6,403	818,457

Source: MoEF, 2019b

On the other hand, the target of social forestry covering an area of 12.7 million ha is a political space initiated by the government. This space should not only focus on granting social forestry permits, because in order to achieve the goal of social forestry, particularly community welfare and forest sustainability, facilitation of assistance and business development to communities who have obtained social forestry permits is needed in order that the communities can become economically independent and sustainable. Post-licensing facilitation cannot be carried out and is not the sole responsibility of the Ministry of the Environment and Forestry; it requires synergy with other ministries or institutions and be in sync with regional governments. Social forestry programs are often viewed within the framework of the single interests of each stakeholder. There is no collaborative framework that makes it a common interest that involves all parties. Although the local governments support the social forestry program formally and legally, the coordination of performance between the central government and regional governments is still questionable.

3. Result and Discussion

3.1 Problem Analysis

The development of social forestry in forest management must be able to reverse the paradigm of a top-down approach to a bottom-up or participatory approach and prioritize the participation of local communities. The strategy of developing social forestry is to provide forest management opportunities to communities with provisions that provide incentives for the efficiency and sustainability of their businesses and forest sustainability, without having to divide and surrender ownership of forest areas to economic communities. Social Forestry actors are units of social communities, who are citizens of the Republic of Indonesia who live in forest areas or in a state forest area, and possess a valid Resident Identity Card and are present in a social community with a history of cultivating forest areas; depending on the forest, their activities can affect the forest ecosystem.

Social forestry, in addition to providing forest management rights for communities, in practice has at least supported livelihoods while protecting the environment. Implementation in the field presents difficult matters. The potential causes of the low achievement of the social forestry target in the RPJMN 2015-2019 need to be elaborated further in order to be used as the basis for improvement efforts to prevent similar conditions from occurring again in the RPJMN 2020-2024. One of the potential causes for not achieving the RPJMN target is an unrealistic target, which is a condition where the target to be achieved is far beyond the capability of available resources. One way to overcome the gap between high targets and limited resources (both HR and budget) is to make breakthroughs in implementation strategies. One strategy is to involve the communities and create collaborations. This breakthrough was made by the Ministry of the Environment and Forestry in 2018, the fourth year of the implementation of the RPJMN 2015-2019, by issuing Regulation 105/2018 and Regulation 88/2018. This breakthrough was appreciated, but as it had only begun to be implemented for the 2019 fiscal year, the effectiveness of its implementation is not yet known.

During this time, there is still only a partial understanding of the implementation of forestry development programs; this condition results in the ineffectiveness of the implementation of development policies, thus encouraging the implementation of programs that do not support each other, which has implications for synchronization in the implementation of sectoral programs. The budget for social forestry programs has been utilized more to support institutional management activities. Of the five activities managed by the Directorate-General of Social Forestry and Environment Partnership of the Ministry of the Environment and Forestry each year, the largest average budget allocation is to fund management support activities, which reaches 39.8 percent per year and is followed by social forest and customary forest business development activities by 32.4 percent, activities of preparing social forestry areas by 17.9 percent, activities for handling tenure and customary forest conflicts by 5.3 percent, and environmental partnership activities and community participation by 4.7 percent (Zakaria *et al.,* 2018)

The implementation of social forestry carried out in the period from 2014-2019 certainly cannot satisfy all parties, but it still deserves appreciation. If simplified, major efforts in social forestry involve legalization in the form of decrees, community empowerment, and agrarian conflict resolution in the forestry sector. The order of magnitude of achieved major efforts in this period is legalization, then community empowerment, and conflict resolution. Entering the 2020-2024 period, social forestry should emphasize the quality and outcome of empowerment, and should become an effective conflict resolution mechanism. The expansion of good social forestry implementation through empowerment and conflict resolution must be used as a reference for accelerating social forestry targets.

3.2 The Challenge of Social Forestry

The challenge of concern in the planning of social forestry in the future is related to the issue of inequality. There are two types of inequalities that become the center of attention. The first is the unequal distribution of income among community income groups, as measured by the Gini index involving people who are present in and around forest areas. The second is related to regional disparities, for which the spatial structure of the Indonesian economy is still dominated by the group of provinces in Java that contribute to the Gross Domestic Product (GDP) by 58 percent, followed by those in Sumatra (22 percent),

Kalimantan (8.3 percent), Sulawesi (6 percent), Bali and Nusa Tenggara (3 percent), and Maluku and Papua (2 percent). In short, it can be said that the pattern of unbalanced development in Indonesia continues to occur, as reflected by the strong "center" (Java and Sumatra) as the gravity of development, leaving the "fringes" (Eastern Indonesia and villages). The social impact that occurs is the increase in unemployment in the environment of forest farmers, which prompts people to find work in cities. What is also important is that in addition to the potential unemployment of forest farmers, there is also the condition where the number of social forestry assistants is currently lacking. Meanwhile, the lack of education, skills, and knowledge of forest farmers has led to a challenge for social forestry that must be addressed immediately. On the other hand, De Royer *et al.* (2018) argued that one of the challenges in social forestry is ignoring aspects of recognition and participation of the local communities.

Experience so far shows that the program for communities bordering forests should not be limited only to the granting of permits or management rights, but also involve the process of assistance before and after the permit or management rights are granted (Purwanto, 2015). In this context, the challenges of the social forestry program cover the process from start to finish. Without comprehensive assistance, it will be difficult to achieve social and economic sustainability of forest areas. Institutional strengthening, which will have a positive impact on strengthening regional governance and increasing the capacity and capability of groups receiving permits or management rights, will encourage forest management models that can balance various interests, including socio- economic interests and preservation of forests and the environment. In order to accelerate the target of social forestry, the government and partners must look for new innovation policies.

4. Conclusion

The manifestation of social forestry was not realized as quickly as expected because of various challenges such as community understanding that needed to be improved, readiness of forest farmer groups in land use planning, and the difficult licensing process. Therefore, simplification of procedures and licensing, institutional and partnership strengthening, regional assistance, and the development of a monitoring and evaluation system are necessary. Learning from the low achievement of the RPJMN 2015-2019, over the next 5 years, performance indicators and performance targets need to be carefully and comprehensively designed. The target of social forestry is not only broad but must be balanced with facilitation of business development that requires the synergy of ministries or institutions and synchronization with local governments. In the context of synchronizing central and regional government planning targets, the involvement of the Ministry of Home Affairs (Kementerian Dalam Negeri) is important to push social forestry targets into regional planning and budgeting. In addition, it is recommended to involve all components of the communities by not marginalizing certain groups to support social forestry targets, including implementing gender- responsive programs.

The implementation of social forestry so far has not been carried out comprehensively, both in policy and in the implementation process. In this regard, the implementation of social forestry needs to be made comprehensively from start to finish by creating or strengthening existing institutions, one way of which is by strengthening the Forest Management Unit (FMU). Active involvement of local governments, especially the Regional Technical Implementation Units of the Forest Management Unit (UPTD KPH), is expected to further optimize the achievement of social forestry targets in the future. This is because the majority of social forestry intervention areas are in FMU areas. The provincial Department of Forestry and the governor have formed an acceleration verification team in order to immediately examine incoming license requests in terms of the proposed land clearing and cleaning. During this time, the delay in the realization of permit issuance has been hampered because of the long verification due to the submitted requests outnumbering the personnel.

The availability of social forestry assistants is now a challenge that needs to be taken seriously. Therefore, it is necessary to map existing social forestry assistants who have experience. In order to facilitate the coordination and support of assistants in post- licensing implementation, it is necessary to facilitate the formation of a network of them. This also has an impact on the preparation and budgeting scheme, which should not only be focused on the breadth and routine but also should focus more on increasing the capacity of forestry assistants.

The government needs to ensure that locations that will be made into areas of social forestry are in accordance with its objectives and to ensure that the permit recipients are communities in need. Verification of locations is to ensure the selected areas are in accordance with the function of the purpose

of social forestry, while verification of the permit recipient is to ensure that the permit recipient is the community in need. The government needs to limit the number of group members who will receive permission in order to facilitate verification of the recipient members of the group. During this time, the number of group members may reach hundreds, making it difficult to verify them in the field. It is important that the central government collaborates with the local government to ensure the locations and communities receiving social forestry permits are in accordance with the objectives of social forestry.

On a regional basis, social forestry can be accelerated in areas with high percentages of poverty. Data of the Central Bureau of Statistics (BPS) in July 2019 still showed the provinces of Papua, West Papua, East Nusa Tenggara, Maluku, Gorontalo, Aceh, Bengkulu, West Nusa Tenggara, Central Sulawesi, and South Sumatra as the top 10 provinces with the highest percentages of poor populations. These ten provinces can become a priority for social forestry in the next five years because these regions also have wide allocations of social forestry. This is because social forestry should be the proper gateway to the welfare and sustainability of Indonesian forests.

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Reference

Arif, Anggraeni. (2016). *Juridical Analysis of Forest Destruction (Deforestation) and Forest Degradation of the Environment.* Makassar: University of Muslim Indonesia (UMI)

Barendse, J., Roux, D., Currie, B., Wilson, N., Fabricius, C. (2016); *A broader view of stewardship to achieve conservation and sustainability goals in South Africa: review article*. South African Journal of Science. 112, 21–35. DOI: 10.17159/sajs.2016/20150359

Bonet, Jaime. (2006). *Fiscal Decentralization and Regional Income Disparities: envidence from the Colombian experience.* Article *in* The Annals of Regional Science 40(3):661-676 . DOI 10.1007/s00168-006-0060-z

Carlsson, L., Berkes, F. (2005); *Co-management: concepts and methodological implications*. Journal of Environmental Management. 75, 65–76. DOI: 10.1016/j.jenvman.2004.11.008

Common, Michael & Sigrid Stagl (2005); *Ecological Economic: An Introduction.* Cambridge University Press, New York.

De Royer, S., Van Noordwijk, M., Roshetko, J., 2018. *Does community-based forest management in Indonesia devolve social justice or social costs?* Int. For. Rev. 20, 167–180.

Firdaus, Asep Yunan. (2018). *Practical Guidelines for Implementing Social Forestry Policies: Framework for Accelerating Forest Tenure Reform.* Bogor, Indonesia: CIFOR.

Hirawan, S.B. (2007). *Desentralisasi Fiskal Sebagai Suatu Upaya Meningkatkan Penyediaan Layanan Publik (Bagi Orang Miskin) di Indonesia.* Jakarta: Universitas Indonesia.

Kumar, V. (2015). *Social Forestry in India: Concept and Schemes.* India: Van Sangyan

Kuncoro, Mudrajat, Y. Sri Susilo, Hempri Suyatna, Ronggo Sadono, Nairobi, Arvina Ratih, Rahmat Safe'i, Dyah Wahyuning Tyas, Agung Prajulianto, Linda Lestari, Zulfa Emalia, Prayudha Ananta. (2018). *Dampak Perhutan Sosial: Perspektif Ekonomi, Sosial dan Lingkungan (Impacts of Social Forestry: Economic, Social and Environmental Perspectives).* Jakarta: Ministry of Environment and Forestry.

Miller, G.T. & S.E. Spoolman. (2015); *Living in the Environment: Concepts, Connections and Solutions. Seventeenth edition.* Brooks/Cole, Belmont, CA (USA)

MoEF. (2019a). *Status of Forests and Forestry in Indonesia 2018.* Jakarta: Ministry of Environment and Forestry

MoEF. (2019b). *Presentation of Social Forestry Achievements 2007 - 2019.* Jakarta: Directorate General of Social Forestry and Environmental Partnerships.

MoEF. (2017). Perhutanan Sosial, Membangun Kemakmuran Dari Desa (Social Forestry, Developing Prosperity form Villages). Ministry of Environment and Forestry - Republic of Indonesia.

Peluso, Nancy Lee & Mark Poffenberger. (2018). *Social Forestry in Java: Reorienting Management Systems.* DOI: 10.17730/humo.48.4.a4r82227p5065638

Purwanto, Edi. (2015). *The Challenges of Social Forestry and the Role of CSO's*. ISBN. 978-602-61993-0-0.Bogor: Tropenbos Indonesia

Rakatama, Ari & Ram Pandit. (2020). Reviewing social forestry schemes in Indonesia: Opportunities and challenges. *Journal of Forest Policy and Economy.* Elsevier. https://doi.org/10.1016/j.forpol.2019.102052

Tiwari, K.M. (1983). *Social Forestry in India.* Natraj Publisher, India

Westoby, Jack. .(1989). *Introduction to World Forestry.* The Oxford Forestry Institute, University of Oxford, South Parks Road, Oxford, OX1 3RB

Wiersum, K. Freek. (1984). *Developing Strategies for Social Forestry: A Conceptual Approach.* Honolulu: Working paper Environment and Policy Institute East West Center

Zakaria, R. Yando, Eko Budi Wiyono, Asep Yunan Firdaus, Didik Suharjito, Muayat Ali Muhsi, Suwito, Roy Salam, Tri Candra Aprianto, Luluk Uliyah. (2018). *Perhutanan Sosial: Dari Slogan ke Program (Social Forestry: From Slogan to Program).* Jakarta: Sekretariat Reforma Agraria dan Perhutanan Sosial (Secretariat of Agrarian Reform and Social Forestry).

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Policy Paper

Sustainable City Planning Concepts and Practices in Emerging Economies: A Systematic Review

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Abstract

The purpose of this paper is to explore sustainable city planning concepts and practices in emerging economies. Using a systematic review, peer-reviewed articles in an academic database were systematically searched and reviewed. The process included selecting appropriate keywords to assist in screening relevant articles, allowing more comprehensive and integrated findings of the concepts and practices of sustainable city planning in emerging economies, assisted by the NVivo 12 qualitative software package and Microsoft Excel. This paper also developed a framework comprised of key elements to measure the sustainability of city planning. The findings showed that, by reviewing more than 30 peer- reviewed articles, it was understood that Western sustainable city planning concepts have been directly adopted into the policy agendas of emerging countries without significant changes. However, such concepts were interpreted into a number of different practices dealing with the local socio-cultural and political characteristics of the adopting countries. Lastly, during the systematic review, this paper offers a comprehensive evaluation of the overall mapping of literature in the framework of sustainable city planning in emerging countries, indicating a number of areas that have been explored by existing studies as well as certain areas that are still lacking and could be potentially explored by future studies.

Keywords: Sustainable City Planning, Emerging Economies, Systematic Review

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1. Introduction

Against the backdrop of global climate change and economic inequality issues, sustainable development is increasingly under scrutiny. The main concern with sustainable development is ensuring various development activities to achieve economic, social, and environmental improvement and balance (Borowy, 2014; Perkins, 2013; United Nations, 2019). 'Sustainable city planning' emerged as an implication of sustainable development in urban and environmental studies, which emphasizes the importance of infrastructure development and land-use management that promotes sustainability visions (Herberle & Opp, 2008; Scott, 2012). The sustainable city planning concept offers a number of pathways for urban stakeholders to manage their cities in a responsible manner, especially when facing the trade-offs between promoting human development and natural preservation, as well as boosting economic growth versus maintaining environmental capacity. The concept is usually interpreted into regulatory frameworks, policies, and programs, which can be used to organize both small-scale interventions (such as integrated water management or the preservation of animal habitats in mining areas in the United States) and large-scale interventions (such as the 'popular' green belt policy in Britain (Campbell, 2016; Cullingworth & Caves, 2014; Hall, 2014).

After initially becoming popular in the West, sustainable city planning has recently diffused into other parts of the world – emerging countries. The declaration of the Sustainable Development Agenda 2030 in the Urban Agenda – the Earth Summit in 1992, facilitated by the United Nations – contributed a significant role in transferring this concept (Hall, 2014; United Nations, 2019). At that time, sustainable city planning was endorsed to many governments through policy-sharing and discussion forums organized by international organizations such as the IUCN, UNEP, WWF, the World Bank, the FAO, and UNESCO, and thus became a global agenda. Not only tackling global issues, the agenda also offers planning strategies to deal with local issues in emerging countries, including deforestation, social conflict, poverty, street vendors, and informal sectors (Douglass, 2015; Freire, 2006; Moncada, 2013; Padawangi, 2014; Polakit & Boontharm, 2008; Rukmana, 2011; Sasaki & Sone, 2015). Nevertheless, the diffusion of sustainable city planning faced contextual challenges, including a larger extent of socio-cultural diversity, government and political dynamics, and economic poverty and inequality (Harsanto, Michaelides, & Drummond, 2018; Perkins, 2013; Robinson, 2002; Ward, 2012). Such challenges made the implementation of a sustainable agenda difficult to manage, in the same ways as in Western countries (Doucette & Park, 2018; Robinson, 2002; Scott, 2012).

The purpose of this paper is to explore sustainable city planning concepts and practices in emerging economies, applying the systematic review approach. In systematic review, peer-reviewed articles in an academic database are systematically searched and reviewed, allowing the concepts and practices of sustainable city planning in emerging countries discussed in such articles to be constructed into general understandings and a framework. The findings showed that, by reviewing more than 30 peer-reviewed articles, it was understood that Western sustainable city planning concepts have been directly adopted into the emerging countries' policy agenda without significant changes, but such concepts were interpreted into different practices, adapting local socio-cultural and political characteristics. This paper lastly offers a comprehensive evaluation of the overall mapping of literature in the framework of sustainable city planning in emerging countries, indicating a number of areas that have been explored by existing studies as well as certain areas that are still lacking and could be potentially undertaken by further studies. Findings from this paper, nevertheless, also provides interesting feedback for scholars and policymakers in emerging economies, including Indonesia, to improve certain aspects within their sustainable city agenda.

Sustainable city planning

City planning discourses are increasingly attached to the idea of sustainability. The most referred scholar in urban and environmental planning studies, Sir Peter Hall, mentioned, "…the overwhelming theme of that decade [1990s] was the search for sustainability, and sustainable urban development became almost a mantra" (Hall, 2014, p.10). The modern conventional land-use planning that previously focused on guiding and controlling city development towards explosive economic growth, which was popular in the cities in the modern period of 1960s, had slowly shifted into the post-modern city planning that emphasized the formation of 'sustainable cities' – cities aimed at achieving steady long-term socio-economic and environmental balance (Allmendinger, 2001; Hall, 2014; Rydin, 2011). Many Western cities

that were hit by deindustrialization bounced back through 'sustainable city planning', exploring new economic source alternatives, which they consider as more 'sustainable' than manufacturing industries (Landry & Bianchini, 1995). Such resources focus toward human skills and knowledge related to culture, lifestyle, creativity, and technology (Allmendinger, 2002; Cullingworth & Caves, 2014; Landry, 2000; Taylor, 1998). After all of this shifting, the world economy then became subdivided into two categories: cities focused on massive industrialization, which are facing socio-economic inequality and environmental degradation, and cities focused on more sustainable, creative, and innovative services, which are enjoying a living harmony with socio-economic and environmental balance (Girard, 2006).

Sustainable city planning is a concept that was introduced by many scholars, which emphasizes the process of managing a city that ensures harmony with human life and nature (Alexander, 2006). The concept engages with the 'sustainable' and 'city planning' themes. The term 'sustainable' itself descriptively refers to the definition of the capacity of any given system or entity to survive, serve, and function in the long term (Borowy, 2014). Meanwhile, city planning is generally understood as a process of selecting and managing strategic actions to guide a city to achieve its preferred future (Hall & Tewdwr-Jones, 2011). City planning includes the activities of goal setting, negotiation, and facilitation, as well as monitoring and evaluation of selected development scenarios, which involve certain approaches, instruments, and techniques (Allmendinger, Prior, & Raemaekers, 2001). Sustainable city planning works if the city planning offers development strategies and actions that comply with the principles of freedom, solidarity, equity, and justice for both humans and nature (Girard, 2006). Its main indicator is the improvement of the quality of life – a city should serve better homes, workplaces, lifestyles, and governance, all of which promote well-being (Davoudi & Layard, 2001).

Sustainable city planning covers a number of basic city development strategies and programmes, which are mainly related to the environment, the economy, society, and governance. The environmental strategies rely on ensuring that development activities maintain the environmental capacity (Rydin, 2003). The strategies are usually related to green and open spaces, lakes, rivers, and sea and air conservation, as well as environmentally-friendly urban settlements (Borowy, 2014; Gumbira & Harsanto, 2019; Herberle & Opp, 2008). Amongst the current popular programmes applied in Western cities are greenbelts, forest conservation, green or sustainable houses and buildings, low-emission transports, electric cars, urban street plantations, and animal preservation (Campbell, 2016; Rydin, 2003). Economic strategies, on the other hand, concern on optimizing economic resource exploration to promote steady long-term economic growth and prosperity of the people (Allmendinger, 2001, 2016; Chapain & Comunian, 2010; Landry, 2006). Economic strategies are interpreted as exclusive economic zones, industrial estates and clusters, culture, arts, creative towns, high-tech and software industry incentives, business innovation incubators, integrated tourism management, and many others (Chapain & Comunian, 2010; Couch, Fraser, & Percy, 2003; Harsanto & Permana, 2019; Healey, 2007; Mallett & Cherniak, 2018).

Social strategies appear as the efforts to preserve and continue the wealth of culture and social activities of the people that can help community engagement, harmonious living, and capacity improvement (Gonzalez & Healey, 2005; Newman, Waldron, Dale, & Carriere, 2008; Rydin, 2016; Scott, 2008) . Social strategies engage with programmes related to cultural preservation, heritage management, education innovation, social inclusion, and human capacity development (Innes & Booher, 2000; Rydin, 2016; Scott, 2008). Lastly, governance strategies are currently introduced as a new element that also contributes to overall sustainable city planning. These strategies emphasize the capacity of stakeholders to manage urban development in ways that are mutually agreed, allowing win-win solutions to emerge from the process of negotiation, strategy, and interest mediation, as well as knowledge sharing (Allmendinger, 2016; Healey, 2004; Innes & Booher, 2010; Woltjer, 2000). The strategies include programmes such as business improvement districts, regional and cross-boundary authorities, community enterprises, local partnerships, and many other institutional forms beyond the traditional government authorities who allow multi-stakeholders to participate equally (Allmendinger, 2016; Cars, Healey, Madanipour, & De Magalhaes, 2002; Healey, 2004; Hudalah, Winarso, & Woltjer, 2010; Miharja & Woltjer, 2010; Rydin, 2003). In summary, the overall illustration of the sustainable city framework is presented in Figure 1 below.

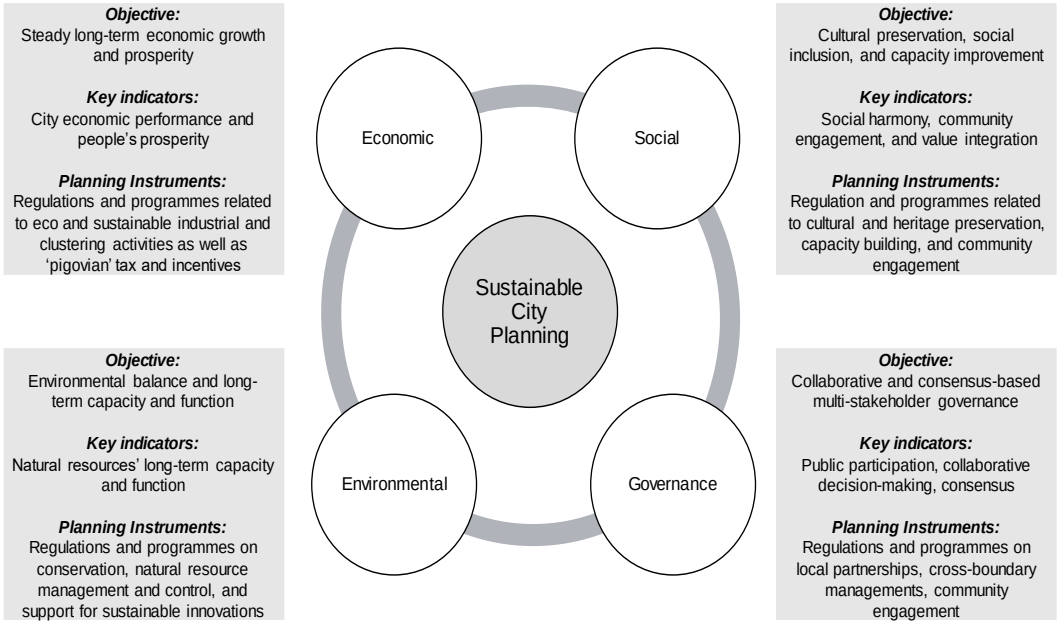

Figure 1. Sustainable City Planning
(Source: Authors from Rydin (2016); Hall and Tewdwr-Jones (2011); Healey (2004; Borowy (2014); and Landry (2000)

2. Methodology

To find and analyse sustainable city planning practices in emerging economies, systematic review method was utilised. Systematic review is a type of review based on structured and transparent steps, which allow the results to be replicable (Voorberg, Bekkers, & Tummers, 2015). The important steps for this type of review are determining eligibility criteria, making structured searches in specific databases, and carrying out a systematic analysis process (Tranfield, Denyer, & Smart, 2003).

The utilised eligibility criteria in this paper were study topic, type of publication, year of study, language, academic field, and context. The study topic is sustainable city planning, which is searched by a straightforward search string: "sustain* AND cit* AND plan*" in the article title. The type of publication was restricted to peer-reviewed articles, and other types of publications such as proceedings, essays, and popular articles were not included in the search. The study year is within the last 10 years, from 2011 to 2020, in order to obtain the latest insights of the last decade. To be eligible in the search, the language of publication was restricted to be English, as it is a common language in academic debates, and other languages were excluded in the search process. The academic fields were set after the search results were obtained, based on the dominant academic fields found by the search engine. Since the focus is on emerging economies, the articles to be analysed were only articles with the context of emerging economies. Emerging economies refer to the list of emerging markets and developing economies in the Global Economic Prospects publication (The World Bank Group, 2017).

A structured search was performed on the Scopus academic database, which is currently the largest academic database. In conducting the search, the initial stage was to apply the search string that had been created to the titles to get a rough picture of the results. Next, refinement was carried out by applying filters to publication type, study year, and language. Then, the most dominant academic field giving results was chosen to further limit the results. The process was carried out by utilising the refinement feature on Scopus. This was followed by manual filtering by reading the titles and abstracts of the articles to check their relevance and find out their contexts. Finally, only the articles that had been filtered were read in depth to obtain their insights.

The search was conducted in February 2020. Rough search results with a search string for the title produced 325 article results. After eligibility criteria as type of publication, year of study, and language were applied, 180 articles were obtained; it was discovered that the two dominant academic fields were 'social science' and 'environmental science', and thus the focus was on these two fields, leaving 102 articles. Metadata of these articles were downloaded, including the abstracts and keywords. Of the 102 articles, it was found that 69 articles were relevant for the focus topic of this paper. From the 69 articles,

these were filtered based on context and 33 articles were found to relate to emerging economies. Figure 2 illustrates this process.

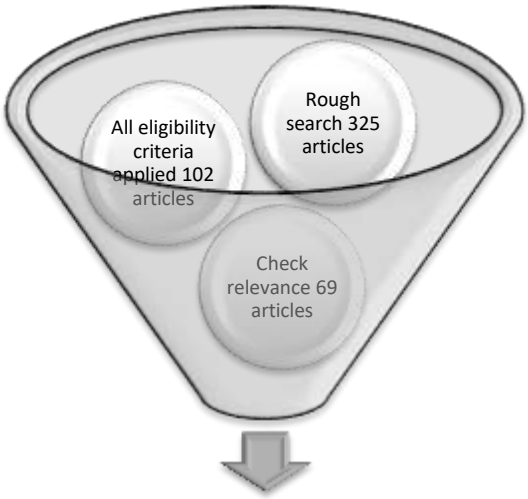

Figure 2. Systematic Search Process (Source: Authors)

The articles were then downloaded, read, and analysed to extract their insights. The analysis was performed qualitatively using thematic analysis as the framework technique, with the coding process guided by the established concepts in sustainable city planning as discussed in section 2. In addition to content, article attributes such as publication year, publication outlet, and context were also analysed to provide an overview of the distribution of studies on sustainable city planning in international journals. Data analysis utilised NVivo 12 qualitative software package and Microsoft Excel. The use of qualitative software as NVivo has an advantage mainly in the form of integration of all data in one place. Exploration and data display can also be performed at various points of the analysis process. Microsoft Excel was utilised because the metadata of the reviewed articles were in the comma-separated values (CSV) format. Such a format is easier to be processed using the Microsoft Excel spreadsheet program. The results of the analysis are presented in section 4.

3. Results & Discussion

3.1 Publication characteristics

It was found that scholarly articles on sustainable city planning with the context of emerging economies were published in many different journals. Journals that contained more than one article were Sustainability (Switzerland) (4 articles); WIT Transactions on Ecology and the Environment (3); Journal of Urban Planning and Development (2); Journal of Environmental Planning and Management (2); Futures (2); Habitat International (2); Land Use Policy (2); International Journal of Environmental Planning and Management (2); and Journal of Cleaner Production (2). Journals containing one article were Applied Energy; Archnet-IJAR; Area; Chinese Geographical Science; Energy, Sustainability and Society; Journal of Environmental Assessment Policy and Management; Journal of Planning History; Journal of Urban Management; Open House International; Urban Forestry and Urban Greening; and Urban Studies. The diversity of places of publication from different areas of journal science indicates that this area is gaining attention from interdisciplinary scholars.

For the year of publication, it was found that articles published in the last decade almost evenly existed for all years as shown in Figure 3, with 2013 as the year with the highest number of publications (6 articles), followed by 2011 and 2019 (5 each), 2017 and 2018 (4 each), and 2014 and 2016 (3 each). This indicates that sustainable city planning in emerging economies is studied consistently every year.

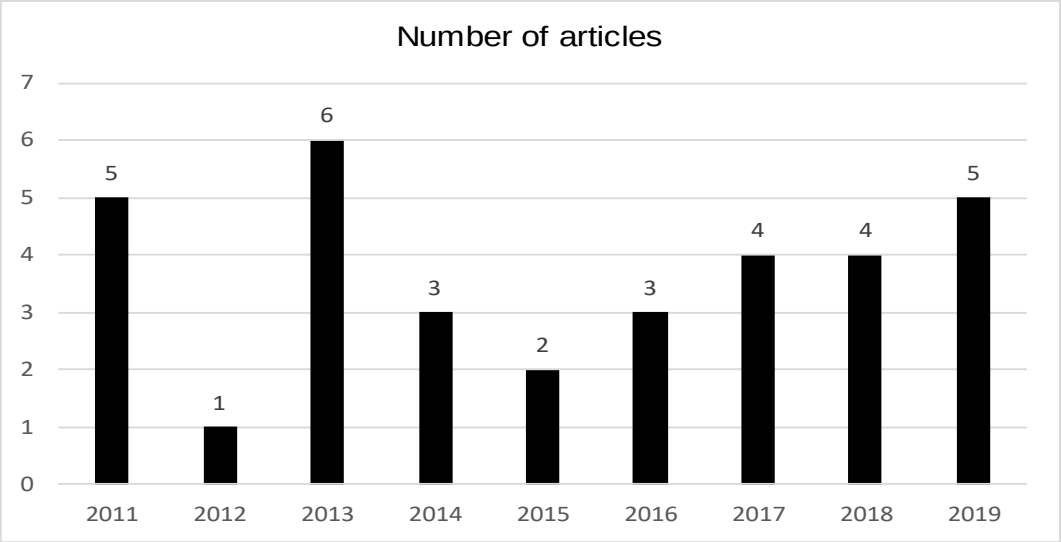

Figure 1. Publication years
(Source: Authors)

Contextually, sustainable city planning was studied in diverse contexts (Table 1). The most studied context was China (8 articles), followed by Brazil (3), Colombia (2), and Mexico (2). The contexts were mainly of Asia, Africa, and Latin America. Most articles examined one particular context (as Ozoike-Dennis, Spaling, Sinclair, & Walker, 2019; Rahman, 2016; Sampaio, Dias, & Balestieri, 2013), while other articles mixed several specific contexts or regions (as Ayambire, Amponsah, Peprah, & Takyi, 2019; El-Kholei, 2019).

Table 1: Context of Studies

Context	Article numbers	City(-ies)
Arab Region	1	Not specified
Bangladesh	1	Khulna City
Brazil	3	Guaratinguetá; Curitiba; Florianopolis
Chile	1	Not specified
China	8	Jiaozhou, Cixi, and Fangchenggang; Weihai and Qingdao; Ghuangzhou; Lijiang City; Xiamen; Dongying
Colombia	2	Riohacha; Medellin
Ecuador	1	Quito
Egypt	1	Siwa
Indonesia	1	Bekasi
India	1	Kalaburgi
Iran	1	Mohmoodabad
Kenya	1	Not specified
Mexico	2	Mexico City; not specified
Nigeria	1	Not specified
Sub-Saharan Africa	1	Not specified
Thailand	1	Not specified
Turkey	1	Pompeipolis
UAE	1	Abu Dhabi
Not specified	4	Not specified

Source: Authors

To obtain an overview of the words that were widely mentioned among the articles, NVivo was utilised to explore the word counts as well as their weighted percentages from the abstracts and titles. The word cloud is shown in Figure 3. The words 'city', 'plan', and 'sustainable' as the main key words in the search string certainly appeared as the most-used words in the title and abstracts, each with counts of 159, 135, and 131 with weighted percentages of 3.33%, 2.83%, and 2.74%.

Figure 3. Word Cloud
(Source: Authors)

What is interesting is the emergence of the word "urbanization" as the most-mentioned concept aside from the three words of search string (the count being 132 with a weighted percentage of 2.76). This shows that sustainable city planning intersects with the phenomenon of rapid urbanization that occurs in various parts around the world. The three elements of sustainability, as the economic, environmental, and social elements, showed balanced compositions, each of which had counts of 30, 29, and 31 with weighted percentages of 0.63%, 0.61%, and 0.65%. It seems necessary for city planners to be aware of this phenomenon, considering that rapid urbanization indeed encourages economic growth as occurs in many emerging economies, but is also accompanied by severe environmental and social impacts (Ding & Li, 2017).

3.2 Concepts & practices

Generally, from the perspective of substance, the concepts of sustainable city planning in the emerging world are replicating the original Western concepts. The concepts contain multi-disciplinary approaches as seen in the Sustainable City Planning Framework (see Figure 1), consisting of economic, social, and environmental aspects of intervention (El-Kholei, 2019; Staukis, 2014). In recent decades, the concepts also began to recognize the role of governance as another key element, following the Western trend (El- Kholei, 2019; Musse, Homrich, de Mello, & Carvalho, 2018). In the emerging world, the concepts are usually promoted under certain 'jargon aims', such as tackling climate change, ensuring ecological protection, and promoting green development as well as smart and creative cities (Wang, Wang, Wang, & Zheng, 2018). The 'jargons' help urban stakeholders in those cities to have equal perceptions, knowledge, and spirit toward sustainable city planning, considering they are still limited in experience, knowledge, and skills (El-Kholei, 2019). In China, the largest country in the emerging world, the concept of sustainable city planning was implemented in 2000, earlier than the majority of emerging countries, through the jargons of eco-city or low-carbon city planning approaches, allowing the central government to push other stakeholders to realize their vision as research and physical development projects (Fu & Zhang, 2017). In Middle Eastern cities, another important region of the emerging world, the 'jargons' of cultural cities, future cities, eco-tourism, or historical cities were introduced, echoing sustainable city planning to be undertaken by urban stakeholders, including private sectors and communities (Crot, 2013; El-Kholei, 2019; Salem & El- Shimy, 2012).Similar with Western concepts, the success and failure of sustainable city planning are also determined by the outcomes to ensure a balance between the needs of people and long-term environmental support (Wang et al., 2018). Sustainable city planning is considered a success if it is able to create certain plans, including strategic actions and monitoring and evaluation of development plans, which promote human development but retain the quality and quantity of essential natural resources as well as economic and social stability (Ayambire et al., 2019). In Middle Eastern cities, the core of sustainable city planning that determines success and failure is the economic growth of communities and social equity among them, which are in line with continuous protection for the

environment (El-Kholei, 2019). It is believed that policymakers in the region focus on ensuring the process of sustainable city planning to be in accordance with existing cultural and historical values (El-Kholei, 2019). Similarly yet differently in articulating strategies, in Latin American cities, the definition of success and failure of sustainable city planning in ensuring economic, social, and environmental development harmony persists in the actual process of promoting sustainable city planning, such as public participation and equality of skills and knowledge among urban stakeholders (Acosta & Parga, 2012; Musse et al., 2018). Meanwhile, in Chinese cities and the UAE, similar outcomes have to be achieved through continuously encouraged technology and innovation developments (Crot, 2013; Fu & Zhang, 2017; Xiao, Li, & Wang, 2011). There is, for instance, the usage of high-tech productions, software, and information technology to support various economic and social activities of the people (Fu & Zhang, 2017). In the UAE, this has even been focused on particular cases, which are dedicated as their best practices, as shown in the case of the city of Al-Masdar (Crot, 2013). More than 30 articles were reviewed and a number of similarities in terms of the outcomes of sustainable city planning in the emerging world were highlighted, as presented in Table 2.

Table 2: Concepts and Outcomes of the Sustainable City Planning in the Emerging World (Several Cases)

Context	Focus Cities	Sustainability Outcomes	Key Approach
Arab Region	Not specified	The economic growth of a community, achieving social equity and protecting the environment.	Culture, religion, and social aspect integration
Bangladesh	Khulna City	Equality in knowledge and skill in urban stakeholders to promote sustainable city planning	Collaborative plan making process
Brazil	Guaratinguetá; Curitiba; Florianopolis	Sustainable economic development, environmental preservation, and historic preservation	Strong Master Plan
China	Jiaozhou; Weihai and Qingdao; Ghuangzhou; Lijiang City; Xiamen; etc.	Economic growth, social equality, and economic prosperity, focused on the inclusion of technology and innovation	Innovative city model (green, eco, and smart city)
Egypt	Siwa	Environmental preservation, economic development, and cultural and social harmony	Eco-tourism, green development approaches
Indonesia	Bekasi	Environmental balance and steady economic productivity	Eco-city, land-use management
Mexico	Mexico City; not specified	Sustainable economic growth, social improvement, and environmental maintenance	Public participation and engagement in development processes
UAE	Abu Dhabi	Economic growth that ensures people improvement and environmental resource support	Prototype of flagship development as a best practice

Source: Authors

The diffusion of sustainable city planning faced contextual challenges in the emerging world. Despite certain similarities with the Western world, the concepts have to be implemented amidst socio-cultural diversity, government and political dynamics, and economic poverty and inequality, which exist at wider deviations than the cases in the Western world (Perkins, 2013; Robinson, 2002; Ward, 2012). Such challenges cause the implementation of sustainable city planning to be difficult to manage in the same ways as in Western countries, and may also potentially lead to different outcomes (Doucette & Park, 2018; Robinson, 2002; Scott, 2012). In terms of socio-cultural diversity, many cities in the emerging world were unable to convert the concepts they learned from the Western world into effective practices due to limitations caused by social values and patterns, even the 'rules of the game', in the form of norms, religions, and cultural preferences (El-Kholei, 2019; Madero & Morris, 2016). In the majority of Middle Eastern countries as well Bangladesh and Mexico, for instance, sustainable city planning faced difficulties in the implementation stage, especially when community involvement is necessary, because planning should compromise various historical and cultural values in the community, which cause scientific rationality and technologies to be negotiated by the existing local 'rules of the game' (Acosta & Parga, 2012; Rahman, 2016). These include gender inequality that limits involvement of people in being active in support activities encouraged by the plan as well as retained beliefs and norms of people that make them less flexible to cooperate with governments in several aspects, such as revitalization of historical and religious buildings (Acosta & Parga, 2012; Rahman, 2016). These situations have overall led to sustainable city planning in the emerging world to be strongly influenced by and prioritizing more on the

acculturation of innovation and technology with culture, religion, and other social values, rather than the real outcomes of the sustainability and innovation processes.

In terms of government and political dynamics, unlike in the Western world, many cities in the emerging world, still believe in top-down approaches to manage outcomes (Crot, 2013; Fu & Zhang, 2017; Salem & El-Shimy, 2012). Governments play a leading role in decision-making, key investment, regulation, and stakeholder reorganization (Crot, 2013). They apply various techniques taught by Western countries through policy sharing and technical assistance projects (Crot, 2013; Madero & Morris, 2016; Xiao et al., 2011). This process can be seen from the introduction of techniques such as urban design and building measurement and control, innovations in food supply and demand as well as grocery chains, eco-transport system development, renewable energy development, and green and open space conservations, all of which were learned directly from international development projects involving Western technical experts (Crot, 2013; Madero & Morris, 2016; Xiao et al., 2011). The majority of Chinese cities and the UAE, for instance, apply a clear top-down approach to organize sustainable city planning. Local practices of sustainable city planning, from urban planning law and policies, decision-making, monitoring and evaluation activities, up to the promotion of certain urban development prototypes and programmes, are tightly guided by national government directions echoed to other stakeholders at local levels (Crot, 2013; Xue, Huang, Guan, & Lin, 2014).

Meanwhile, in other parts of the world, as economic disparity and poverty are becoming more acute, many countries carry out their sustainable city plans amidst the high gaps of knowledge, skill, and economic capacity of their people. This situation creates uncertainty in the implementation of sustainable city planning. In many cases, the existing human resources beyond the governments were unable to follow government ideas and, hence, were not supportive enough of the sustainability programmes and plans. In Latin American cities, the rapid and uncontrolled urbanization causes sustainable city planning to be difficult to manage (Rojas, Munizagab, Rojasc, Martínezd, & Pinoe, 2019). Rapid urbanization encourages water scarcity, land exploitation, flooding, decreased green areas, and health issues in urban areas; these issues push the government to pick a side, whether to work and focus on maintaining sustainability in the long term or to quickly undertake short-term actions to solve such issues, sometimes without fully engaging with the principles of a long-term sustainable plan (Rojas et al., 2019). The governments also need to work hard to build more capable communities from scratch, as many people are lacking experience, knowledge, and skills. These altogether lead to the overall process of engaging communities for sustainable city planning to require extra time and proper backward stages, in comparison to Western experiences (Madero & Morris, 2016). The governments should also provide basic foundations, including initial programmes to ensure urban stakeholder knowledge and equal improvements of skills prior to involvement in the process (Madero & Morris, 2016).

3.3 State of the Art

Academic works appear as the key element to determine the shape of sustainable city planning concepts and practices in the emerging world. The systematic review conducted by this paper now leads to a comprehensive evaluation of the overall mapping of literature in the framework of sustainable city planning in emerging countries, indicating a number of areas that have been explored by existing studies and certain areas that are still lacking and could be potentially undertaken in further studies. After review of more than 30 articles, several highlighted practices of sustainable city planning and their core research interests within the framework of sustainable city planning are shown in Table 3.

Table 3: The Practice of Sustainable City Planning in the Emerging World (Several Cases)

Context	Sectors	Key Discourse
Arab Region	Social, Economic, Environment, and Governance	From the implementation of *sharia* and other cultural related rules and policies to promote sustainable city planning to the promotion of project actions such as thematic developments such as green development, eco-tourism, building revitalization following the Green House principles, and community capacity and knowledge improvement
Bangladesh	Social	Focus on how to ensure the community to have adequate knowledge and skills and to be able to work with other stakeholders to promote sustainable city planning
Brazil	Economic and environment	Sustainable economic and environmental development can be achieved through the improvement in urban transport system, public spaces, and

Context	Sectors	Key Discourse
		city management as well as promotion
Chile	Environment	The needs of compromising the rapid urbanization process with attempts to ensure preservation of biodiversity and the provision of ecosystem, which focus on disaster management, natural resource management, and environmental policy
China	Social, Economic, Environment, and Governance	Intention to promote various innovative approaches for urban development that promote sustainability, which include large-scale efforts: green development, smart city, cultural city, eco-friendly city, and small-scale efforts: renewable energy, community development, clean and green industries, social engagement through internet-based interactions, water management, and government's rules and policies for sustainable planning
Colombia	Environment and governance	Development of measures, methods, and approaches to monitor and evaluate the impacts of urban development on environment, applying more collaborative and participatory approaches
Ecuador	Environment and social	Ensuring environmental carrying capacity from the perspective of food and livestock management and the community's activeness to support the process
Egypt	Environment, social, and economic	Applying eco-tourism development to promote economic growth that ensures people improvement and environmental resource support
Indonesia	Environment	The promotion of eco-city as a model of sustainable city planning that focused on various policies to manage land use, building, and infrastructure development
India	Environment	The introduction of Urban Green Space as a potential development approach to promote sustainable development in urban areas
Iran	Environment, social, and economic	Studying the current situations of public awareness and practices related to sustainable development. This include various scenario to enhance citizen partnerships, social integrations, and community-government partnerships in preserving environment, helping each other's economy, and preserving local culture
Kenya	Social and governance	Cultural Heritage as a driver for sustainable growth. It focuses on various strategies to ensure community engagement and multi-stakeholder cooperation in managing heritage areas to be the core of sustainable development in the city
Mexico	Social and governance	The implementation of green masterplan that is organized through public participation and collaborative actions between the community and government
Nigeria	Environment	Focus on how to promote city plans that are able to cope with urbanization issues
UAE	Environment and economic	The implementation of flagship urban project, in a form of eco-city, as a best practice for sustainable city planning

Source: Authors

The majority of cases in the emerging world has put a strong emphasis on sustainable city planning discourses from the perspective of the environment. At least, considering the three largest regions, Middle East, Latin America, and East Asia, this statement is confirmed. In the Middle Eastern cases, much of the research concerned discussions of monitoring and evaluating sustainable city planning from the environmental viewpoint, including emissions, disposal of solid waste, drinking water availability, sewage treatment systems, and so on (Crot, 2013). In the Latin American cases, the majority of the research focused on discussions to develop certain systems or methods that can be applied to promote sustainable city planning that engages with environmental indicators, which include the Strategic Alignment Model (SAM) for a sustainable environment and the City Region Food System (CRFS) for the environmental carrying capacity (Diaz, 2011; Dubbeling et al., 2017). In the Chinese cases, the studies are increasingly engaged with conceptual discussions and planning approaches that value sustainable environments, including green city, eco-city, and smart city (Fu & Zhang, 2017).

Social aspects become the second-most discussed perspective, whilst governance aspects increasingly emerge as 'an attractive topic' to discuss within sustainable city planning. Social aspects become important because of their direct connection to the environment. Current general assumptions regard social aspects, which pertain to people and their culture, religion, norms, lifestyles, and interactions, as the most important element to produce direct impacts on the environment after the environment itself (Acosta & Parga, 2012; Madero & Morris, 2016). Managing and creating a strong, engaged, and independent society becomes crucial to ensure sustainable cities, because this would reduce the government burden to promote sustainability ideas and actions (Acosta & Parga, 2012). Looking at the case studies in Latin America, for instance, the development of more independent and active communities makes it easier for the government to tackle sustainability issues through public

participation programmes to solve flooding, drinking water scarcity, and poor waste management at local levels (Madero & Morris, 2016). Meanwhile, governance aspects became attractive because they are also considered important, especially in the current state of promoting sustainable cities, which involve multi-government resources and skills. Governance determines public management of cities, which affects the use of natural resources and the functioning of the market forces, both of which in turn affect society (El-Kholei, 2019). In the majority of cases, it was indicated that governance – or strong collaborations between governments and other actors in managing resources – play a strategic role to ensure that sustainable cities may be achieved in the long term (Ozoike-Dennis et al., 2019; Staukis, 2014).

Nevertheless, existing assumptions that consider economic activities as the greatest aspect against sustainability have perhaps made this aspect less attractive for research about development in the emerging world. It has been generally understood that economic growth in emerging countries is still deeply engaged with ideas of maximizing resources for economic profits and outputs, which involve mass production, large employment, and product-oriented processes. This situation is slightly different to Western countries that begin to apply more efficient but high value-added activities (Allmendinger, 2002; Cullingworth & Caves, 2014; Landry, 2000; Taylor, 1998). In the majority of research cases, the economic aspects are also still positioned to support environmental balance without clear encouragement to produce significant performance improvements upon themselves. For instance, in China, the Internet, transport, infrastructure and many others were labelled as 'smart technology' to ensure that economic activities retain environmental carrying capacity, but without significant explanations as to whether the benefits of using such 'smart technologies' would also ensure economic advantages in the long-run (Liu, Wang, & Tzeng, 2018; Wu, Wang, & Mao, 2018). In the UAE and Bangladesh, the intent to promote innovative infrastructure was not specified with sufficient explanations, as to how the innovations would help the economy to perform better, in addition to the expectation to retain environmental balance (Crot, 2013; Rahman, 2016).

To summarize all the reviewed articles, it is understood that sustainable city planning discussions originally began only from efforts to simply ensure urban developments to efforts to manage environmental carrying capacity amidst massive economic activities. Nevertheless, their recent discussions expand the discourse to a wider context to include socio-economic quality improvements as well as urban management beyond traditional government approaches, which are called governance processes. The early discussions were encouraged by the pioneering countries, such as China and Brazil, which introduced city planning models (for example eco-city, smart city, sustainable transport), whereby the majority of their action plans and programs focused on suggesting heavy manufacturing industries as well as many other rapid urban activities to conduct innovations that minimize pollution, deforestation, natural resource over-exploration, and ecosystem destruction. Meanwhile, in the last few years, pioneering countries as well as other countries also became participative in contributing sustainable city planning practicality through land use management (Handayanto, Tripathi, Kim, & Guha, 2017), heritage management (Ozoike-Dennis et al., 2019), public participation, and multi-stakeholder cooperation in cities (Madero & Morris, 2016). Figure 3 illustrates the chronological development of sustainable city planning concepts (only based on the reviewed articles).

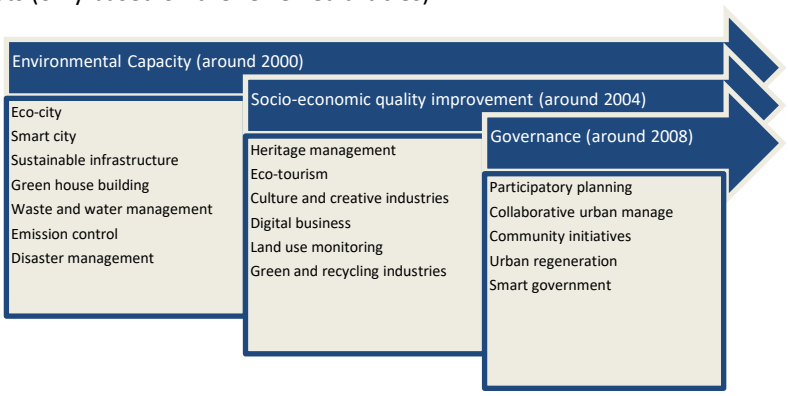

Figure 3. Sustainable City Planning Conceptual Development Based on the Reviewed Articles (Source: Authors)

4. Conclusion

Given that the purpose of this paper is to explore sustainable city planning concepts and practices in emerging economies, this final portion of the paper is dedicated to propose the overall understanding that the sustainable city planning concept in emerging countries is similar to the Western concept. Sustainable city planning is illustrated as the concept of ensuring the balance between economic as well as social improvement and environmental preservation in the long term. Its framework engages with the idea of promoting sustainable cities using economic, social, environmental, and governance strategies. However, a slightly different phenomenon can be seen from its conceptual development in the emerging world, in which the majority of countries focus on certain 'jargon' to echo their sustainable city planning efforts, including 'smart city', 'green city', and 'eco-city'.

Whilst the concepts of Western sustainable development have been directly adopted, the actual practices show a number of differences. Such differences were indicated by existing scholars discussing the theoretical gap of planning between the West and East or the North and South (See Perkins, 2013; Robinson, 2002; Ward, 2012). There are socio-cultural and political dynamics, as well as other basic issues such as poverty, rapid urbanization, and lack of capacity, which contributed to the differences. For instance, rather than private sector-led or collaborative approaches, many governments in the emerging world applied top-down approaches to promote sustainable city planning, by which they dominate funding and investment, ideas, decision-making, and techniques, as well as regulation. In addition, many socio- cultural values – including culture, religion, and historical norms – penetrate sustainable city planning practices and cause compromises on innovations and technology and a lack of objectivity. Meanwhile, acute urbanization problems only make the attempts to implement sustainable city planning more difficult because the key stakeholders face two problems: basic issues that might need relaxation of certain environmental values, and commitments to promote sustainability in the long term. The key stakeholders also need to deal with a large population of actors who have fewer resources and knowledge. Therefore, the study findings could be of interest not only to academics, but also to policymakers. In the context of Indonesia, for example, the Sustainable Development Goals (SDGs), as mandated by the SGD forum of Indonesia and Government of Indonesia Presidential Regulation Number 59/2017, the four elements of sustainable city planning have already been covered. Nevertheless, the current regulations that focus more on government-led institutional and financial frameworks can take into account the findings of this study, by which the potential of public participation or community engagement can be considerably articulated.

Reflecting on the overall research process, a number of strengths and limitations are highlighted. The strength of this study is the use of systematic review via a structured search and analysis of literature, and in this way, the process becomes transparent and reproducible. The study was also conducted in the specific context of emerging economies in order to make the analysis more focused and the contributions clearer. The limitation of this study is that no criteria have been used in assessing the quality of articles and journals. In this study, all articles that met the inclusion or exclusion criteria as indexed on Scopus were analysed. Future studies can apply certain assessments, for example based on journal impact factors (Clarivate Analytics, 2018). The qualitative approaches used in this study can also become limitations on the results of the analysis. Although the credibility of qualitative analysis was maintained by directly linking the analysis with the literature through matrices such as Table 2 and Table 3, caution needs to be given that these results may not apply to the context of certain emerging economies that are not discussed in the literature included in this study.

Finally, having developed a 'state of the art' plan for sustainable city research, it is recognized that certain aspects within this topic may require further study. These are highlighted in section 4.3 and recognize that the current state of sustainable city planning research lacks discussions on economic sustainability, which fully emphasize the concepts, indicators, outcomes, and strategies of promoting economic sustainability through innovation and technology. Further studies are encouraged to evaluate the impacts of environmentally-friendly industries towards long-term economic profits and growth.

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References

Acosta, A., & Parga, J. (2012). *Cultural resources and sustainability: Improving city planning and urban preservation in a Mexican city*. WIT Transactions on Ecology and The Environment, 155, 893–902.

Alexander, E. R. (2006). *Evaluation in Planning: Evolution and Prospects. Hampshire: Ashgate Publishing Limited.*

Allmendinger, P. (2001). *Planning in Postmodern Time*. (C. Hague, R. Boyle, & R. Upton, Eds.). London: Routledge.

Allmendinger, P. (2002). *Planning Theory. Hampshire*: Palgrave.

Allmendinger, P. (2016). *Neoliberal Spatial Governance*. New York: Routledge.

Allmendinger, P., Prior, A., & Raemaekers, J. (2001). I*ntroduction to Planning Practice. Chichester*: John Willey and Sons Ltd.

Ayambire, R. A., Amponsah, O., Peprah, C., & Takyi, S. A. (2019). *A review of practices for sustaining urban and peri-urban agriculture: Implications for land use planning in rapidly urbanising Ghanaian cities*. Land Use Policy, 84(February 2018), 260–277. https://doi.org/10.1016/j.landusepol.2019.03.004

Borowy, I. (2014). *Defining Sustainable Development for Our Common Future: A History of the World Commission Environment and Development [Brundtland Commission]*. London: Routledge.

Campbell, S. (2016). Green Cities, *Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development*. In S. S. Fainstein & J. DeFilippis (Eds.), Readings in Planning Theory. Oxford: Blackwell Publishing.

Cars, G., Healey, P., Madanipour, A., & De Magalhaes, C. (2002). Urban Governance, *Institutional Capacity and Social Milieux*. London: Routledge.

Chapain, C., & Comunian, R. (2010). *Enabling and inhibiting the creative economy: The role of the local and regional dimensions in England.* Regional Studies, 44(6), 717–734. https://doi.org/10.1080/00343400903107728

Clarivate Analytics. (2018). Journal Citation Reports. Retrieved March 26, 2020, from https://jcr.clarivate.com

Couch, C., Fraser, C., & Percy, S. (2003). *Urban Regeneration in Europe. Oxford: Blackwell Science*.

Crot, L. (2013). *Planning for Sustainability in Non-democratic Polities: The Case of Masdar City*. Urban Studies, 50(13).

Cullingworth, B., & Caves, R. W. (2014). *Planning in the USA: Policies, Issues, and Processes*. London: Routledge.

Davoudi, S., & Layard, A. (2001). *Sustainable Planning and Development: An Overview*. In A. Layard, S. Davoudi, & S. Batty (Eds.), Planning for a Sustainable Future (pp. 7–18). New York: Taylor & Francis.

Diaz, R. A. (2011). *Planning for sustainable development: Strategic alignment in Peruvian regions and cities.* Futures, 43(8), 908–918. https://doi.org/10.1016/j.futures.2011.06.014

Doucette, J., & Park, B.-G. (2018). *Urban Developmentalism in East Asia: Geopolitical Economies, Spaces of Exception, and Networks of Expertise*. Critical Sociology, 44(3), 395–403.

Douglass, M. (2015). *Creative communities and the cultural economy — Insadong, chaebol urbanism and the local state in Seoul.* Cities, 56, 148–155. https://doi.org/10.1016/j.cities.2015.09.007

Dubbeling, M., Santini, G., Renting, H., Taguchi, M., Lançon, L., Zuluaga, J., … Andino, V. (2017). *Assessing and planning sustainable city region food systems: Insights from two Latin American cities. Sustainability* (Switzerland), 9(8). https://doi.org/10.3390/su9081455

El-Kholei, A. O. (2019). *Ibn Khaldun's 'ilm al 'umran: a model for planning the sustainable city in the Arab region.* Archnet-IJAR, 13(2), 276–293. https://doi.org/10.1108/ARCH-01-2019-0004

Freire, M. (2006). Urban Planning: Challenges in Developing Countries. Madrid.

Fu, Y., & Zhang, X. (2017). *Planning for sustainable cities? A comparative content analysis of the master plans of eco, low-carbon and conventional new towns in China*. Habitat International, 63, 55–66. https://doi.org/10.1016/j.habitatint.2017.03.008

Girard, L. F. (2006). *Towards Sustainable Planning: Agenda 21, Habitat. In E. R. Alexander (Ed.),*

Evaluation in Planning: Evaluation and Prospects (pp. 85–100). Hampshire: Ashgate Publishing Limited.

Gonzalez, S., & Healey, P. (2005). *A Sociological Institutionalist Approach to the Study of Innovation in Governance Capacity. Urban Studies,* 42(December 2014), 2055–2069. https://doi.org/10.1080/00420980500279778

Gumbira, G., & Harsanto, B. (2019). *Decision Support System for An Eco-Friendly Integrated Coastal Zone Management (ICZM) in Indonesia. International Journal on Advanced Science Engineering Information Technology*, 9(4), 1177–1182.

Hall, P. (2014). *Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880.* Oxford: Blackwell Publishing.

Hall, P., & Tewdwr-Jones, M. (2011). *Urban and Regional Planning* (5th Editio). London: Routledge.

Handayanto, R. T., Tripathi, N. K., Kim, S. M., & Guha, S. (2017). Achieving a Sustainable Urban Form through Land Use Optimisation: Insights from Bekasi City's Land-Use Plan (2010–2030). Sustainability, 9(221), 1–18.

Harsanto, B., Michaelides, R., & Drummond, H. (2018). *Sustainability-oriented Innovation (SOI) in Emerging Economies: A Preliminary Investigation from Indonesia*. In 2018 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM) (pp. 1553–1557). IEEE. https://doi.org/10.1109/IEEM.2018.8607473

Harsanto, B., & Permana, C. T. (2019). *Understanding Sustainability-oriented Innovation (SOI) Using Network Perspective in Asia Pacific and ASEAN : A Systematic Review*, 7(1), 1–17.

Healey, P. (2004). *Creativity and Urban Governance. Policy Studie*s, 25(2), 87–102. https://doi.org/10.1080/0144287042000262189

Healey, P. (2007). *Urban Complexity and Spatial Strategies: Towards a Relational Planning for Our Times. London: Routledge.*

Herberle, L. C., & Opp, S. M. (2008). *Local Sustainable Urban Development in a Globalized World. Hampshire: Ashgate Publishing Limited.*

Hudalah, D., Winarso, H., & Woltjer, J. (2010). *Policy Networking as Capacity Building: An Analysis of Regional Road Development Conflict in Indonesia. Planning Theory*, 9(4), 315–332. https://doi.org/10.1177/1473095210368776

Innes, J. E., & Booher, D. E. (2000). *Indicators for Sustainable Communities: A Strategy Building on Complexity Theory and Distributed Intelligence*. Planning Theory and Practice, 1(2), 173–186. https://doi.org/10.1080/14649350020008378

Innes, J. E., & Booher, D. E. (2010). *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy*. London: Routledge. https://doi.org/10.4324/9780203864302

Landry, C. (2000). *The Creative City*. London: Earthscan.

Landry, C. (2006). *The Art of City Making*. London: Earthscan.

Landry, C., & Bianchini, F. (1995). *The Creative City*. London: Demos.

Liu, Y., Wang, H., & Tzeng, G. H. (2018). *From measure to guidance: Galactic model and sustainable development planning toward the best smart city.* Journal of Urban Planning and Development, 144(4). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000478

Madero, V., & Morris, N. (2016). *Public participation mechanisms and sustainable policy-making: a case study analysis of Mexico City's Plan Verde*. Journal of Environmental Planning and Management, 59(10), 1728–1750. https://doi.org/10.1080/09640568.2015.1085841

Mallett, A., & Cherniak, D. (2018). *Views from above: policy entrepreneurship and climate policy change on electricity in the Canadian Arctic*. Regional Environmental Change, 18(5), 1323–1336. https://doi.org/10.1007/s10113-018-1317-7

Miharja, M., & Woltjer, J. (2010). *Inter-local Government Collaboration and Perceived Transaction Costs in Indonesian Metropolitan Transport Planning. International Development Planning Review*, 32(2), 167–189. https://doi.org/10.3828/idpr.2010.03

Moncada, E. (2013). *The Politics of Urban Violence: Challenges for Development in the Global South*. *Studies in Comparative International Development,* 48(3), 217–239. https://doi.org/10.1007/s12116-013-9133-z

Musse, J. de O., Homrich, A. S., de Mello, R., & Carvalho, M. M. (2018). *Applying backcasting and system dynamics towards sustainable development: The housing planning case for low-income citizens in Brazil.* Journal of Cleaner Production, 193, 97–114.

https://doi.org/10.1016/j.jclepro.2018.04.219

Newman, L., Waldron, L., Dale, A., & Carriere, K. (2008). *Sustainable Urban Community Development from the Grassroots: Challenges and Opportunities in a Pedestrian Street Initiative.* Local Environment, 13(2), 129–139. https://doi.org/10.1080/13549830701581879

Ozoike-Dennis, P., Spaling, H., Sinclair, A. J., & Walker, H. M. (2019). SEA, *Urban Plans and Solid Waste Management in Kenya: Participation and Learning for Sustainable Cities*. Journal of Environmental Assessment Policy and Management, 0. https://doi.org/10.1142/S1464333219500182

Padawangi, R. (2014). *Reform, Resistance and Empowerment: Constructing the Public City from the Grassroots in Jakarta, Indonesia*. International Development Planning Review, 36(1), 34–50.

Perkins, R. (2013). *Sustainable Development and the Making and Unmaking of a Developing World. Environment and Planning C: Government and Policy*, 31(6), 1003–1022. https://doi.org/10.1068/c12286

Polakit, K., & Boontharm, D. (2008). *Mobile Vendors: Persistence of Local Culture in the Changing Global Economy of Bangkok*. In L. C. Herberle & S. M. Opp (Eds.), Local Sustainable Urban Development in a Globalized World (pp. 175–202). Hampshire: Ashgate.

Rahman, M. A. U. (2016). *Urban sustainability through strategic planning: A case of metropolitan planning in Khulna city, Bangladesh.* Journal of Urban Management, 5(1), 16–22. https://doi.org/10.1016/j.jum.2016.06.001

Robinson, J. (2002). *Global and World Cities: A View From off the Map. International Journal of Urban and Regional Research*, 26(3), 531–554.

Rojas, C., Munizagab, J., Rojasc, O., Martínezd, C., & Pinoe, J. (2019). *Urban development versus wetland loss in a coastal Latin American city: Lessons for sustainable land use planning*. Land Use Policy, 80(2019), 47–56.

Rukmana, D. (2011). *Street Vendors and Planning in Indonesian Cities. Planning Theory and Practice*, 12(1), 138–144.

Rydin, Y. (2003). *Urban and Environmental Planning in the UK*. New York: Palgrave Macmillan.

Rydin, Y. (2011). *The Purpose of Planning*. London: Policy Press.

Rydin, Y. (2016). *Communities, Networks, and Social Capital.* In N. Gallent & D. Ciaffi (Eds.), Community Action and Planning (pp. 21–37). Bristol: Policy Press.

Salem, M. M., & El-Shimy, H. (2012). *Sustainable tourism within an eco-city context: Analytical study for the master plan of Siwa ity, Egypt. WIT Transactions on Ecology and the Environment,* 165, 3–14. https://doi.org/10.2495/ARC120011

Sampaio, H. C., Dias, R. A., & Balestieri, J. A. P. (2013). *Sustainable urban energy planning: The case study of a tropical city. Applied Energy,* 104, 924–935. https://doi.org/10.1016/j.apenergy.2012.12.022

Sasaki, I., & Sone, H. (2015). *Cultural Approach to Understanding the Long-term Survival of Firms – Japanese Shinise Firms in the Sake Brewing Industry. Business History*, 57(7), 1020–1036. https://doi.org/10.1080/00076791.2014.993618

Scott, A. J. (2008). *Social Economy of the Metropolis: Cognitive Cultural Capitalism and the Global Resurgence of Cities. O*xford: Oxford University Press.

Scott, A. J. (2012). *A World in Emergence: Cities and Regions in the 21st Century. Cheltenham: Edward Elgar Publishing Limited*. https://doi.org/10.4337/9781781009314

Staukis, G. (2014). *Development of methods and practices of virtual reality as a tool for participatory urban planning: a case study of Vilnius City as an example for improving environmental, social and energy sustainability*. Energy, Sustainability and Society, 4(7), 1–13.

Taylor, N. (1998). *Urban Planning Theory since 1945*. London: SAGE Publications Ltd.

The World Bank Group. (2017). Global Economic Prospects.

Tranfield, D., Denyer, D., & Smart, P. (2003). T*owards a methodology for developing evidence-informed management knowledge by means of systematic review*. British Journal of Management, 14, 207–222. https://doi.org/10.1111/1467-8551.00375

United Nations. (2019). *The Sustainable Development Goals Report*. New York.

Voorberg, W. H., Bekkers, V. J. J. M., & Tummers, L. G. (2015). *A Systematic Review of Co-Creation and*

Co-Production: Embarking on the social innovation journey. Public Management Review, 17(9), 1333–1357. https://doi.org/10.1080/14719037.2014.930505

Wang, C., Wang, Y., Wang, R., & Zheng, P. (2018). *Modeling and evaluating land-use/land-cover change for urban planning and sustainability: A case study of Dongying city, China.* Journal of Cleaner Production, 172, 1529–1534. https://doi.org/10.1016/j.jclepro.2017.10.294

Ward, S. V. (2012). *Re-examining the International Diffusion of Planning*. In S. S. Fainstein & S. Campbell (Eds.), Readings in Planning Theory (3rd Editio, pp. 479–498). West Sussex: Willey-Blackwell.

Woltjer, J. (2000). *Consensus Planning: The Relevance of Communicative Planning Theory in Dutch Infrastructure Development*. London: Routledge.

Wu, L., Wang, Z., & Mao, X. (2018). *How multilateral financial institutions promote sustainable water infrastructure planning through economic appraisal: case studies from coastal cities of China*. Journal of Environmental Planning and Management, 61(8), 1402–1418. https://doi.org/10.1080/09640568.2017.1351334

Xiao, L., Li, X., & Wang, R. (2011). *Integrating climate change adaptation and mitigation into sustainable development planning for Lijiang City*. International Journal of Sustainable Development and World Ecology, 18(6), 515–522. https://doi.org/10.1080/13504509.2011.603761

Xue, D., Huang, G., Guan, J., & Lin, J. (2014). *Changing concepts of city and urban planning practices in Guangzhou (1949–2010): An approach to sustainable urban development*. Chinese Geographical Science, 24(5), 607–619. https://doi.org/10.1007/s11769-014-0711-4

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Policy Paper

Building the Integrity of Urban Development Planner Through Corruption Risk Management and Assessment:

Literature Review

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Abstract

Planning in the broadest sense covers definition and selection of needs to evaluation and audit phase. Planning and planners have unique and strategic positions, roles, and functions, because they bring together two sides of interests: public sector interests and private sector interests. This uniqueness causes the field of planning and planners to have a political role and bargaining position in the development planning process. This political role can cause the presence of two sides, which are the bright side as the planner with integrity, who can design internal control systems and risk management for prevention and detection of corruption, and the dark side as the conspirator with public officials and the contractor or business corporation to bring corruption together. The dark side of planning becomes the entry point for corruption and/or fraud. The bright side of planning can be used to build the integrity of community and society, through the application of internal control systems and risk management that are based on specific corruption indicators such as Government Institution Risk Indicator (GIRI), Contractor Risk Indicator (CRI), and Political Connection Indicator (PCI).

Keywords: Planning, Planner, Corruption, Fraud, Integrity, Risk Management, Assessment

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1. Introduction

Corruption becomes a key issue in government bureaucracy of developing countries, including Indonesia because of rent-seeking behavior of the public officer for personal or crony benefits (Prabowo, Hendi Yogi; Cooper, 2015). In practice, corruption diffusely spreads on three domains: (1) policy at the macro level; (2) planning at the middle level; and (3) program and/or project at the micro level. Some of the budget quota that should be spent on public goods or implementing the infrastructure projects goes to the personal pockets of the public officials. The value of expenditure can reach 13% - 20% of GDP (Rocha, 2015), which has a yearly average of IDR 9.5 trillion (Spruill, 2013). It is estimated that 20% - 30% of the expenditure budget for the procurement of public goods or IDR 2 trillion is lost due to corruption (OECD, 2017). Another development sector that has a high potential of experiencing corruption is physical, economic, and social infrastructure development projects due to their huge budget quota. The infrastructure budget quota was IDR 420.5 trillion, which is divided into three segments: central government expenditure (IDR 173.8 trillion), transfer to local government and rural funds (IDR 201 trillion), and for financing expenditures (IDR 45 trillion) (Indonesian Ministry of Finance: RAPBN-2019). The emergence of revenue and expenditure budgets, both for the national level (RAPBN) or local government (RAPBD) always originate from the development budget planning process. The planning process includes the planning of development objects, which is followed by planning of the development budget.

In this regard, planning becomes a strategic political issue and agenda in development planning and implementation. Development planners at both national and regional levels have strategic positions, roles and functions for successful development. The importance of the planning function in the development process makes it have a political aspect because of its utility for various interests. Often, the bargaining process occurs at the planning stage, regarding both the planning of the object of development and planning for the amount of the budget. From the perspective of corruption, planning can be an entry point for corrupt practices. In observing a large amount of budget quota for infrastructure development as described above, it is not surprising that planning becomes a strong attraction for corruptors to negotiate. Francesco Chiodelli (2018) reported his research results that development planning becomes the spot of corrupt practices of the public officials who make conspiracies with the criminal organization. Based on his study, Chiodelli put forward the proposition that “development planning has its dark side as an entry point for corruption”.

Corruption in all countries and even more so in developing countries, including Indonesia, is detrimental to state finances, undermining the balance of revenue and expenditure budgets and reducing spending efficiency and budget allocations to various development programs. In the political context of corruption, corrupt practices can start at the formulation of policy and regulation phase, which then determines the development planning process (Devallade, 206). Corruption practices cause development policies and regulations to be biased because they are filled with the interests of corruptors. Corruption can occur by giving bribes from private contractors to public officials. This practice prevents healthy competition among bidders. The reward from the relevant public official is to make a rule or mechanism that is legally engineered to win the tender for the bribe-giving contractor. In such a practice, the decision-making process of public officials does not fulfill administrative accountability and the results are biased (Devallade, 2006).

Regarding corruption in Indonesia, on one hand there is a tendency for its quantity and quality to increase, as seen after the mega-corruption case of e-KTP worth IDR 2.5 trillion, later followed by the mega-corruption of Jiwasraya Life Insurance with a state loss of IDR 13 trillion. On the other hand, the parameters issued by the Supreme Audit Board (BPK) may still contain bias, particularly: (1) Administrative irregularities which include: (a) The process of procurement of goods or services is not in accordance with the provisions; (b) Evidence of accountability is incomplete or invalid; (c) Adjustments to regulations in the field of equipment management or BMN; and (d) Other administrative irregularities; (2) Non-compliance with legislation that is detrimental to the state finance which consists of (a) The specifications of the goods/services are not in accordance with the contract; (b) Payment of double honorarium and/or exceeds standards; (c) and others (BPK: IHPS I, 2018).

Those parameters are arranged using governmental accounting-based indicators. Those parameters are arranged using governmental accounting-based indicators. Whether there is corruption or not, it is measured by the one and only parameter of “state loss”. If there is no state loss, it could be concluded that there is no corruption. At any case, developmental projects could be carried out according to the

contract without any state loss, even though in the process bribery took place. Referring to the “state loss” parameter, it is stated that there is no corruption if there is no state loss, even though there are bribery practices in winning tenders, whereas according to Law No. 20 of Year 2001 on the Eradication of Corruption, bribery is an act of corruption. The "state loss" parameter" is exactly biased because it does not refer to risk factors of fraud and/or corruption. This causes the practice of corruption to be difficult to be prevented and detected due to its assessment not being based on corruption risk indicators.

2. Methodology

2.1. Material and Method

This study utilized secondary data in the form of various journals and books about fraud and corruption. It utilized a qualitative study approach using the constructivism and pragmatism paradigm perspective. Constructivism is used to reveal how corruption and/or anticorruption constructed to be a social reality, while pragmatism is used to investigate how far the risk management framework could be practiced at the operational level (Creswell, 2014). The chosen strategy in this study is a "case study" of corruption in Indonesia because of its flexibility. A case study is usually utilized when the case is unique, where the boundary between phenomenon and context is unclear (Yin, 2004).

2.2. Theoretical Backgrounds

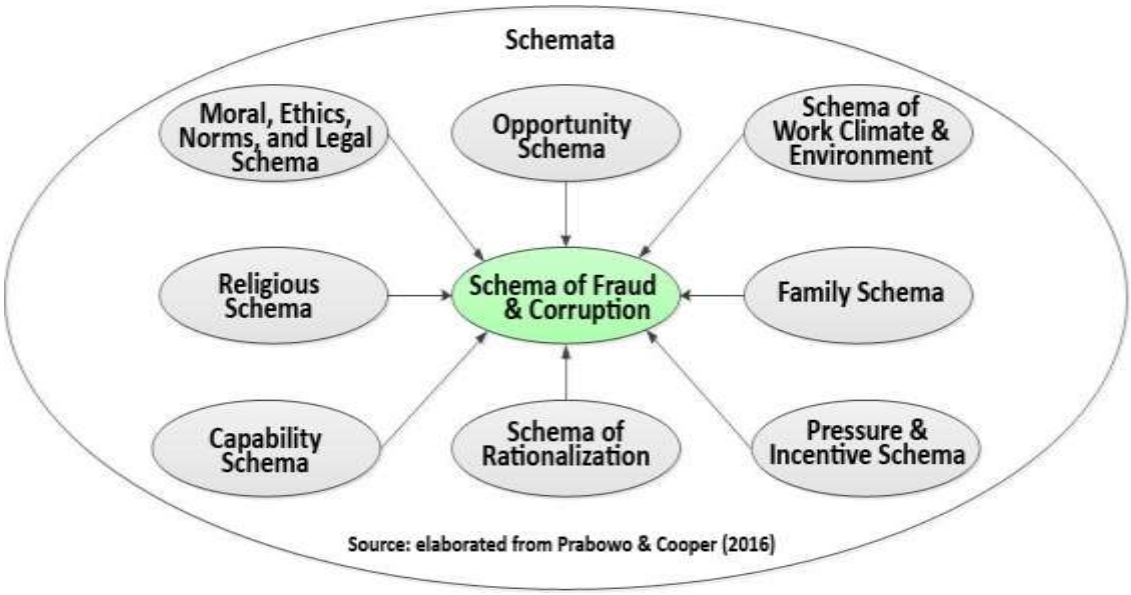
2.2.1. The schemata theory of corruption

Behavioral experts have long attempted to deconstruct mental and corrupt behavior using the perspective of the schemata theory (schemata theory) posited by Barlett (1995). Schemata is the organization of a collection of schemes of knowledge, reactions and past experiences related to a particular object, in the example, corruption. This schema continues to grow in individuals whose developments are influenced by various sensational experiences (Barlett, 1995). Schemata functions as a processing unit that interprets and organizes information from the outside world (Hogan, 2011). The corruption scheme consists of several organized schemes forming a conceptual framework of corruption that will later be practiced as "corrupt behavior".

Ntayi et al. (2013) stated that corruption can be seen as a function of the framework of the concept of corruption and the paradox of human character that constructs logical justification for corruption behavior. Individual and organizational behavior in the practice of procurement of goods and services or public services is believed to be a constructed social reality. This can be seen from the practice of giving bribe envelopes to employees at the Semarang City BPN office for handling documents (KPK Catching Operation on March 28, 2018). Giving bribe envelopes to officers to facilitate the management of documents has been accepted and understood (apology) as a social norm that is considered reasonable and prevalent. Local or national schemata and culture can influence the formation of individual, group and community attitudes towards corruption. Corruption is a complex and multi- dimensional phenomenon that must be understood from various perspectives and contexts. Corruption is part of human behavior that is influenced by local socio-cultural values (Yegeneh, 2014). In the values contained transactional goals and interests that are used as a reference for individuals and organizations. The formation of values occurs through the process of learning and socialization to form schemata in individual minds. Changes in these values over time are influenced by changes in the internal and external environment (Schwartz, 1994 in (Prabowo, Hendi Yogi; Cooper, 2015).

Corruption schema is the sum of the results of interactions (resultant) of various cognitive schemes related to corruption such as moral, ethical, religious, opportunity, rationalization, ability, pressure, and fraud or corruption schemes. At least one core scheme is in operation, while other schemes are activated if necessary. Once a scheme is formed in the mind of a person, it is difficult to change and is resistant to intervention (Francesco, 2015).

Figure 1. Corruption Schemata in Individual Minds



2.2.2. Corruption Normalization

The root of corruption in the public sector is fraud which very difficult to eradicate because it has undergone three pillars of normalization process: (i) rationalization; (ii) institutionalization; and (iii) socialization (Ashforth & Anand, 2003). These three pillars strengthen each other to form a culture of corruption in the ranks of government bureaucracy at the macro, middle, and micro levels. Corruption has become a well-institutionalized culture that has the resilience to detection, prevention, and enforcement efforts. The normalization process causes corruption to become unreal, making it difficult to prevent and detect. Through rationalization, the denotative and connotative meaning of corruption as an evil act and against the law is reconstructed by the perpetrators into a stipulative meaning as "administrative deviation" or "non-compliance" to statutory regulations. The latter meaning is not classified as an evil act that can be convicted. It will obscure corruption with the real act of disobedient because of ignorance or negligent. Corruption practices are disguised and appear as ordinary administrative procedures (Budiman et al., 2013; Prabowo, Hendi Yogi; Cooper, 2015).

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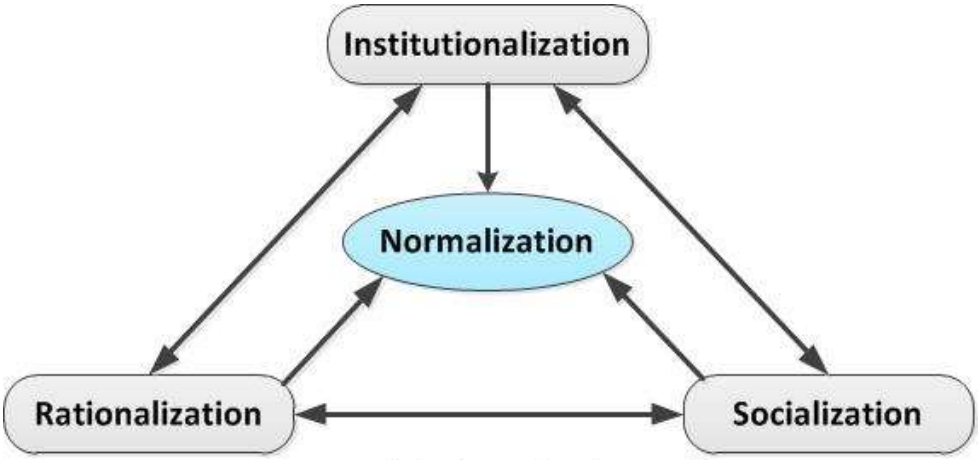
Normalization is defined as an effort or action to make something normal (http://kbbi.web.id/normalisasi). Corruption is seen as an organizational process whereby corrupt organizations/institutions can develop certain mechanisms to make corruption become a normal practice, not an evil or despicable act, to allow actors to design networks and carry out corruption on an inter-generational basis. In Indonesia, a number of empirical evidence shows that the corruption scheme has been embedded as a social norm in various structures and activities of public sector institutions (Budiman et al., 2013; (Prabowo, Hendi Yogi; Cooper, 2015). To ensure that each member of the organization thinks and acts according to a scheme that can perpetuate the network of corruption, it is necessary to make efforts to normalize corruption through three pillars of activities, are as follows (1) Rationalization; (2) Institutionalization; and (3) Socialization (Ashforth & Anand, 2003).

The three pillars of the corruption normalization from (Ashforth & Anand, 2003) are described as follows:

Figure 1. The Corruption Normalization Model

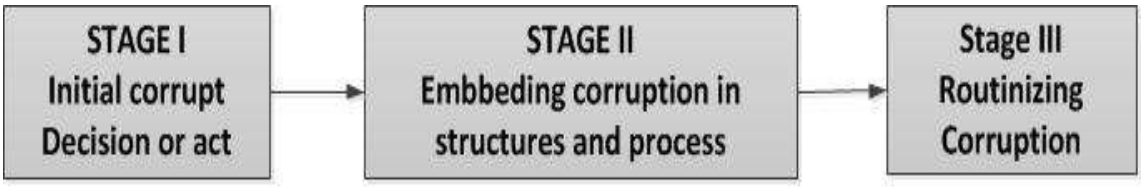


Source: Ashforth & Vikas (2003: 3)

All organizations without exception have criminal potential, as the tendency to commit criminal acts, including corruption. Collective corruption in organizations is initially sporadic when there is an extraordinary opportunity (idiosyncrasy). As time goes on, corruption will become commonplace and even be embedded in organizational structures and processes (Gross 1978: 56 in (Ashforth & Anand, 2003). The institutionalization process consists of three stages: (1) Initial decision to commit corruption; (2) Instilling corruption in organizational structures and processes; and (3) routinizing corrupt practices.

Ashforth and Vikas (2003) describe the process of institutionalizing corruption as below:

Figure 2. Corruption Normalization Stages

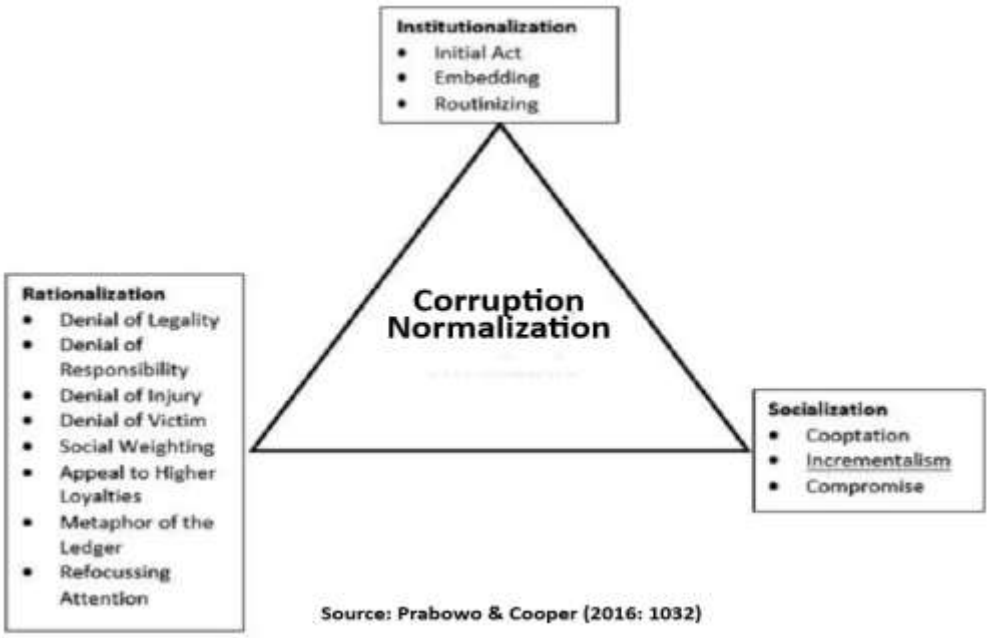


Source: Asforth & Vikas, (2003: 7)

The normalization process results in three premises that form causal relationships: (1) corruption is not a despicable act but a form of loyalty to superiors that is required in the public sector bureaucracy in Indonesia; (2) corruption is accepted and tolerated by members of the organization and or society; and (3) corruption is just an ordinary administrative practice that can be routinely practiced. Finally, corruption normalization will result in the proposition that "corruption is a normal routine administration practice and is not a crime at all". The consequence of the emergence of a proposition is the formation of the thesis that "corruption has a basis of objective rationality as a routine administrative procedure that can be decided discretionally when facing an unregulated administrative situation". There is rationality that can be used as a justification for corruption without feeling guilty. If the thesis is believed regarding its truth, legitimacy, and reasonableness by members of the organization and/or society, it will encourage actors to repeat and do further, and then at the same time attract new actors to “get involved in the game”.

The conceptual framework of corruption normalization could be illustrated as the following: (Prabowo, Hendi Yogi; Cooper, 2015): 1032).

Figure 3. The Conceptual Framework of Corruption Normalization



2.2.3. Extention of Fraud Theory and Corruption Normalization

Since Donald R. Cressey (1953) proposed his fraud triangle theory consisting of the three attributes of pressure, opportunity, and rationalization (Vousinas, 2018: 3), to date this theory has evolved to the latest version proposed by Georgios Vousinas (2018) with the Fraud Hexagon Theory (Vousinas, 2018 : 379). After fraud triangle theory of Cressey (1953), David T. Wolf and Dana R. Hermanson (2004) developed the fraud diamond theory with four attributes: incentive, opportunity, rationalization, and capability. After Cressey's fraud triangle theory (1953), David T. Wolf and Dana R. Hermanson (2004) developed the fraud diamond theory with four attributes: incentive, opportunity, rationalization, and capability. Kassem, R. & Higson, A. (2012) argue that the influence of personal motivation and integrity are very important to be considered as determinant factors. This modification was known as the new fraud triangle model (Kassem & Higson, 2017: 194): 194).

Georgios L. Vousinas (2018: 375-379) proposed the S.C.O.R.E model or Fraud Pentagon theory based on the role of Stimulus and Ego in determining fraudulent behavior. Stimulus in the form of incentive becomes a pressure to commit fraud in order to have financial and non-financial benefits. In Freud's psychoanalysis theory perspective, the ego is an operator to perform what someone wants.

The id is based on his/her conscience (the superego). The fraud pentagon theory consists of five attributes: Stimulus, Capability, Opportunity, Rationalization, and Ego (Voisinas, 2018: 377). Finally, the fraud pentagon theory was further developed by Vousinas to become the extended S.C.O.R.E model or fraud hexagon theory with an additional attribute of “collusion”. Collusion refers to a deceitful agreement between two or more people, for the one party who defrauds a third party of rights (Geiss, 2011; Vousinas, 2018: 378). Collusion strengthens corruption potential and makes it difficult to be prevented and detected.

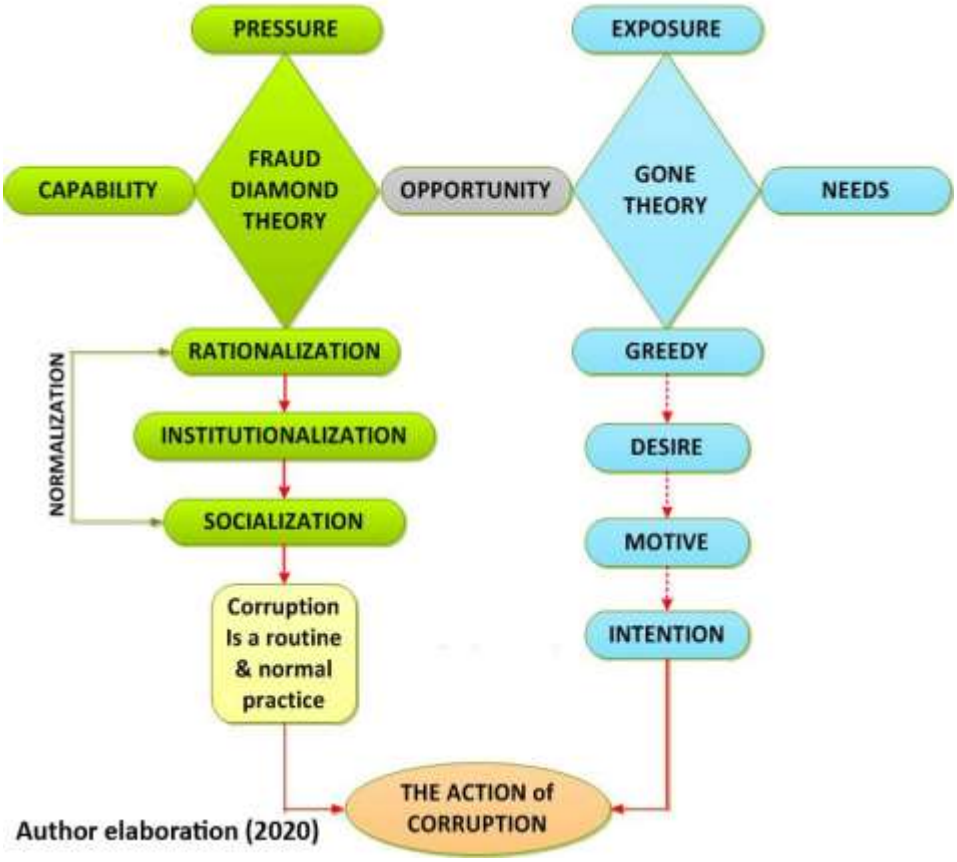
The roadmap of the fraud theory evolution from Donald R. Cressey (1953) to Georgias Vousinas (2018) can be represented in the following table:

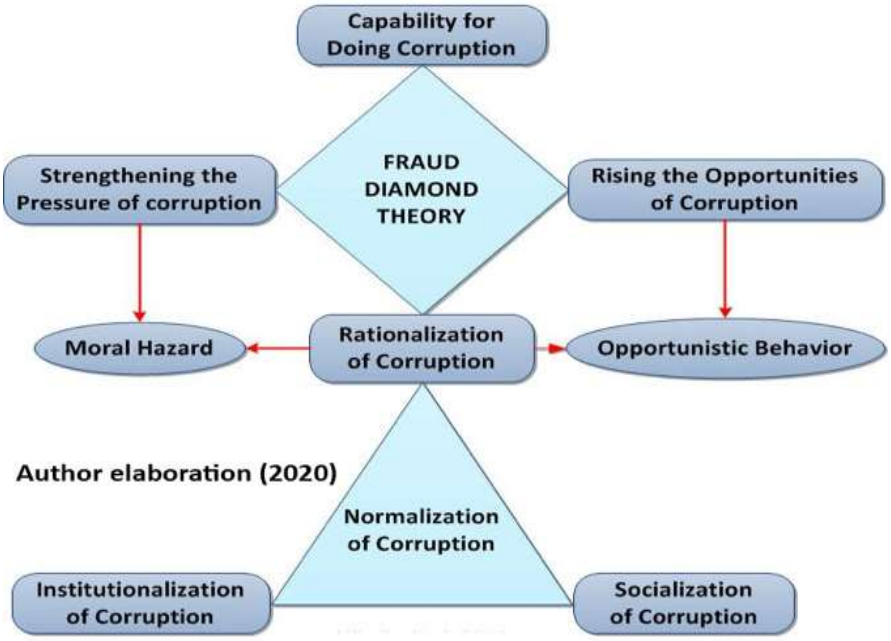
The Roadmap of Fraud Theory Evolution

Models	3 attributes	4 attributes	4 attributes	Five attributes	Six attributes
Fraud Triangle Model Cressey (1953)	Pressure, Opportunity, Rationalization				
Fraud Diamond Model Wolf & Hermanson (2004)		Incentive, Opportunity, Rationalization, Capability			
New Fraud Model Khaseem & Higson (2012)			Motivation, Opportunity, Personal Integrity, Capability		
Fraud Pentogon Model Vousinas (2018)				Stimulus, Capability, Opprtunity, Ego, Rationalization	
Fraud Hexagon Model Vousinas (2019					Stimulus, Capability, Opprtunity, Ego,Rationalization, Collusion
Source: Kasheem & Higson (2012); Vousinas (2018)					

Furthermore, in regards to the interconnection between corruption normalization with G.O.N.E theory, there is an enabler of corruption as illustrated below:

Figure 4. The Enabler of Corruption





Whereas, the interconnection between corruption normalization with the fraud diamond theory can produce the nexus of corruption as illustrated below:

2.3. Corruption Practices in Development Planning

The planning process can be seen in a broad or narrow scope. In its broadest scope, planning starts from the definition and selection of needs to the evaluation and audit stages. In its narrow scope, planning is seen as limited to project planning. This study uses the notion of 'planning' in the broadest scope to highlight corruption practices as outlined below:(OECD, 2019).

2.3.1. Needs Definition and Selection

At the stage of definition and selection of needs for investment of the infrastructure development, there are many actors involved in the process of defining development needs and selection criteria, including public sector executives, regulators, lobbyists, business associations, chambers of commerce, potential contractors, NGOs, and so on. In the case where there is a need to unravel transportation bottlenecks, needs assessment process will involve stakeholders to determine whether to build more roads or improve public transportation facilities by building a Mass Rapid Transit (MRT) or Light Rapid Transit (LRT). Corrupt practices that often occur at this stage include:

a. Cooptation of Policy and Influence

Public officials who are responsible for the selection process choose certain interest groups, business groups or contractors, because of undue influence such as political pressure, political campaigns or lobbying power.

b. Conflict of Interest and Nepotism

Public officials choose the family or people closest to or who are considered loyal based on previous business relationship experience.

c. Bribery to access confidential information

Project selection occurs because public officials accept bribes to disclose confidential information regarding policy priorities.

2.3.2. Appraisal

At the appraisal stage, the government appraises the feasibility of the project based on cost-benefit analysis, business case studies, analysis of economic, social and environmental impacts. The assessment process is carried out by the hired consultants by the government. Corrupt practices that often occur at this stage include:

a. *Bribe to change the administrative procedure*

Investors or contractors bribe public officials to loosen or even change administrative or regulatory procedures in order to win the contract.

b. Fraudulent Assessment

The assessor team intentionally manipulates the results of the feasibility study and analysis of economic, social and environmental impacts, or public officials deliberately conceal the negative assessment and report good results.

c. Promotion of large, high-cost projects based on public-private partnership relations

The private party, with a public-private partnership platform, offers large-scale and high-cost infrastructure projects with high costs. Such offers are accompanied by bribes for loosening the administrative and regulatory procedures that benefit the private sector. In the future, this project will burden the government budget and potentially cause state losses.

2.3.3. Project Planning and Structurization

Once the project is determined, detailed project design plans are made together with the Budget Plan (RAB), Terms of Reference (TOR), and bid documents that contain the desired requirements and qualifications of the contractor. Furthermore, the project owner (government) determines the details and specifications of the work and the bidding process criteria. At this point, the planning process becomes an opportunity for corrupt and fraudulent practices, even reaching the implementation stage (Wells, 2015). Corruption and fraud practices that are common in the planning stage include:

a. Outsmarting Specifications

The design or format of tender documents and job specifications is complex and highly technical. Public officials hire the services of consultants or experts with low qualifications, or who can be influenced so that job specifications can be engineered to benefit certain contractors who will win the tender.

b. Budget Manipulation

The budget on the bid proposal is "marked up" or inflated so that the project's value is high which benefits the contractor or the official commitment maker of the project. Even though the project value is higher than competitors, the tender can still be won by tweaking administration procedures and auction rules. Another way that can be taken is to make a low bid value to get rid of competitors and loosen the procedures and regulations in order for the winning contractor to still gets a big profit.

c. Information Asymmetry

Public officials leak confidential information about the tender auction design, project details, and tender winning criteria to certain contractors who are selected as conspirators.

d. Vague Criteria

The selection criteria and decision on winning tender are made vague, unclear or ambiguous so that there are loopholes to win certain contractors legally.

e. *Contract Splitting*

The public official of the project owner deliberately split the project contract into several contracts with a smaller value below the threshold, so that the contract can be carried out by direct appointment without going through a tender auction.

2.3.4. Tender Process

The tender process is divided into three phases, namely: submission of bids, evaluation, and decision on the winning bidder. The contractor submits an offer and it is evaluated by a public official on its qualifications and the value of the proposed offer. The project owner (government) selects a contractor based on established criteria. During this phase, contractors and public officials interact formally. At this time, the opportunities for corruption and fraud can be created (OLAF, 2018). Corruption practices that often occur in the tender process include:

a. Manipulating procedures and "rules of the game"

Public officials deliberately limit competition by making the contract process closed and the tender announcement is set up in a very limited time. The deadline for submitting bids is very short and unrealistic for contractors who are not conspirators.

b. Bribe to get fradulent benefit

The contractor bribes public officials or consultants who involved in the project to obtain tender documents to ensure that the tender can be won.

c. Collusion among contractors

Some contractors collude to minimize competition and increase the value of the project offer.

d. Undermining the evaluation criteria

The evaluation committee due to a conflict of interest accepts bribes or gratuities, undermines the evaluation criteria and directs the selection process in order to win the bribe-giving contractor.

e. Very short and unrealistic timeline

The authorized public official designs a very short and unrealistic timeline between the deadline for bid submission and the tender winner's decision, and allows modification of the contract during the tender publication period.

f. Mispresenting profile and fraudulent document

The tender winner manipulates the company's financial status and technical qualifications far better than they really are. The tender was won using fraudulent documents that have been strengthened by giving bribes.

2.3.5. Implementation and contract management

After the tender winner is announced and the contract is signed, the next step is project implementation, which includes construction and operation of infrastructure. Fraud and corruption that are common at this stage, include:

a. False Reporting and Claims

The contractor manipulates claims costs, inflates bills or re-charges the already paid bill using fake invoices, uses blank bills for material or payment for overtime work. The contractor also make false report that the work had reached a certain percentage (30%, 70%, or 100%) to disburse the project funds from the government. Field supervisors or consultants are invited to conspire and endorses the forged documents.

b. Violating Contract Condition

The contractor violates the contract terms for not using products, materials or quality of work under the standards specified in the contract. Procedures for supervision, administration, and game rules are relaxed or engineered with project supervisors or consultants so allow substandard quality of material of work to be accepted.

c. Renogotiating Terms of Reference (ToT) after the contract runs

The Terms of Reference (ToT) are renegotiated to distort or change the substance that are felt to be a burden on the contractor.

d. Faking the work and approval

The contractor performs fictitious work unexpectedly due to certain circumstances (rain, access roads are closed by residents, and so on) and bribes public officials or supervisor consultants to approve the fictitious work.

2.3.6. Evaluation and Audit

The project cycle closes or ends with an evaluation and audit process to ensure that internal control mechanisms have been implemented adequately throughout the entire project cycle. The evaluator or auditor must come from an independent body or institution. The government or project owner must clearly define an evaluation framework from the beginning to the end of the project to collect all information relating to contract execution (Robson, 2010). Fraud and corruption practices that often occur in this phase include:

a. False documentation or report

The contractor falsified information or audit material that was disclosed in the implementation report. In terms of financial accounting and government accounting, this form of incorrect reporting could be that there is information that is not reported (missing), or data/information that is a misstatement.

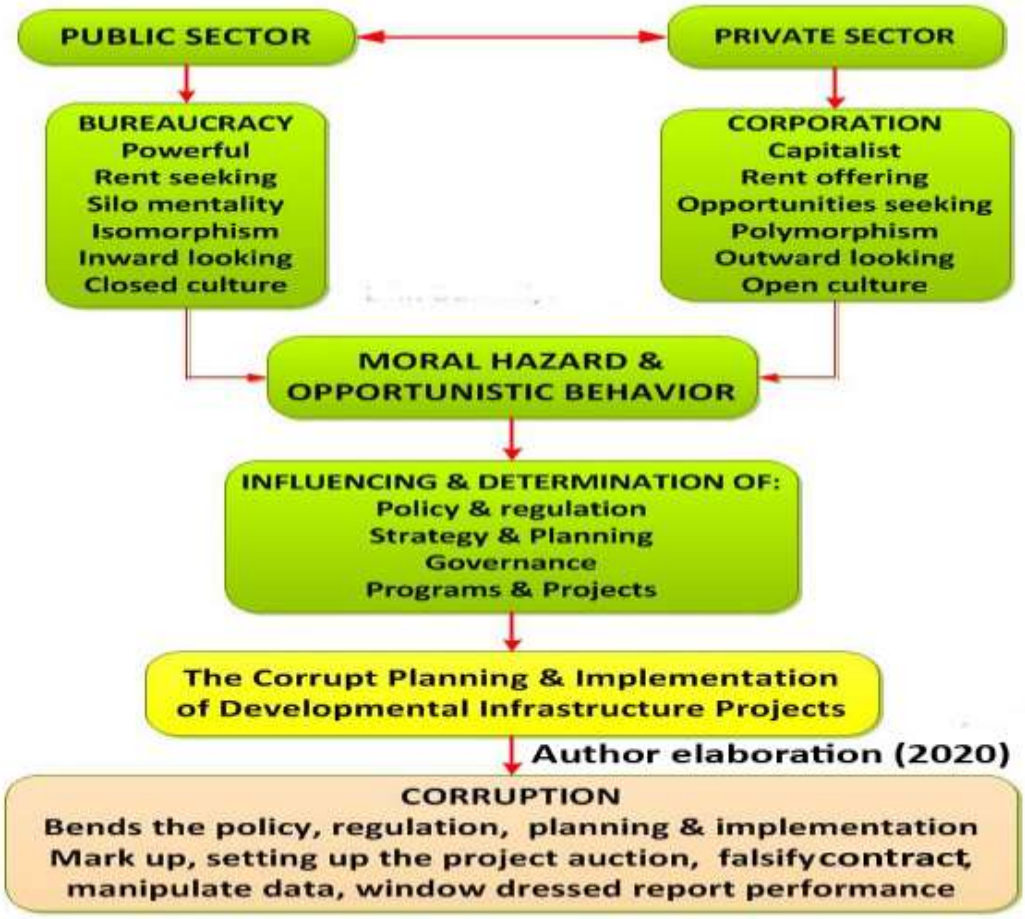
b. ***Compromises evaluators and auditors***

Evaluators and auditors are bribed to disregard control mechanisms and can accept violations of contracts that are illegal, and indicate fraud or corruption, and then turn them into findings of administrative violations.

c. Undermining the evaluation function

Evaluators and auditors are influenced by giving bribes to loosen their independence and favour the interests of the contractor. This causes evaluators and auditors fail to carry out their mandate to find any form of fraud and/or corruption. The maximum findings that can be obtained by evaluators or auditors are administrative violations with mild sanctions in the form of fines or refunds to the government.

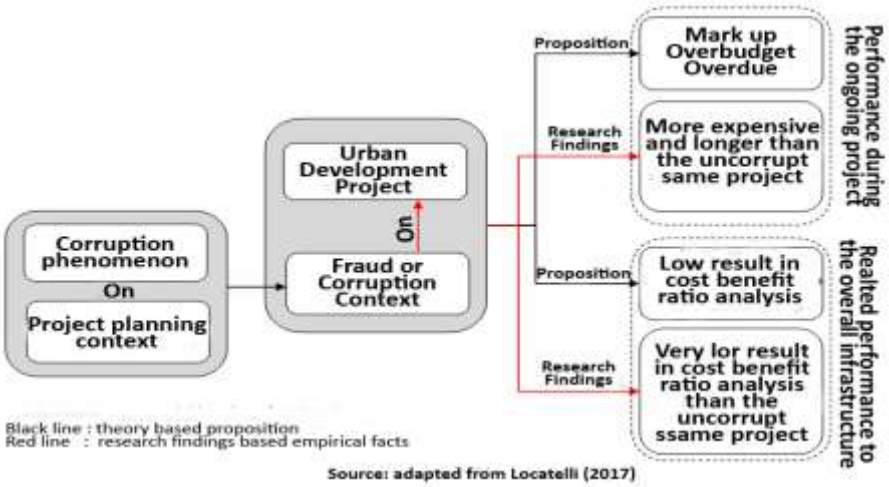
Figure 6. The Nexus of Corruption in Project Planning and Implementation



2.4. The Implication of Corruption on Project Planning and Implementation

Corruption has some implications on project planning and implementation among others: mark up, overbudget, overdue, and low outcome in the cost-benefit ratio analysis. This is one of source of government project failure (Damoah et al., 2018: 25-27).

The implications of corruption on project planning and implementation can be shown in the figure below:



2.5. Create a controlled environment that is focused on integrity

The quality of corruption risk management depends on its control environment. If the control environment is good, the quality of risk management for corruption will be good and vice versa. The control environment includes several elements including people, policies and processes which can ensure that project risks, especially integrity issues can be controlled to be able to achieve project objectives.

Efforts to create a good control environment can be carried out through the following two processes:

2.5.1. Designing an effective risk management structure for corruption

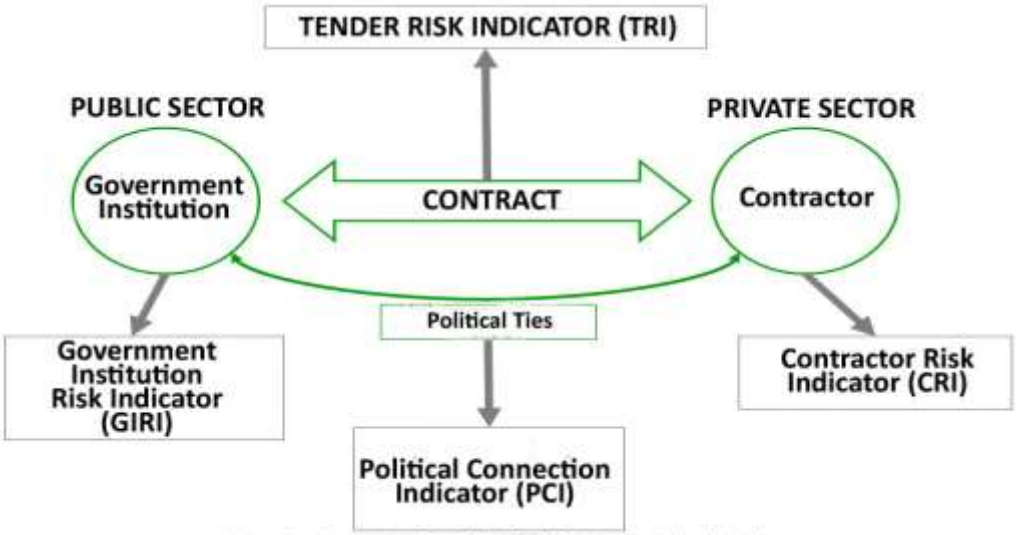
The ommitment-maker public officials are fully responsible for creating and maintaining an effective control environment, especially those concerning integrity issues. The related official can create a project executive committee and a risk management committee to design, implement, and oversee the practices of internal control and risk management. The importance of dealing with issues of integrity and risk management must be emphasized at every level of the bureaucracy from the highest rank official of the institution up to the executor in the field, including the private contractor. In this regard, the project manager needs to consider the following steps:

a. Articulate the main strategic objectives of the project and stating the commitment of the organization/institution to carry out risk management throughout all stages of project implementation.
b. Defining the risks of fraud and corruption, and clearly describing examples of fraud or corruption.
c. Clearly establishing to whom the policy is implemented, which can include project owners (government), contractors & sub-contractors, sponsors, funders, staff, third parties, suppliers, consultants, and stakeholders who agree that the policy is part of the contract.
d. Developing good governance and the structure of negligence assessment by arranging the distribution of roles and responsibilities, as well as job descriptions for internal control mechanisms and risk management can be carried out properly.
e. Communicating about risk management strategies and thresholds for relative tolerance to project objectives, and allocating adequate resources to carry out risk management.
f. Prepare technical guidelines for the implementation of risk management.

Risk management is not just a checklist to meet minimum standard requirements, but rather an instrument to prevent and detect fraud and/or corruption. The process of internal control and risk management must address risk factors based on the associated risk indicators.

In the context of corruption, the following specific indicators to prevent and detect corruption and/or fraud can be described:

Figure 5. Corruption and/or Fraud Risk Indicators



Source: Fazekas, Cingolani & Toth (2016) - elaborated by Budiati (2020)

2.5.2. Risk assessment of corruption and fraud institutionalization

Corruption and fraud risk assessments can be made separately or integrated with the project evaluation and audit process. Risk assessment mechanisms and procedures are designed in such a way as to ensure that indications of corruption and/or fraud can be prevented and detected. Two internal control practices that are commonly used to conduct audits or risk management include red flags and whistleblowing. Red flags are hints or indications of corruption and/or fraud leading to rational-objective reasons for further investigation. The risk management and assessment framework is illustrated below:

Figure 6. Risk Management and Assessment Framework

Source: Adapted from ISO (2009); OECD (2019)

2.6. Building the Integrity of an Urban Planner: Towards a City of Integrity

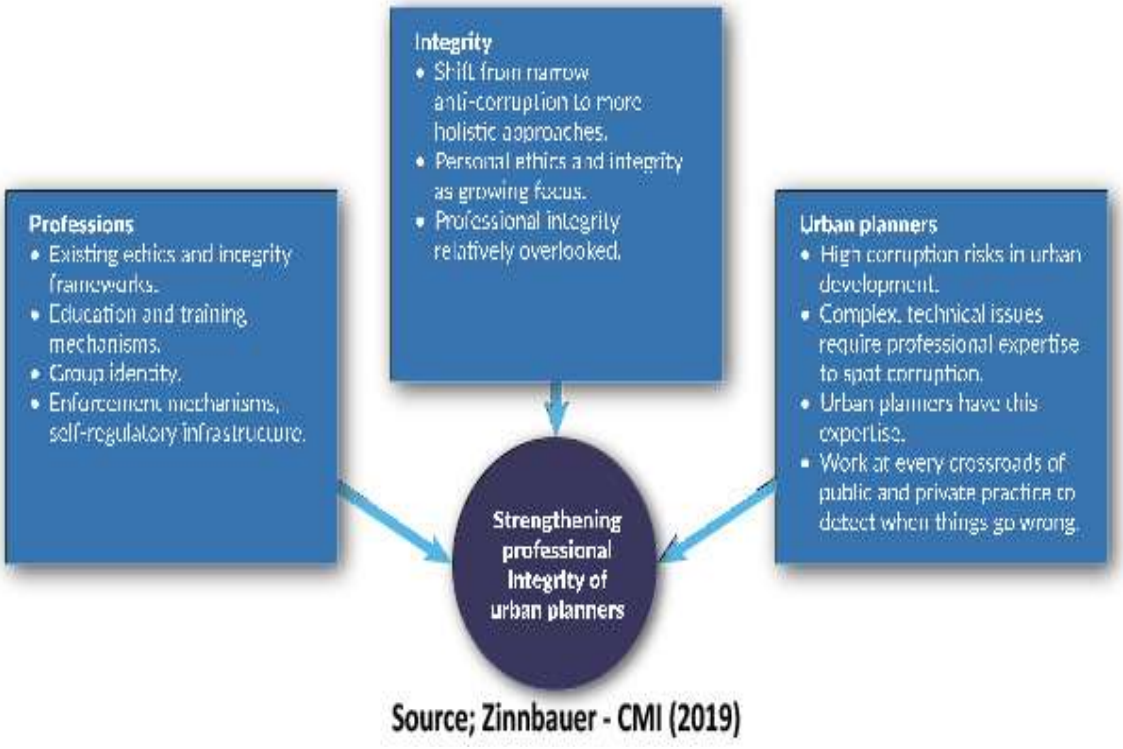
The position, role and function of the planners are unique. Planners understand and master knowledge and skills on two sides, those of the public sector as well as the private sector as well. In that position, planners can be a bridge between public policymakers and business corporations or contractors. Planners can appear on the dark side as the corruption and fraud conspirators together with public officials and business corporations/contractors, or appear on the bright side as architects who design internal control mechanisms and risk management to prevent and detect corruption.

On the corrective side, planners can predict and project corruption and fraud risk factors that have a negative impact on the achievement of developmental project objectives and then design internal control mechanisms and risk management, particularly those concerning integrity issues. On this side, the knowledge of planners in public sector administration and business corporation operationalization can be used to design corrective actions for contract violations and deviations during the implementation and project evaluation and audit phases. With regard to knowledge and understanding of these two sides, the mindset and perspective of the planners should not only focus on the project planning aspects but should be holistic regarding the whole project cycle from the need definition and selection up to of project evaluation and audit stage. In addition, the focus of the planner is directed towards issues of integrity of the actors, ranging from public officials of policymakers and/or commitment makers, contractors, and the other involved stakeholders.

On the preventive side, new planning values that are inclusive, transparent and accountable can be built and developed which lead to the formation of integrity especially among planners and communities related to planning. The creation of the integrity of the planning and planning community can stimulate the formation of the overall urban integrity system. The field of urban planning can be an entry point to build a system of integrity in urban areas, starting with the formation of personal integrity of the planner.

Efforts to build the integrity of planners and then the integrity of urban areas can be carried out using the following framework:

Figure 5. The Route of Urban Planning Integrity



3. Result and Discussion

Various literature studies on the genesis of corruption in organizations conclude that motivation and opportunities to engage in corruption are driven by strong environmental influences that can suppress individual differences. Among other things, these are high levels of competition, weak legal and enforcement systems, and organizational factors such as the complexity of organizational structures and tasks, personal factors such as weak morals and integrity, fear of failure, and so on (Baucus, 1994; Brass et al., 1998; Cohen, 1995; Coleman, 1998; & Lesieur, 1982; Geis & Salinger, 1998; Poveda, 1994; Shover & Bryant,; Szwajkowski, 1985; Yeager, 1986 in (Ashforth & Anand, 2003). In the constructionism paradigm point of view, Peter Berger and Thomas Luckman (1960) put forward their theoretical assumptions: "if a person or group of people defines that a situation or phenomenon (for example corruption) is real, then the consequences of the phenomenon are also real " (Ashforth & Anand, 2003).

The bribery practice of BPK auditor with the public official from Ministry of Villages & Underdeveloped Regions Development and Transmigration for getting an "Unqualified" status is an evidence of how corruption is institutionalized in the organizational and political context. This fact is a real consequence of the results of the corruption normalization within the organization. The next stage after the creation of the normalized corruption thesis is the formation of a culture or sub-culture of corruption that deviates from the prevailing normative order. Social order is the results of past human activities that will continue to exist and will be repeated as long as people still have any interest to maintain it. The process of social construction involves two dimensions of reality: first, the formation of society is seen as an objective reality through institutionalization (the making of rules, laws and customs) and legitimacy (ensuring the sustainability of these rules, laws and habits); and second, the formation of society is seen as a subjective reality through internalization (concerning socialization and identity) of the rules, laws, and habits that have been formed.

Some researchers experience stress in determining whether corruption is "dysfunctional" or "functional" behavior. This turns out to depend on the institutional setting that surrounds it. Institutional

order is an important factor for analyzing corruption in the perspective of the economic, political, cultural, and legal framework that encompasses institutions (Girling 1997; de la Rama and Rowley 2017). The discourse in some literature discusses "state capture", namely the way corporations collude with state administrators through granting bribes to influence laws and regulations. State capture or corruption is beneficial to the corporation concerned but detrimental to other corporations and the economy as a whole (Hellman et al. 2003; Rijkers et al. 2017). At this point, corruption is not seen as a destructive-dysfunctional phenomenon, but functional and beneficial rather to the corporation because it has political ties that are useful for exploiting the regulatory process (Galang 2012; Nguyen et al. 2016). The relative truth of this assumption can be observed from a number of empirical facts that a number of senior politicians were recruited as members of the corporation's board of commissioners. This fact reveals the subjective reality that having political ties with senior politicians aims to influence policy and regulation (Hillman 2005; Lester et al. 2008; Zheng et al. 2015 in (Pertiwi, 2018).

On the other hand, adherents of rationalist theory view that corruption is a form of behavioral dysfunction of the actors to maximize the benefits for themselves. The dysfunctional behavior of actors in carrying out corruption is entirely rational, in the sense that corruption is based on calculations of the costs and economic benefits to be gained. At the same time, corruption is a social phenomenon that is considered negative because its effects are detrimental and cause social dysfunction. (Torsello & Venard 2016). Related to this negative view, corruptors develop psychological defense mechanisms to neutralize or even eliminate the guilty feeling when committing acts of corruption. Efforts of the corruptors to neutralize guilt are to construct a narrative of justification for acts of corruption that were initially questioned or even denounced. The psychological defense is carried out through a rationalization process as illustrated in Figure 3 (Fleming & Zyglidopoulos, 2009).

The Rationalist experts adopted the World Bank's definition "corruption is" an abuse of authority for personal gain ". This definition is based on the dichotomous assumption of the public-private sector that underlies most research on corruption. The generalization of the meaning of corruption based on the technical definition of the World Bank encourages the adoption of a single, general approach (one-size-fits-all) in analyzing and dealing with corruption. In reality, in society, there are many dichotomous classifications which contain contradictions similar to the contradictions between the public and private sectors. At the same time, a number of other corruption studies emphasize the importance of the determination of historical factors and local culture so that corruption in its empirical reality is local, specific and always history-related. Corruption is local-specific and is always related to the historical context of the community (Rothstein & Torsello, 2014) (Pertiwi, 2018).

There are a number of arguments that contradict the rationalist's negative view of corruption. As the example is an opinion of Lui (1985) which states that "bribery launches the wheels of the economy and therefore benefits the government". Meon and Weill (2010) also argue that corruption is beneficial, especially for countries whose governments are weak, where government performance is ineffective and tends to make burdensome regulations. Corruption in this context can expedite the economic growth of the country concerned, but consequently, the cost burden becomes expensive (high-cost economy) for society as a whole. Huang (2016) who examined 13 Asian countries to oppose the conventional view that "corruption is bad for economic growth", found that corruption has a positive effect on South Korea's economic growth, while in China corruption has a negative effect. These findings prove that the relationship between corruption and economic growth is not linear. Corruption is local-specific and is always related to the historical context of the community (Pertiwi, 2018).

Like the aforementioned, the rationalists believe in a macro view that corruptors are rational actors in calculating the balance between costs and benefits for the parties involved. As long as the benefits of corruption outweigh the costs, corruption will continue. In line with this view, there is an assumption that collusion and corruption between the government and corporations can be eliminated by increasing the level of market competition which has implications for rising bribe costs (Ades & Di Tella 1999). The reality found in a number of ex- communist countries shows the opposite empirical evidence (Diaby & Sylwester 2015). This view is analogous to other views stating that "corruption can be eradicated if salaries from government employees and/or state administrators are raised to a level that is high enough so that the amount of the offered-bribe must be higher than legitimate income received from the state (Van Rijckeghem & Weder 2001; An & Kweon 2017; (Pertiwi, 2018). Overall, the views of the rationalists received a lot of sharp criticism. The rationalist view which sees corruption from merely an economic aspect is "narrow, simplistic and overly technical" (Hindess 2012). Based on this assumption, efforts to

control corruption can be done by raising the cost of corruption to the maximum extent far outweighing the benefit.

As a result, this view tends to reduce or simplify the complexity of values and norms that underlie (antecedents) of corruption, removed from its context and ruling out specific local historical aspects (Misangyi et al. 2008 in (Pertiwi, 2018). In Indonesia, a trail of rationalist views on corruption with an emphasis on economic aspects can be seen from the mainstream of corruption assessments as measured by "the presence and magnitude of the state loss and/or loss of state assets". The normative parameter "…state loss…" is stated in Article 2 of Law No. 31 of Year 1999 on Corruption Crimes. Another normative parameter as contained in the World Bank's definition of corruption are "abuse of authority" and "enriching oneself, others or corporations" contained in Article 3 of the same Act.

The normalization process produces three premises that form a causal relationship, namely: (1) corruption is not a despicable act but a form of loyalty to superiors that are required in the public sector bureaucracy in Indonesia; (2) corruption is accepted and tolerated by members of the organization and/or society; and (3) corruption is just an ordinary administrative practice that can be practiced routinely. Ultimately, normalizing corruption will produce the proposition "corruption is a normal routine administration practice and is not a crime at all". The consequence of the emergence of a proposition is the formation of the thesis that "corruption has a basis of objective rationality as a routine administrative procedure that can be decided discretionally when facing an unregulated administrative situation". There is rationality that can be used as a justification for corruption without feeling guilty. If the thesis is believed to be truth, legitimacy and reasonableness by members of the organization and / or society, then it will encourage actors to repeat and do further, and at the same time attract new actors to get involved in the game.

Observing the reality genesis process of collective corruption in organizations through normalization, the intervention efforts to prevent, detect, and eradicate corruption will not succeed without first dismantling propositions and thesis of corruption. The corruption thesis must be deconstructed and made anti-thesis through the reverse process: denormalization of corruption Corruption is a social phenomenon that can be observed and explored by seeing whether the context is administrative-procedural, abuse of authority, conflict of interest, fraud, violation of ethics or law, or politics. Regardless of the context, efforts to understand corruption will fail and what appears is only the phenomenon of corruption, while the direct and indirect determinant factors remain invisible as hidden agendas. On the other hand, anti-corruption is more a contemporary entity in a political frame rather than merely a "technical solution" and instrumental to overcoming corruption.

Both corruption and anti-corruption are not social realities that can provide evidence for themselves but constructed based on cognitive schemes that are formed through a process of mental cognition. Cognitive schemes are realized through political interventions and concrete actions that are institutionalized and socialized in the social space through routine organizational practices. The process of internal control and risk management to prevent and detect corruption and/or fraud can adopt the theory of corruption normalization, by carrying out the process of normalizing corruption in reverse. The process of normalizing corruption takes place in three stages, starting from rationalization, institutionalization, and socialization. Denormalization is done in reverse, as:

a. *De-socialization*

The process of discrediting acts and perpetrators of corruption in the social space;

d. De-institutionalization

The process of deconstructing of the long institutionalization corruption by breaking down the risk factors, and establishing an internal control system and risk management based on specific corruption risk indicators then. Some examples of specific corruption risk indicators include, as illustrated in Figure 3, those are Government Institution Risk Indicators (GIRI), Contractor Risk Indicators (CRI), and Political Connection Indicators (PCI). The use of these specific indicators can eliminate bias from the general parameters used by the BPK or BPKP, that is: "state losses". The state loss indicator refers to aspects of the state finances and does not refer to the planning process. As a result, the BPK or BPKP cannot find

indications of corruption or fraud and frame various forms of violations of the provisions as administrative offences outside the realm of criminal acts of corruption;

c. ***De-rationalization***

The process of designing a cognitive scheme which states that corruption is "an evil, despicable, and unlawful act and ignores human values". This anti-corruption cognitive scheme opposes the rationalization of the perpetrators of corruption which states that "corruption is an ordinary and normal act or an ordinary administrative violation. The anti-corruption cognitive scheme is disseminated, institutionalized at the personal, group, and broad community level so that it forms a collective memory which in turn becomes basic assumptions and values that shape the culture of anti-corruption.

Denormalization is the antithesis of normalization, which is a process of reversal from something normal to abnormal. In the context of this study, corrupt practices that are considered normal and reasonable have been changed or reverted to abnormal, malicious and despicable acts. The denormalization process is based on the understanding that corruption is not a personal/ individual action, but rather a collective action in the context of interaction in social spaces at the organizations/institutions level of the public and private sectors. The difference between corruption and anti-corruption on the comparative analysis process in constructionism view lies in the construction aspects of social reality. Corruption is a social reality that is constructed and always context related. In what context does an actor commit corruption is an important element that must be understood so that the hidden factors or hidden agendas of corruption can be revealed to deconstructed.

Denormalization is directed to answer and at the same time provide solutions to three fundamental questions related to corruption: (1) What individual characteristics are compatible and become antecedents of corruption? (2) What organizational processes are used to normalize corruption? (3) How can organizational processes and/or regulations or procedures strengthen the position of corrupt individuals or make individuals corrupt? (Arellano Gault, 2017). The answers to these three questions can be used as a basis for developing a system of internal control and risk management that can prevent and detect corruption and/or fraud as part of the denormalization process.

The denormalization process can be used as a basis for designing an effective internal control system and corruption risk management to build integrity. Efforts to build integrity can begin with the personal integrity of planners. The position, role, and function of the planner is unique and strategic because it has two sides at once, namely the light and dark sides related to their knowledge and understanding of the public and/or private sectors as well. In this regard, efforts to build the integrity of urban planners through corruption risk management and assessment are relevant and urgent to be implemented.

Malaysia has stepped in the direction of sustainable development since the 1970s, when the New Economic Policy (NEP) was announced to reduce deprivation and balance social equity. In 2009, the country formulated the New Economic Model (NEM), whose initiatives mirrored the three elements (economic, social and environmental) of the 2030 agenda. Furthermore, they formed the Eleventh Malaysia Plan (11MP) with the vision of “Anchoring Growth on People” ("Malaysia Sustainable Development Goals Voluntary National review”, 2017). The vow to the 2030 Agenda for Sustainable Development has been aligned with the tactics and initiatives of the Eleventh Malaysia Plan. Therefore, sustainable development is not new to Malaysia. In fact, things have already been in motion on this path for decades. According to the Department of Statistics of Malaysia, the country is on the right track to achieve the goals (Sustainabledevelopment.un.org, 2019). Thus, it is necessary to involve the university students of the country to achieve the goals faster because they are the future leaders responsible for a sustainable planet (Joshi and Rahman, 2017; Asmuni et al., 2012).

Campuses of universities can be imagined as small towns, and it is possible to convert such spaces as habitats for the experimental enactment of a new social and technological paradigm that can work as a center point in managing sustainability (Ilham et al., 2018b). There are many initiatives that can be taken by the universities to bring the global agenda one step ahead. For instance, Kyoto University in Japan applied the simple idea of placing trash bins of recyclables near lecture rooms to grab the attention of every passers-by. By adopting this strategy, greater amounts of waste can be collected with less effort since cleaners do not need to enter each lecture room to collect the rubbish. Some universities in Malaysia have also installed motion sensors for restroom lights, which means that their lights are by default off unless someone enters the room, which is a great mode of energy consumption and CO2 emission reduction (Ávila et al., 2017). These kinds of activities and approaches will involve students in practicing environment sustainability, while at the same time making them aware of its consequences (Ilham et al.,

2019). The implementation of sustainability at universities can expand the potentials and horizons of students, both within and outside the campus territories (Trencher et al., 2014).

Therefore, it is rational to focus on the knowledge, attitude, and action of students towards SDGs. Knowledge is the insights of people about certain topics, such as SDGs. Attitude is then what they feel about SDGs and practice can be the results of their feelings and what they do about it (Kaliyaperumal, 2004). Numerous Knowledge, Attitude, and Practice (KAP) studies have been conducted to identify the awareness level of individuals on environmental sustainability, for instance studies on measuring the awareness level of SDGs on prospective elementary teachers (Borges, 2019), energy consumption (Paço & Lavrador, 2017), awareness levels of a university community in Southwestern Nigeria (Omisore, Babarinde et al. 2017), sustainable consumption among university students (Ahmad and Arifin, 2018), environmental knowledge, attitude, and practices of students and teachers (Esa, 2010), environmental awareness among secondary school students (Noordin et al., 2010), and others. According to Sybille (2011), these kinds of studies show not only characteristics of knowledge, attitude, and behaviors, but also the perceptions of each person on the content. This can be considered as an educational diagnosis of a community (Kaliyaperumal, 2004.). Hence, KAP studies offer a way to measure the awareness levels of certain communities in an effective manner (Ahmad et al., 2015).

University of Malaya (UM) is the oldest public research university located in Kuala Lumpur, Malaysia, and currently aspires the way forward in sustainability agenda. In 2019, UM ranked 34th in the UI Green Metric World University rankings. However, no specific research has been found on the awareness level of SDGs among students of the University of Malaya ("UM living lab achievement report", 2019). Thus, this study attempts to provide information about the current position of students of the University of Malaya on the aspect of awareness on SDGs and intends to enlighten them about the 2030 agenda, which demands an urgent call for actions to sustain the world.

4. Conclusion

Planning in a broad sense includes definition and selection of needs up to the evaluation and audit stages. Planning sector and the planner have unique and strategic positions, roles and functions because they bring together two sides, those are the public sector and the private sector. This uniqueness causes the planning sector and planner to have a political role and bargaining position in the development planning process. This political role that can present the two faces. The bright side as a planner with integrity that can design internal control systems and risk management to prevent and detect corruption, and the dark side as a conspirator of public officials and business contractors/corporations to commit corruption together.

The bright side as a planner with integrity is what needs to be developed on urban planners to build an overall urban integrity system. Efforts to build the personal integrity of the planner and the collective integrity of the urban community, can apply a management framework and assessment of corruption risk by using specific corruption risk indicators, as described in Figure 3. These corruption risk indicators are more specific and refer to the planning process itself, from the definition and selection of needs stage to the evaluation and audit stage. The application of these indicators is expected to improve the findings of the BPK and BPKP which are still bound by the parameter "state losses" which are highly biased and ineffective to be used for preventing and detecting corruption. In the corruption risk indicators context and borrowing the term accounting, the BPK's findings, which most state as the administrative violations, can be said as "misstatement".

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Reference

Agbiboa, D. E. (2012). *Between Corruption and Development: The Political Economy of State Robbery in Nigeria*. *Journal of Business Ethics*, *108*(3), 325–345. https://doi.org/10.1007/s10551-011-1093-5

Agency, A. (2017). *ANTI-CORRUPTION AGENCY MODEL LOCAL ANTI-CORRUPTION PLAN With Guidelines For Adoption , Implementation and Monitoring*. (April).

Angahar, D. P. A. (2014). *Budget Tracking As a Strategy for Sustaining the Fight against Corruption in Nigeria*. *IOSR Journal of Economics and Finance*, *5*(5), 114–117. https://doi.org/10.9790/5933-055114117

Arellano Gault, D. (2017). *Corrupción como proceso organizacional: comprendiendo la lógica de la desnormalización de la corrupción. Contaduria y Administracion*, *62*(3), 827–842. https://doi.org/10.1016/j.cya.2016.01.008

Arellano Gault, D. (2017). *Corruption as an organizational process: Understanding the logic of the denormalization of corruption. Contaduría y Administración, 62*(3), 827–842. https://doi.org/10.1016/j.cya.2016.01.008

Argandoña, A. (2007). *The united nations convention against corruption and its impact on international companies*. *Journal of Business Ethics*, *74*(4), 481–496. https://doi.org/10.1007/s10551-007-9524-z

Article, R. (2013). *Corruption in the Land Sector*. *Ekonomika Poljoprivreda*, *60*(2), 365–377.

Ashforth, B. E., & Anand, V. (2003). *The Normalization of Corruption in Organizations*. *Research in Organizational Behavior*, *25*(November), 1–52. https://doi.org/10.1016/S0191-3085(03)25001-2

Bildfell, C. (2018). *P3 Infrastructure Projects: A Recipe for Corruption or an Antidote? Public Works Management and Policy, 23*(1), 34–57. https://doi.org/10.1177/1087724X17709791

Bolu, I. (2016). *The Anti-Corruption Legal Framework and Its Effect on Nigeria's Development*.

Bratu, R., Sotiropoulos, D. A., & Stoyanova, M. (2017). *Through the lens of social constructionism: The development of innovative anti-corruption policies and practices in Bulgaria, Greece and Romania, 2000-2015. Slavonic and East European Review, 95*(1), 117–150. https://doi.org/10.5699/slaveasteurorev2.95.1.0117

Camargo, C. B., Passas, N., & Ethics, B. (n.d.). *Hidden agendas , social norms and why we need to*.

Chiodelli, F. (2019). *The illicit side of urban development: Corruption and organised crime in the field of urban planning. Urban Studies*, *56*(8), 1611–1627. https://doi.org/10.1177/0042098018768498

Chiodelli, F., & Moroni, S. (2015). *Corruption in land-use issues: A crucial challenge for planning theory and practice. Town Planning Review*, *86*(4), 437–455. https://doi.org/10.3828/tpr.2015.27

Christian, N., Basri, Y. Z., & Arafah, W. (2019). *Analysis of fraud pentagon to detecting corporate fraud in Indonesia*. *International Journal of Economics, Business and Management Research*, *3*(08), 1–13.

Delavallade, C. (2006). *Corruption and distribution of public spending in developing countries. Journal of Economics and Finance*, *30*(2), 222–239. https://doi.org/10.1007/BF02761488

Development, N., & Agency, P. (2014). *National Strategy F Or Corruption Prevention And Eradication / National Strategy On Cpe 2012-2025 ; 2012-2014*. (October 2013).

Fabre, A., & Straub, S. (2019). *The Economic Impact of public private partnerships (PPPs) in Infrastructure, Health and Education: A Review*. (January), 84.

Fiorini, L., Zullo, F., Marucci, A., & Romano, B. (2019). *Land take and landscape loss: Effect of uncontrolled urbanization in Southern Italy. Journal of Urban Management*, *8*(1), 42–56. https://doi.org/10.1016/j.jum.2018.09.003

Gans-Morse, J., Borges, M., Makarin, A., Mannah-Blankson, T., Nickow, A., & Zhang, D. (2018). *Reducing bureaucratic corruption: Interdisciplinary perspectives on what works. World Development, 105*, 171–188. https://doi.org/10.1016/j.worlddev.2017.12.015

Gorsira, M., Steg, L., Denkers, A., & Huisman, W. (2018). *Corruption in Organizations: Ethical Climate and Individual Motives. Administrative Sciences*, *8*(1), 4. https://doi.org/10.3390/admsci8010004

Government of Kenya. (2019). *Agricultural Sector Transformation and Growth Strategy.* 1–221. Retrieved from http://www.kilimo.go.ke/wp-content/uploads/2019/01/ASTGS-Full-Version.pdf

Hart, E. (2019). *Guide to using corruption measurements and analysis tools for development programming*.

Isaksen, J. (2005*). The budget process and corruption*. *U4 Issue Paper*, (3), 1–25. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:The+budget+process+and+corruption#1

Jemadu, A. (2017). *Challenges in Eradicating Corruption in the Indonesian Presidential System*. (119). Retrieved from https://www.cigionline.org/sites/default/files/documents/Paper no.119_0.pdf

Jiménez, F., García-Quesada, M., & Villoria, M. (2014). *Integrity Systems, Values, and Expectations: Explaining Differences in the Extent of Corruption in Three Spanish Local Governments*. *International Journal of Public Administration*, *37*(2), 67–82. https://doi.org/10.1080/01900692.2013.836666

Kassem, R., & Higson, A. (2017). *British University in Egypt Corresponding Author : Rasha Kassem*. *Vol. 3*(No. 3), 191–195.

Khan, A., & Hildreth, W. B. (2002). *Budget Theory in the Public. Greenwood Publishing Group*, 297. Retrieved from http://www.untag-smd.ac.id/files/Perpustakaan_Digital_1/BUDGET Budget theory in the public sector.pdf

Khan, M. A. (2006). Role of Audit in Fighting Corruption. *"Ethics, Integrity, and Accountability in the Public Sector: Re-Building Public Trust in Government through the Implementation of the UN Convention against Corruption*, (September), 1–32.

Koirala, M. P. (2018). *Urban Infrastructure Projects and Challenges , Risk Identifying for Emerging New Cities of Nepal*. *6*(December), 97–108. https://doi.org/10.5281/zenodo.2532343

Lai, S. K. (2019). *Who should make plans for land development? Journal of Urban Management*, *8*(1), 1–4. https://doi.org/10.1016/j.jum.2018.11.003

Liang, X., & Perlo-Freeman, S. (2017). *Corruption in the Indonesian arms business*. 19. Retrieved from https://www.foreignaffairs.com/articles/indonesia/2015-

Locatelli, G., Mariani, G., Sainati, T., & Greco, M. (2017). *Corruption in public projects and megaprojects: There is an elephant in the room! International Journal of Project Management*, *35*(3), 252–268. https://doi.org/10.1016/j.ijproman.2016.09.010

Next, W. (2007). *Infrastructure Governance and Corruption :* (August).

Nichols, P. M., & Dowden, P. E. (2019). *Maximizing stakeholder trust as a tool for controlling corruption*. *Crime, Law and Social Change*, *71*(2), 171–195. https://doi.org/10.1007/s10611-017-9767-2

Nuhu, S. (2019). *Peri-Urban Land Governance in Developing Countries: Understanding the Role, Interaction and Power Relation Among Actors in Tanzania. Urban Forum*, *30*(1), 1–16. https://doi.org/10.1007/s12132-018-9339-2

OECD (2017) Budget Transparency Toolkit. *OECD Budget Transparency Toolkit*. https://doi.org/10.1787/9789264282070-en

OECD. (2017). *On Combating Corruption and Fostering Integrity. (March).* Retrieved from https://www.oecd.org/corruption/HLAG-Corruption-Integrity-SG-Report-March-2017.pdf

OECD. (2019). *Analytics for integrity: Data-driven approaches for enhancing corruption and fraud risk assessments*. 65. Retrieved from https://www.oecd.org/governance/ethics/analytics-for-integrity.pdf

Pertiwi, K. (2018). *Contextualizing Corruption: A Cross-Disciplinary Approach to Studying Corruption in Organizations. Administrative Sciences*, *8*(2), 12. https://doi.org/10.3390/admsci8020012

Prabowo, H. Y. (2015). *Re-understanding corruption in the Indonesian public sector through three behavioral lenses Hendi. Facilities*, *35*(6), 925–945. https://doi.org/10.1108/EL-01-2014-0022

Rocha, M. A. (2015). *Why corruption matters: understanding causes, effects and how to address them*. *UK Department for International Development*, (January), 1–111. https://doi.org/10.1017/CBO9781107415324.004

Sartor, M. A., & Beamish, P. W. (2019). *Private Sector Corruption, Public Sector Corruption and the Organizational Structure of Foreign Subsidiaries*. *Journal of Business Ethics*, *0*(0), 0. https://doi.org/10.1007/s10551-019-04148-1

Seregig, I. K., Suryanto, T., Hartono, B., Rivai, E., & Prasetyawati, E. (2018). *Preventing the acts of corruption through legal community education. Journal of Social Studies Education Research*, *9*(2), 138–159. https://doi.org/10.17499/jsser.65190

Sihombing, K. (2016). *Analisis Fraud Diamond Dalam Mendeteksi Financial Statement Fraud : Studi Empiris pada Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia (bei) Tahun 2013-2015*. *JIMAT (Jurnal Ilmiah Mahasiswa Akuntansi) Undiksha*, *6*(3), 1–22. https://doi.org/10.6007/IJARAFMS/v5-3/1823

Steibel, F., Alves, M., & Konopacki, M. (2017). *Fighting Corruption Alone: Civic Participation in OGP Anti-Corruption Commitments*. *Revue Internationale Des Gouvernements Ouverts*, *6*(August), 1–29.

Sujana, E., Yasa, I. N. P., & Wahyuni, M. A. (2019). *Testing of Fraud Diamond Theory Based on Local Wisdom on Fraud Behavior*. *69*(Teams 2018), 12–15. https://doi.org/10.2991/teams-18.2019.3

Sukma, A. (2015). *Efek Pengganda Infrastruktur Pekerjaan Umum dalam Perekonomian Provinsi Bali*. *Jurnal Perencanaan Wilayah Dan Kota*, *26*(2), 100–110. https://doi.org/10.5614/jpwk.2015.26.2.3 Support, B. (2018). *04 2018*.

United Nations Convention against Corruption Priorities for the provision of technical assistance Global Programme against Corruption United Nations Convention against Corruption Priorities for the provision of technical assistance. (n.d.). 1–7.

Vousinas, G. (2018). *Elaborating on the Theory of Fraud. New Theoretical Extensions*. *SSRN Electronic Journal*, 1–17. https://doi.org/10.2139/ssrn.3163337

Vousinas, G. L. (2019). *Advancing theory of fraud: the S.C.O.R.E. model*. *Journal of Financial Crime*, *26*(1), 372–381. https://doi.org/10.1108/JFC-12-2017-0128

WHO. (n.d.). *Reinforcing the focus on anti-corruption, transparency and accountability in national health policies, strategies and plans*. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/326229/9789241515689-eng.pdf?sequence=1&isAllowed=y

Williams, M. J. (2017). *The political economy of unfinished development projects: Corruption, clientelism, or collective choice? American Political Science Review*, *111*(4), 705–723. https://doi.org/10.1017/S0003055417000351

Zinnbauer, B. D. (2019). *Towards cities of integrity : The role of urban planners*.

Zinnbauer, D. (2018). *Leveraging the Role of the Urban Planning Profession for One of the Central Policy Challenges of Our Times*. Retrieved from https://unhabitat.org/records-broken-as-curtains-

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Commentary

Disaster Management in the Implementation of the 2030 Sustainable Development Goals in Indonesia

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1. Introduction

1.1 Importance of Long-term Disaster Management Plan

In 2045, the Republic of Indonesia (NKRI) will be one hundred years old. To welcome a century of independence, the 2015-2045 “Golden Indonesia Vision” was launched, as the first phase of the "Indonesia's Dream 2015-2085". The vision of Indonesia 2015-2045 is to become "sovereign, advanced, just, and prosperous". To achieve this vision, Indonesia faces many challenges, one of which is related to its geographical position as a disaster-prone area. Many hydro-meteorological disasters caused by climate change and environmental degradation that cause floods, landslides, drought and tornadoes occur in various regions in Indonesia, in addition to geological disasters such as volcanic eruptions, earthquakes, and tsunamis that cause casualties, damage to infrastructure, destruction of national assets, as well as economic losses and environmental damage.

In order to deal better with increased risk and complexity of future disasters, maintain high levels of economic growth, and secure development outcomes, Indonesia has developed a comprehensive and comprehensive long-term disaster management plan. The plan, called the 2015-2045 Disaster Management Master Plan (RIPB), contains the vision and mission of long- term disaster management for Indonesia, in line with the vision and mission of the National Long-Term Development Plan (RPJPN) 2005-2025, and will become policy input for the preparation of the 2025-2045 RPJPN. This document also contains policy directions and investment strategies for disaster risk management, as part of the implementation of Law Number 24 of Year 2007 on Disaster Management. The master plan is set for the 2015-2045 period, with reference to the first RPJPN period ending in 2025 and the second RPJPN period

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in 2025-2045, and is in line with the 2015-2030 Sustainable Development Goals (SDGs) period and the 2015-2030 Sendai Framework for Disaster Risk Reduction (SFDRR) commitment.

In the international context, Indonesia has actively contributed to the implementation of the 2005-2015 Hyogo Framework for Action (HFA) and has compiled various policies and disaster management planning documents that refer to the 2015-2030 SFDRR. However, apart from what has been compiled and carried out by various stakeholders in Indonesia, the incidence of disasters continues to increase and the damage and losses also continue to increase. For this reason, it is deemed necessary to draw up a comprehensive and integrated long-term plan for disaster management. Such a master plan is legally binding and therefore can be aligned with and become a guideline for national and regional development planning, in order to realize the synergy of development planning with disaster risk reduction.

It is understandable that without significant investment in integrating disaster risk reduction into development, Indonesia will experience obstacles in achieving the goals of a sovereign, developed, just, and prosperous country by 2045, and becoming the fourth-largest economic power in the world. To support resilient development and the achievement of the long-term vision and mission of Indonesia, the 2015-2045 Disaster Management Master Plan was formulated.

Within the period from 2015-2045, the Government will also be carrying out the mandate of agreements at the global level that have been ratified or have become commitments, such as SDGs, the SFDRR, the Paris Agreement of the United Nations Framework Convention on Climate Change, the Agenda for Humanity, the New Urban Agenda, and the Addis Ababa Action Agenda on Financing for Development. Because this period is closely related to efforts at the global level, this period is referred as the "2015-2030 Period: Global Resilience Plan"

2015-2030 Sendai Framework for Disaster Risk Reduction

The Government of the Republic of Indonesia is also one of the countries committed to implementing the 2015-2030 Sendai Framework for Disaster Risk Reduction (SFDRR). In 2030, all countries committed to SFDRR, including Indonesia, are expected to contribute to achieving the seven SFDRR targets of (1) significant reduction in mortality due to disasters in the world;

(2) significant reduction in the number of affected communities; (3) reduction of economic losses directly in relation to world GDP; (4) significant reduction in damage to critical infrastructure and disruption of basic services, including health and education facilities; (5) increased number of countries that have DRR strategies at the national and regional levels by 2020; (6) increased international cooperation to support developing countries in implementing the SFDRR; and (7) increased access to multi-hazard early warning systems as well as disaster risk information and assessments for communities.

As a form of implementing this commitment, in 2016, the National Disaster Management Agency (BNPB) prepared and issued an SFDRR baseline report. This article explains the conditions and progress of the implementation of the four SFDRR priorities of (1) understanding disaster risk; (2) strengthening disaster risk management to manage disaster risk; (3) investing in disaster risk reduction for resilience; and (4) improving disaster preparedness for effective disaster response and to "rebuild better" in the post-disaster recovery period.

The BNPB report led to the conclusion that in the period from 2005-2015, Indonesia had shown significant progress in mainstreaming disaster risk reduction in national and regional development. Regional Disaster Management Agencies (BPBDs) and Regional Disaster Management Plans (RPBD) have been formed for all provinces in Indonesia. More than 80 percent of regencies/cities also have established a BPBD.

DRR is not only carried out in the pre-disaster phase, but also integrated in preparedness, during emergencies, and in post-disaster recovery. Many contingency plans have been prepared for disaster emergency preparedness, at both the national and regional levels. Post- disaster recovery efforts have also utilized the "rebuild better and safer" approach. DRR mainstreaming is carried out at all levels, from the national level to the village level, through the formation of a Resilient Village. DRR mainstreaming also involves many actors, not only across ministries/institutions at the national level, but also local governments, NGOs, voluntary organizations, community groups, universities, and business institutions.

Indonesian Commitment to Implementing the Sustainable Development Goals

Through Presidential Regulation No. 59 of Year 2017 on the Implementation of the Achievement of Sustainable Development Goals, the Government of Indonesia has adopted Sustainable Development Goals (SDGs) as one of the references in determining the direction and targets of national development up to 2030. Disaster Management and particularly disaster risk reduction cuts across different aspects and sectors of development. There are 25 targets related to disaster risk reduction in 10 of the 17 sustainable development goals, firmly establishing the role of disaster risk reduction as a core development strategy.

Table 1. SDGs with Targets Related to Disaster Management in Indonesia

No.	Goals and Targets of SDGs	Indonesia's Responses on Disaster Management
1	**Goal 1, Target 1.5**: In 2030, build resilience of the poor and those in vulnerable conditions, and reduce their vulnerability to extreme events related to climate change and economic, social, environmental, and disaster shocks.	In relation to disaster management and disaster risk reduction in Indonesia, an increase in the frequency of disasters in the past five years, such as the earthquake in Lombok in July 2018 and the tsunami and liquefaction following the earthquake in Palu in September 2018, had considerably significant socio- economic impacts, including the impact of increasing poverty in affected areas. Such conditions need to be managed seriously, because the post-disaster recovery process, which includes rehabilitation, reconstruction, and relocation in the affected areas, requires quite a long time, especially in the recovery process of the socio-economic sector of communities in the affected areas. A more important aspect to consider in relation to sustainable development goals is the need to prioritize community resilience to disasters, not only in the recovery process, but more importantly in disaster risk reduction efforts, especially in areas that are categorized as disaster-prone, by promoting community-based disaster risk reduction.
2	**Goal 2, Target 2.4:** In 2030, ensure a sustainable food production system and implement resilient agricultural practices that increase production and productivity; help protect ecosystems; strengthen adaptive capacity for climate change, extreme weather, drought, floods, and other disasters; and progressively improve soil and land quality.	As with the impact on the socio-economic conditions of the affected communities above, the frequency and intensity of disasters, which continue to increase, seriously impact the agricultural sector as the main livelihood of Indonesian people. The food production system is also significantly disrupted due to natural disasters and climate change; this needs to be addressed specifically, especially in strengthening food security, which requires increasing disaster and climate change resilience in order to support food production systems nationwide.
3	**Goal 3, Target 3.d**: Strengthen the capacity of all countries, especially developing countries, on early warning, risk reduction, and national and global health risk management.	From nearly a decade ago, different line ministries have begun to develop programs that capitalize on the potentials of communities living in hazard-prone areas, with the aim of reducing vulnerability and building resilience. The Ministry of Health started such a program in 2006, as the "Prepared Villages" program, to improve health services and health preparedness. Similar programs have also been developed by the Ministry of Social Affairs, Ministry of Fishery, Ministry of Agriculture, Ministry of Energy and Mineral Resources, and Ministry of Environment and Forestry. In 2012, BNPB started the "Disaster Resilient Villages" program, which aims at building resilience at the village level through the introduction of risk mapping and analysis, preparation of DM plans and DRR action plans by communities, early warning systems, volunteer development, and development of economic resilience.
4	**Goal 4, Target 4.a**: Build and improve educational facilities that are child-friendly, disabled-friendly, and gender-friendly, and provide a safe, non-violent, inclusive, and effective learning environment for all.	As a country that has committed itself as one of the Safe School Leaders, Indonesia has made safe schools a priority and part of the national development agenda. The stakeholders are aware that the main objective of safe school programming and other DRR initiatives is fundamentally to build community resilience. To date, many activities have been implemented to enhance the three pillars of the Comprehensive School Safety Framework Schools, which are safe learning facilities, school disaster management and disaster risk reduction, and resilience education.

No.	Goals and Targets of SDGs	Indonesia's Responses on Disaster Management
5	**Goal 6, Target 6.4**: By 2030, significantly improve water use efficiency in all sectors, guarantee sustainable use and supply of fresh water to overcome water scarcity, and significantly reduce the number of people suffering from water scarcity.	In terms of the policy framework, the increase in water-related disasters encourages the national government to prevent and mitigate disasters by applying a landscape-based approach, including watershed areas. The Ministry of Environment and Forestry has issued some regulations on watershed management that can prevent hydro-meteorological disasters. Those regulations protect upstream water catchment and conservation areas in order to prevent floods affecting downstream areas and landslides affecting upstream and middle areas. In many cases, this may transgress the administrative boundaries of regencies or cities, or even provinces. For the purpose of enforcing the regulations and applying them into spatial planning to guarantee proper land use, the national government has added the internalization of watershed management into a spatial plan as a national indicator of SDGs Goal 6, which is mentioned in Presidential Regulation Number 59 of Year 2017. To support this commitment, the Ministry of Agrarian Affairs and Spatial Planning issued a regulation on the guidance of spatial planning at the province, regency, and city levels. The regulation states that a watershed area map and disaster risk map should be referred to in order to make a spatial plan document. Therefore, the spatial plan will not only be developed based on administrative boundaries but also ecosystem-based considerations, such as watershed areas. To make it in practice, at present the Ministry of the Environment and Forestry is developing a guideline for local governments in order to integrate watershed areas into spatial plans. Therefore, it is urgent to raise local, national, regional, and global awareness for private and public stakeholders to promote policies and investments in conserving and restoring wetland ecosystems, which have a significant role in regulating fresh water ecosystems, as well as to scale up the implementation of Green Infrastructure and Ecosystem- or Nature-Based Solutions as part of integrated risk management and resilience strategies.
6	**Goal 9, Target 9.1:** Develop quality, reliable, sustainable and resilient infrastructure, including regional and cross-border infrastructure, to support economic development and human welfare, with a focus on affordable and equitable access for all.	The government has established the integration of data and information among line ministries through a platform called InaRISK. This is available as web-based and mobile applications for further analyzing the risks in the country to understand the risks that apply to people. The risk map is available and accessible to the public to find out risks to places of people in Indonesia. The risk map increases to a better scale specifically for areas of economic growth centers that have medium to high risk. This risk and situation map can be freely accessed as the portal web site **www.inarisk.bnpb.go.id**. This portal is also for monitoring the reduction of the index of risk to 2019 by 30 percent, especially in the economic growth centers that have been outlined in the 2015-2019 National Middle-Term Plan. Development of the Multi-Hazard Early Warning System (MHEWS) with other line ministries and involving the BMKG, PVMBG of Ministry of Energy and Mineral Resources, Ministry of the Environment and Forestry, Agency for Geospatial Information, and other related institutions and scholars, which include data and information on climate hazards, hydrological hazards, meteorological hazards, and geological hazards, had been performed to have a set of specific data and information that can be distributed and disseminated to the public by using methods of accessing the Internet.
7	**Goal 11, Target 11.1**: In 2030, ensure access for all to decent, safe, and affordable housing and basic services, and to organize slums; **Target 11.5**: By 2030, significantly reduce the number of deaths and the number of people affected, and substantially reduce economic losses relative to the global GDP caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations; **Target 11.b**: In 2020, substantially increase the number of cities and settlements that adopt and implement	At present, a number of line ministries in Indonesia have started programs addressing resilience in urban areas. The Ministry of Public Works has, in the past several years, developed the Program of Sustainable Cities and Green Cities. The Ministry of Environment and Forestry has also piloted the Climate-Resilient Cities Program, while the Ministry of National Development Planning (Bappenas) has its Resilient Cities Program. Efforts are underway to build coherence among these different programs with their different

No.	Goals and Targets of SDGs	Indonesia's Responses on Disaster Management
	integrated policies and plans that support inclusion, resource efficiency, mitigation and adaptation to climate change, and disaster resilience, and develop and implement holistic disaster risk management according to the 2015- 2030 Sendai Framework for Disaster Risk Reduction.	approaches and strategies. Led by the Bappenas, the national government is now developing common indicators for disaster- and climate change- resilient cities that will be used as measures of monitoring city performance. Such an integrated program will include micro-zoning based on detailed disaster risk analysis and climate projections, building codes that incorporate resilience into site design and construction standards, financing frameworks that promote risk-sensitive urban development, and urban upgrading and ecosystem restoration to increase the resilience of urban settlements and infrastructure. The Ministry of Female Empowerment and Child Protection has also promoted "child-friendly cities" that has been presented during the Global Platform on DRR in Mexico. Relevant stakeholders also introduced the Child- Centered Urban Resilience Framework to provincial governments to promote Resilient Cities that interlink multiple dimensions such as climate change adaptation, education, health, child protection, and safe facilities for children.
8	**Goal 13, Target 13.1**: Strengthen the capacity of resilience and adaptation to climate-related hazards and natural disasters in all countries.	Indonesia has also begun the development of its very own multi-hazard early warning system (MHEWS) in response to the call of 2019-2030 SFDRR global targets, particularly on substantially increasing the availability of and access to the MHEWS and disaster risk information and assessments to the people by 2030. Several types of disaster early warning systems have existed in Indonesia for years despite facing several challenges, such as data related to hazards, risks, and disasters being spread across various ministries or agencies as a result of the unavailability of an integrated and inclusive early warning platform. However, a strategic framework has been defined that includes the vision, mission, goals, basic principles, strategies, and initiatives for successful development and implementation of the MHEWS. The basic principles for the system are collaboration, creativity, availability, integration, security, and continuity.
9	**Goal 14, Target 14.2**: In 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening resilience and carrying out restoration to create healthy and productive oceans.	It had been proven that vegetation along coastal areas can reduce wave energies to the beach; thus, some areas beyond greenbelt areas can be protected. The Government encourages to implement Coastal Forests by reforesting vacant lands and buffer zones along the coasts. As one of the areas that is most prone to hydro-meteorological disasters is the ecosystem, coastal areas particularly on the north part of Java have become severely eroded, which leads to increased vulnerability to extreme weather, tidal floods, floods, and loss of land as the source of community livelihoods. Hundreds of thousands of people feel the effects of severe coastal abrasion caused by mangrove ecosystem conversions, as well as continued land subsidence and rising sea levels as the impact of climate change. To address this problem, one initiative has been conducted among NGOs, related government institutions, and the private sector to develop an ecosystem- and nature-based solution that applies sustainable and adaptable hydraulic infrastructure that also encourages the conservation of nature at the same time. This program is known as the "Building with Nature" program. Through this program, mangrove green belts along the coast are starting to be restored through the construction of permeable dams that mainly function to trap sediment that allows mangrove seedlings to grow naturally.
10	**Goal 15, Target 15.3**: In 2020, stop desertification, restore critical lands and lands affected by desertification, drought, and flooding, and strive to achieve a world free of degraded land.	With the strong commitment to protect the environment as a major priority due to the causes of disaster occurrences in several places in Indonesia, reforestation is one of the movements to protect high-risk areas from disasters. Vegetation along riversides and coastal zones is one of the solutions to protect the ecosystem. It is believed that the significant effects of planting along faults is to remind about the hazards, planting uphill areas is to protect the watershed, and planting in hilly areas is to protect from landslides.

The Way Forward: Integrating SDGs and SFDRR into Disaster Management Planning

The Indonesian government has been actively involved in the conception and development process of the 2030 Agenda, including ongoing work being undertaken by the SDGs Secretariat in Bappenas as well as the engagement of Indonesia in Disaster Risk Management-related international frameworks such as SFDRR since 2015.

The disaster risk reduction planning and programming by Indonesian line ministries and agencies requires a more coordinated and coherent approach that takes into account interlinkages between climate change and disasters that will be instrumental and effective in the achievement of SDGs other than those of 2030 Agenda commitments.

It is also critical to ensure coherence with ASEAN regional frameworks, including the contribution by Indonesia to the ASEAN Agreement on Disaster Management and Emergency Response Program (ADMER) and other sectoral frameworks to align with the global agenda. To achieve such targets, Indonesia had made hard efforts to reduce risks in all relevant sectors and increase food security, water security, energy security, ecosystem resilience, and maritime resilience through 1) strengthening local capacity; 2) improvement of knowledge management; 3) convergent policies between climate change adaptation and disaster risk reduction; and 4) adopting adaptive technologies. Furthermore, the process of data convergence through the use of information technology, including for climate and disasters, has been carried out in the provinces with the establishment of a single data system that is managed by the provincial governments.

However, the coherency of Indicators of SDGs will be achieved with the strong coordination initiated by Bappenas through engagement and discussion at all ministerial levels on national development priorities, of which DRM is one of the National Priorities. Bappenas is also setting up goals for the implementation of SDGs in Indonesia through multi-sectoral coordination among government institutions. In accordance with the efforts, the main task is to monitor whether the national development indicators are in line with disaster risk management-related SDGs and the SFDRR, or diverge from them.

Finally, Disaster Risk Management strategies at national and local levels endorse local authorities to create Disaster Management Strategic Plans. Clarity in the distribution of roles and responsibilities between BNPB and national actors as well as BPBDs and local actors need to be enhanced. Utilization of assessments and disaster risk maps for the preparation of Regency Disaster Management Plans and Regional Disaster Risk Reduction Action Plans (RAD PRB) will serve as references for the preparation of the Regional Middle-Term Development Plan (RPJMD). The challenge at the sub-national level is that cross-sectoral coordination remains a challenge, which sometimes prevents the effectiveness of DRR implementation at the sub-national level.

Moreover, at the village level, there is the urge to conduct capacity building to familiarize village apparatuses with regulations on village fund management for mainstreaming DRR, and to identify affirmative budget allocation on disaster preparedness and disaster response activities. Furthermore, by considering the urban population growth rate of approximately 4 percent annually, urban risks will certainly pose challenges in the coming decades. Therefore, Indonesia needs to strengthen further its urban risk management, and in line with SDG 11 of "[making] cities and human settlements inclusive, safe, resilient, and sustainable", as well as in addressing climate change adaptation, Indonesia still faces a challenge in integrating SFDRR targets into urban and village resilience programs.

References:

BAPPENAS (2015), Rencana Aksi Tujuan Pembangunan Berkelanjutan (SDGs): http://www.sdgsindonesia.or.id/;

BAPPENAS and BNPB (2019), Rencana Induk Penanganan Bencana (RIPB) 2015-2045;

BNPB (2019), Indonesia Country Paper for the Global Platform on Disaster Risk Reduction (GPDRR), Geneva, Switzerland;

BNPB (2016), Statement of the Government of Indonesia By the Minister/Head of the National Agency for Disaster Management at the Ministerial Session The Asian Ministerial Conference for Disaster Risk Reduction New Delhi, India, November 3rd 2016 https://www.amcdrrindia.net/wp- content/;

CARE (2016), Indonesia in Brief;

Hadi, Suprayoga (2018), Nawacita dan Kebencanaan, Kompas Newspaper, 13 November 2018;

Hadi, Suprayoga (2018), Anggaran Penanggulangan Bencana dan Pengelolaan Bencana, Kompas Newspaper, 18 October 2018;

Ministry of Foreign Affairs (2016), Indonesia Berpartisipasi Aktif dalam World Humanitarian Summit di Istanbul: http://www.kemlu.go.id/id/berita/Pages/;

Ministry of Finance (2015), Asia-Pacific High-Level Consultation on Financing for Development: http://www.fiskal.kemenkeu.go.id/dw-konten-view;

Ministry of Environment and Forestry (2015), Indonesia first Biennial Update Report (BUR) under the United Nations Framework Convention on Climate Change, Ministry of Environment and Forests http://unfccc.int/essential_background/;

UN-ESCAP/IDD (2015), Financing Disaster Risk Reduction for sustainable development in Asia and the Pacific. Draft discussion paper submitted to Asia-Pacific High-Level Consultation on Financing for Development meeting, Jakarta, Indonesia, 29-30 April. Available from www.unescap.org/events/hlcffd2015;

UN-ESCAP (2017), Asia-Pacific High-Level Consultation on Financing for Development: http://www.unescap.org/events/hlcffd2015;

UN Habitat (2016), Preparatory Committee (PrepCom3) of the United Nations Conference on Housing and Sustainable Urban Development (Habitat III), 25-27 July 2016: https://habitat3.org/prepcom3;

UN Habitat III (2016), New Urban Agenda Draft outcome document for adoption in Quito, October 2016 https://www2.habitat3.org/bitcache/; United Nations Development Program (2014), Human Development Report 2014.

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