

ENVIRONMENTAL FACTORS AFFECTING TRADITIONAL FISHERMEN IN MAINTAINING THE RESILIENCE OF MARINE AREAS IN THE CONTEXT OF INDONESIAN STATE DEFENSE

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Abstract

Purpose of the study: The purpose of this study is to empirically examine the factors that influence traditional fishermen in maintaining the resilience of marine areas in order to defend the country and examine the model of causality relationships that are formed as well as the influence of causality between these variables.

Methodology: The study was conducted in the Depok coastal area, Bantul - Yogyakarta with traditional fishermen as the respondents who are members of the Mina Bahari Fishermen Cooperative. Hypothesis testing was based on Partial Least Square.

Main Findings: This study found: (1) 15 reflexive indicator statements form 7 latent variables that directly to construct a hypothesis; (2) a state defence model is formed; (3) hypothesis testing model shows that the seven proposed hypotheses are accepted, namely: a) Knowledge of environmental security has a positive influence on attitudes towards environmental security; b) Attitudes towards environmental security and environmental influences have a negative influence on actions against security disturbances; c) Understanding the environment has a positive influence on environmental awareness; d) Environmental awareness, environmental influences, and actions against security disturbances have a positive influence on participation in the environment.

Applications of this study: This study helps inform the stakeholders establish coastal resilience program by incorporating the fishermen in the coastal areas.

Novelty: Few studies paid attention toward traditional fishermen to keep marine resilience in Indonesia.

Keywords: *State Defense, Resilience of Marine Areas, Traditional Fishermen, Partial Least Square, Indonesia, environment*

INTRODUCTION

The state is established in order to guarantee the survival of the nation. Efforts to maintain survival involve two main dimensions, namely: prosperity and security. The welfare dimension deals with fulfilling the needs of life in an appropriate manner, while the security dimension involves providing a sense of security to the community free from all forms of interference and threats.

The state as a place of shelter and a place to live for human's life has always been a strong basis for someone to always love their homeland, nation and country. The obligation to maintain and always uphold the existence of their beloved homeland is a promise that is consciously spoken even in the mind of a citizen throughout his life. This love of promises of loyalty to the nation and state is a spirit of strength for the nation itself, called the State Defense. State defense is also referred to as a moral movement. State defense can be carried out from a small environment to national scope. This small environment starts from the family which is the smallest scope in everyday life. There are five basic principles for defending Indonesia: 1) love to the homeland; 2) having national and state consciousness; 3) believe in Pancasila as a state ideology; 4) willing to sacrifice for the nation and state; and 5) having psychological and physical readiness to make an initial effort to defend the country. A prime way in actualizing these five elements is each citizen has the same rights and obligations to carry it out.

The juridical foundation regarding the rights and obligations of the defence of the Indonesia state contained in the 1945 Constitution article 27 (3), in which every citizen has the right and obligation to participate in State defense efforts, and Article 30 (1): each citizen has the right and obligation to participate in State defense and security business. Furthermore, Law No. 39 of 1999 concerning human rights CHAPTER IV Article 68 mention that every citizen is obliged to participate in the State's defense efforts in accordance with the provisions of the legislation. One item of the Republic of Indonesia Law number 3 of 2002 concerning national defense also underline that the participation of citizens in efforts to defend the country can be carried out through service in accordance with the profession.

Traditional fishermen are people whose livelihoods is doing fishing to fulfil their daily needs by using small boats and simple fishing equipment. Their obligation to defend the fishing country is to participate in maintaining the resilience of Indonesia's marine territory. To express the love of their motherland can be realized by maintaining the social conditions of

the community from the influence of the environment and understanding of the environment. Fishermen's life is influenced by environmental factors. Environmental aspects also have a very strong influence on the lives of fishermen in defending the state.

From the description above, this study will empirically examine the following questions: 1) what are the factors that influence traditional fishermen in maintaining the resilience of marine areas in the framework of state defense? 2) How is the causal relationship model formed and the influence of causality between these variables?

LITERATURE REVIEW

Guarding the Nation in State Defense Context

The Grand Theory used is the Abraham Maslow's Need Theory ([Luthans et al, 2015](#)) which focuses its attention on the level of individuals. This theory states that everyone is able to manage and transform themselves towards a better life through continuous learning based on the various experiences that have passed. Every person always wants to actualize themselves, each individual is able to maintain harmonious relations between each other in community life. The emphasis is on understanding individuals who are members of society and interact with each other. Self-actualization is the highest motive for everyone's wishes. The five types of motives proposed by Maslow hierarchically are an encouragement for everyone to live in a society.

State defense (in Indonesia framework) is a determination, attitude, and comprehensive action, integrated and sustainable based on love for the homeland, awareness of nation and state and belief in willingness to sacrifice in order to eliminate any threats, both from outside and within the country that endanger the independence and sovereignty of the state, unity and national unity, territorial integrity and national jurisdiction and the values of Pancasila and the 1945 Constitution. Five important elements in defending the country are (1) love for the homeland and nation; (2) awareness of the Indonesian nation and state; (3) belief in Pancasila as a state ideology; (4) willingness to sacrifice for the nation and state, and (5) unity and unity of the nation. In actualizing these five elements, each citizen has the same rights and obligations to perform it.

The right and obligation to defend the state is not limited to defense matters and not only becomes the authority of the military (TNI) or the government, but also the responsibility of all the nation's children, covers all aspects of life and is according to their respective professions by raising whatever important achievement. Just like a fisherman carrying a jar and a boat going to the sea to find fish and the results can be enjoyed by the family and the community. In short, every citizen can think, act, do the best for the establishment of the Republic of Indonesia, including the State Defense.

One parameter of good citizens is concerning the role of citizens in facing all challenges, threats, obstacles and disturbances (CTOD) faced by the nation and state that will threaten the integrity of the nation and the state in achieving national goals, in accordance with their respective fields and professions - each, or in other words, the defense of the state must be carried out by all citizens in accordance with their respective fields and professions, including the fishermen.

Environment

Thompson (1967) was one of the first to recognize the importance of the environment. Thompson states that the environment can be described in two dimensions: the level of change and the level of homogeneity. The rate of change is the extent to which the environment can be considered relatively stable or relatively dynamic. The level of homogeneity is the extent to which the environment can be considered relatively simple (few elements, a little segmentation) or relatively complex (many elements, lots of segmentation). [Pearce and Robinson](#) (2007) classify the environment into three layers/environment. The most common environment that refers to the macro environment, layers in the macro environment. The macro environment consists of a political, economic, social, technological, ecological and legal (legal) environment abbreviated as PESTEL. The environment referred to in this research is the community environment.

One of the conditions for a country's establishment is its territory. Every nation needs a living space, called the environment. Every nation has place that allow their people to be sheltered and the state can guarantee prosperity and security of all its citizens. The nation is a group of people united in one region and has an attachment to that region. The desire to form a collective nation arises because of the fate and history of equality that creates unity in a community of community forming a nation's consciousness. The similarities cover aspects of culture, language, religion and tradition. This is the underlying process of forming a unified consciousness, joining and nationhood anywhere in the world. The State is the instrument or authority governing or controlling the collective issue on behalf of the community. The state has elements in which there is a government governing economic, political, social, cultural, security defense, and people, territory, sovereign government and recognition from other countries.

An established country cannot be separated from the influence of the environment, the influence arising from the reciprocal relationship between the philosophy of the nation, ideology, aspirations, ideals and conditions of society, culture, tradition, natural conditions, regions and historical experience. These elements are interrelated between the environment and its factors, mutual relationships between environmental factors themselves and mutual relations between elements of a factor, and mutual relations with the environment.

Traditional Fishermen Characteristic

According to Indonesian fisheries law number 45 of 2009, fishermen are people whose main job is fishing. Small fishermen are people whose livelihoods do fishing to fulfil their daily needs. These small fishermen are traditional fishermen who use small boats and simple fishing equipment, such as using fishing nets and fishing rods, also bintur, gillnets, rawe fishing poles, nets, cikur, serang, krawe fishing rods, snails, weed shrimp net. Even though fishing is hard work but generally traditional fishermen, have a relatively low level of education, and very limited capital capacity.

From the way of life, the fishing community is a community of mutual assistance (Sastrawidjaya, 2002). The access of traditional fishermen to information is also relatively limited, this causes the occurrence of fishing routines in the same area. On the other hand, traditional fishermen have natural knowledge (local knowledge) about the potential areas of fish inherited from generation to generation. Fishermen know when a particular fish season will occur. The number of fishermen per boat is generally up to 2-3 people.

METHODOLOGY

This research was conducted in Depok Beach, Bantul - Yogyakarta, with respondents from traditional fishermen who are members of the Mina Bahari Fishermen Cooperative. The number of respondents was 37 traditional fishermen.

Data Collection Techniques

Survey methods were used as data collection technique. There are 15 statements that represent indicators in the survey. Each respondent gives an answer to the level of approval for each statement. The level of approval uses a Likert scale (Joshi, 2015) 5-point equidistance which is expressed ordinally in the choice of strongly disagree (1), disagree (2) neutral (3), agree (4) and strongly disagree (5). Each indicator is a reflexive indicator that determines one aspect of the latent variable.

Data Analysis

Data analysis were done by SmartPLS. The reason for using SmartPLS because it can be applied to all data scales, does not require many assumptions, the sample size does not have to be large and can be used to build relationships that have no theoretical basis or for testing propositions can also be used for structural modelling with reflexive indicators.

DISCUSSION

Result

There are 15 statements that represent indicators in the survey. Each indicator is a reflexive indicator that determines one aspect of the latent variable (Table 1). Table 1 shows the relationship of statements, indicators and latent variables. The latent construct influences the variation of measurements and the assumption of causality relationships from the latent construct to the indicator. 15 reflexive indicator statements form 7 latent variables, which are quantities that are not directly observed, to construct a hypothesis (Table 2). This model hypothesizes that changes in latent constructs affect changes in indicators (Bollen and Lennox, 1990).

Table 1. Relation of Statements, Indicators and Latent Variables

No	Statements	Indicator	Code	Latent Variables
1	If there is a security disturbance such as theft of fish in the fishing community area, you will report to the authorities.	Report Action	I1	Actions Against Security Disruptions
2	If there is a security disturbance in your area, you will be vigilant	Vigilante	I2	Actions Against Security Disruptions
3	If there is a security breach in your area, you will not care.	Security Ignorance	I3	Attitude on Environmental Security
4	You are concerned about the many cases of fish theft has occurred in your area.	Fish Theft Concerns	I4	Attitude on Environmental Security
5	Illegal fishing that occurs in Indonesia does not need to be feared because the resources of the sea fish will never run out.	Fish Theft Ignorance	I5	Attitude on Environmental Security
6	The waters of the Depok area are guarded by security forces which include fishing communities, the TNI and the National Police.	Guarding Knowledge	I6	Environmental Safety Knowledge
7	The fishing community appreciates various differences in the environment such as differences in religion, beliefs, ethnicity and race.	Understanding on Appreciating Differences	I7	Environmental Understanding

8	Fishermen do not perform fishing activities by using fishing gear that is destructive to the marine environment	Understanding of environmentally friendly fishing gear	I8	Environmental Understanding
9	The fishing community maintains the cleanliness of the beach and the sea by not littering	Understanding on Beach Cleanliness	I9	Environmental Understanding
10	The fisherman community plays a role in cleaning the coastal environment	Participation on Beach Cleanliness	I10	Participation in the Environment
11	Community members are involved in the formation of social groups	Participation on Social Groups	I11	Participation in the Environment
12	The level of awareness of fishermen in preserving existing natural resources such as beaches and environment is high	Nature Conservation Awareness	I12	Environmental Awareness
13	The fishermen and their families do not make the beach as a place to dispose garbage	Awareness on not throwing garbage on the beach	I13	Environmental Awareness
14	Many fishermen consume alcohol while operating fishing	Alcohol consumption	I14	Environmental Influence
15	Fishermen always visit nightclubs and such	Nightclub visit	I15	Environmental Influence

Hypothesis

Hypothesis is a statement that contains smart guess or educated guess (Orr, 2014). Based on the latent variables that are formed (Table 2) there are seven research hypotheses that will be tested against the effect between latent variables.

Table 2. Latent Variables

No	Latent Variables	Code
1	Actions Against Security Disruptions	L1
2	Attitude to Environmental Security	L2
3	Environmental Safety Knowledge	L3
4	Understanding the Environment	L4
5	Participation in the Environment	L5
6	Environmental Awareness	L6
7	Environmental Influence	L7

- H1 : Environmental Safety Knowledge has a positive influence on attitudes towards environmental security
H2 : Attitudes towards environmental security have a negative influence on actions against security disturbances
H3 : Environmental influences have a negative influence on actions against security disturbances
H4 : Understanding the environment has a positive influence on environmental awareness
H5 : Environmental awareness has a positive influence on participation in the environment
H6 : Environmental influences have a positive influence on participation in the environment
H7 : Actions against security disturbances have a positive influence on participation in the environment

Table 3. Data Trends on Indicator

No	Indicators	Mean	Standard Deviation	Skewness	Kurtosis
1	Report Actions	3.030	1.337	-1.314	-0.058
2	Vigilante	2.758	1.181	-0.946	0.038
3	Security Indifference	2.879	1.297	-1.020	-0.026
4	Fish Theft Concern	3.030	1.337	-1.314	-0.058
5	Fish Theft Ignorance	2.939	1.278	-1.018	-0.064
6	Guarding Knowledge	3.152	1.077	-0.284	0.140
7	Understanding on Appreciating Differences	2.909	1.401	-1.267	0.100
8	Understanding of environmentally friendly fishing gear	3.000	1.303	-0.989	-0.086
9	Understanding on Beach Cleanliness	3.121	1.409	-1.298	-0.158
10	Participation on Beach Cleanliness	3.091	1.264	-0.940	0.009
11	Participation on Social Groups	3.121	1.365	-1.285	0.070
12	Nature Conservation Awareness	3.182	1.402	-1.160	-0.203
13	Awareness on not throwing garbage on	3.212	1.200	-1.051	0.008

	the beach				
14	Alcohol consumption	2.970	1.243	-0.927	0.159
15	Nightclub visit	3.030	1.314	-1.213	0.110

Based on the survey results obtained from 37 respondents, there were 33 answers that were stated complete, and processed through SmartPLS. The average answer approaches a neutral value (3). With a standard deviation between 1.077 to 1.407. Judging from the skewness, the skewness obtained is symmetrical (normal distribution) where the mean value is relatively the same as the mode. Kurtosis is considered as a form of distortion of the normal curve. The rate of friction is measured by comparing the shape of the data distribution curve to the normal curve. Platykurtic, the middle part of the data distribution, has a flatter peak with a value of less than 3 (Table 3).

Model with the Mediation Variable Path

Relations between variables can be expressed with direct and indirect influence. Direct influences are directly depicted with arrows, whereas in indirect influences, there are other variables in between the two variables. There are two types of non-mediation from the possibility of indirect influence (Hayes, 2013), which is presented in Table 4. Based on the analysis, the mediation variable path model is constructed (Figure 1).

Table 4. Types of Non-Mediation

No	Nonmediation	Direct Influence	Indirect Influence
1	Direct Only Nonmediation	Significant	Insignificant
2	No Effect Nonmediation	Insignificant	Insignificant

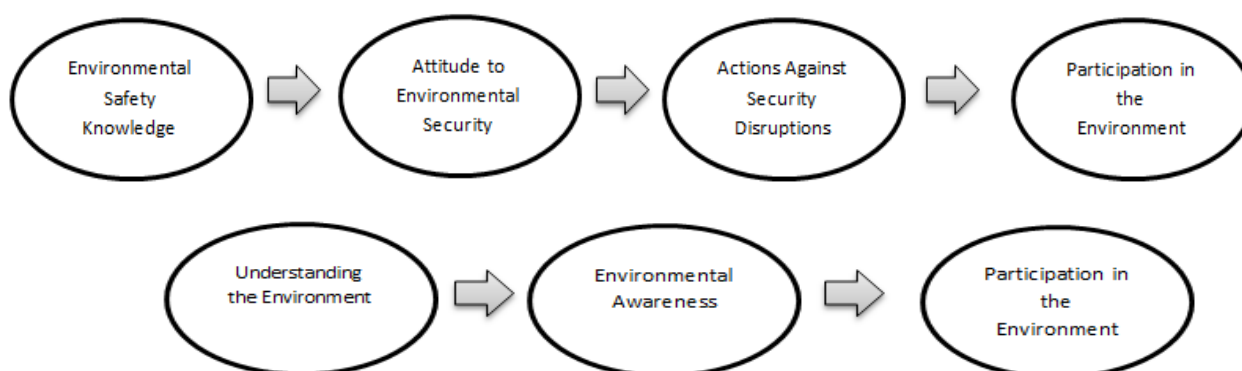


Fig. 1 Model with The Mediation Variable Path

Assessment model is used to measure the extent to which indicators reflect a latent variable (Hair, 2014). The loading value must be checked to determine the feasibility of an indicator (Chin, 1998). Individual reflexive measure is said to be high if it correlates more than 0.70 with the construct measured. The indicator that contains a factor of less than 0.7 must be removed because the level of reliability and validity is bad, there are two indicators that are deleted, namely: the act of vigilante and fish theft concerns (Table 5).

Table 5. Path Coefficient

No	L1	L2	L3	L4	L5	L6	L7
I1	1.000						
I3		0.936					
I5		0.923					
I6			1.000				
I7					0.932		
I8					0.947		
I9					0.935		
I10							0.939
I11							0.950
I12						0.947	
I13						0.953	
I14				0.949			
I15				0.947			

Based on the hypothesis, a path diagram is made using SmartPLS as in Figure 2.

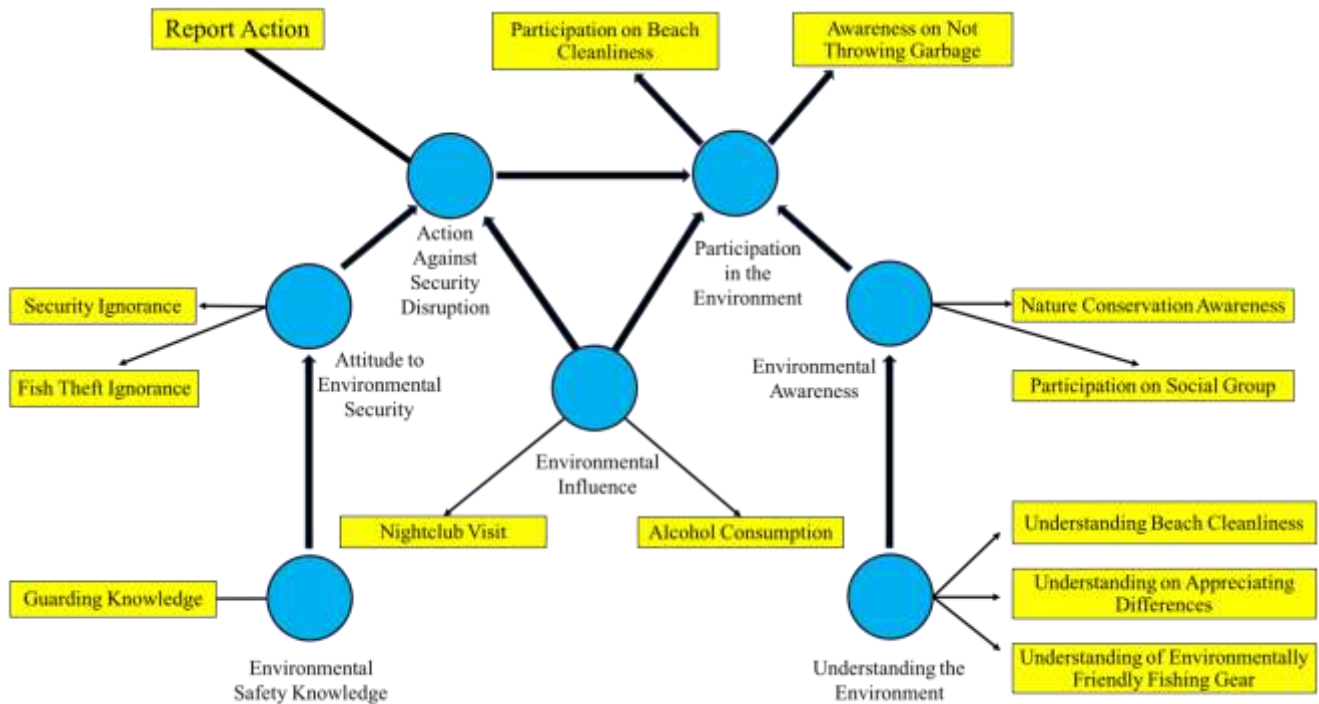


Fig. 2 Path Diagram using SmartPLS

Loading Factor

Loading factor is the amount of correlation between the indicator and its latent construct. In social research, measurement of a construct is very often done indirectly through its indicators. In this study, the loading factor is seen to be close to one, so that there is a high correlation between the indicators and their latent constituents.

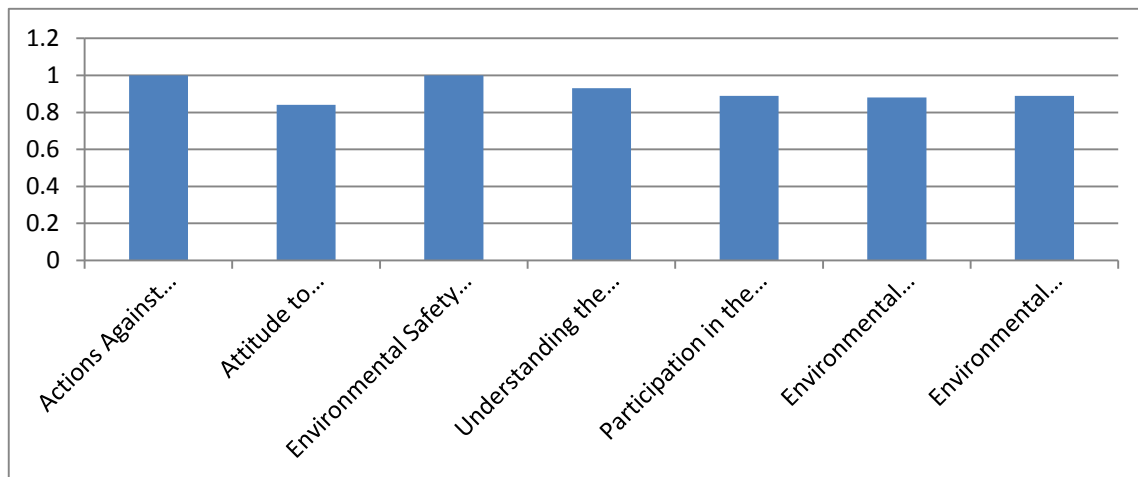


Fig. 3 Loading Factor

Hypothesis Testing

Based on one-tailed test with $n = 33$, alpha significance level = 0.05, comparing $T_{table} = 1.69389$ and T in Table 5, and at P_{value} below 0.05, all proposed hypotheses are accepted (Table 5). Based on Table 5, it can be explained that:

Table 5. Hypothesis Test Results

No	Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
1	Environmental safety knowledge → attitude towards environmental security	0.731	0.726	0.077	9.528	0.000

2	Attitudes towards environmental security → actions against security disturbances	-0.403	-0.411	0.183	2.200	0.028
3	Environmental influence → actions against security disturbances	-0.467	-0.459	0.205	2.282	0.023
4	Environmental understanding → environmental awareness	0.857	0.858	0.039	21.998	0.000
5	Environmental awareness → participation in the environment	0.324	0.319	0.134	2.428	0.016
6	Environmental influence → participation in the environment	-0.434	-0.438	0.122	3.567	0.000
7	Actions against security disturbances → participation in the environment	0.219	0.223	0.093	2.345	0.019

- H1 : Environmental safety knowledge has a positive influence on attitudes towards environmental security, accepted at P_{value} 0.000 or alpha significance level of 0.000. These results indicate that the higher the level of knowledge on the environment security, the higher the attitude of fishermen toward the environmental security. This means that traditional fishermen consciously take care of their environment from all forms of threats.
- H2 : Attitudes towards environmental security have a negative influence on actions against security disturbances, accepted at an alpha significance level of 0.028. The attitude of fishermen who are increasingly concerned about the security of their environment results in lower levels of security disturbances.
- H3 : The influence of the environment has a negative effect on the action against security disturbances, accepted at an alpha significance level of 0.023 (less than 0.05). This means that the lower environmental influences such as fishermen consume alcohol while operating fishing and nightlife visits, the lower the environmental security disturbances.
- H4 : Understanding the environment has a positive influence on environmental awareness, accepted at the level of significance alpha or P_{value} 0.000. This finding shows that the higher level of understanding of the fishermen's environment can increase the awareness of fishermen towards the environment. Such as awareness on not disposing garbage on the beach and awareness of nature conservation.
- H5 : Environmental awareness has a positive influence on participation, accepted at alpha significance level of 0.016. This shows that the awareness of fishermen on the environment, *e.g.* does not dispose of waste on the beach, and awareness of natural conservation, influence positively toward the high participation of fishermen in the environment, such as participation in the cleanliness of the beach and in social groups.
- H6 : Environmental influences have a negative influence on participation in the environment, accepted significant at an alpha level of 0.000. This finding shows that the participation of fishermen is higher, so that environmental influences such as the level of alcohol consumption of fishermen and nightlife visits are lower.
- H7 : Actions against security disturbances have a positive influence on participation in environment is accepted. These results indicate that actions against security disturbances, such as higher reporting actions, increase the level of participation of fishermen in the environment.

DISCUSSION

This research was conducted in Depok-Parangtritis Beach, Kretek District, Bantul Regency, Yogyakarta Special Region. Depok Beach is located in the lowlands and it has tropical climate and hot weather. Depok beach fishermen are classified as traditional fishermen who use simple fishing technology in which the fishing equipment are manually operated with human labour. Their operational fishing capability is limited to coastal waters which are only about 3 miles from the coast.

The level of education of Depok fishermen tends to be low to moderate (elementary, junior high, high school) and in fact, there are even some who do not attend formal school. Even so, Depok beach fishermen are different from other fishermen. Although Depok fishermen mostly have low education, the intention to send their children to formal education is high. This means that they really understand that education is one of the most important investments to improve family life in the future. From the way of life, the fishing community is categorized as a mutual cooperation community. The access of traditional fishermen to information is also relatively limited, this was observed from their same-area fishing routines. On the other hand, traditional fishermen have natural knowledge (local knowledge) about the potential areas of fish that they inherited from generation to generation. Fishermen know when a particular fish season will occur. The number of fishermen per boat is generally 2 to 3 people. Their fishing is based on experience, only following directive commands without technical, thus experience is very important in increasing potential. Initially, they start to be fisherman by invitation from their parents or friends only, then over times, they enjoyed their fishing job and finally they did it by themselves.

The environmental security knowledge has a positive influence on attitudes towards environmental security. This finding shows that the higher the level of environmental security knowledge of the fishermen, the more secure the environment. This means that traditional fishermen consciously show an attitude of taking care of their environment from all forms of threats or activities that can directly and indirectly interfere with the comfort of people's lives and aim to destroy the lives of the people, nation and state, which in turn will eliminate the existence of Indonesia as a nation and state.

Fishermen have been able to transform themselves towards a better life through continuous learning based on various experiences that have been passed by utilizing local knowledge. Taking care of the environment is one form of self-actualization of the fishermen in living in a society in the context of state defense. Based on the Abraham Maslow's Need Theory ([Luthans et al., 2015](#)), safeguarding the state in the context of the Indonesian national defense is the implementation of self-actualization needs. Self-actualization needs are the highest motivation that people can expect. The five types of motivations, proposed by Maslow hierarchically, are an encouragement for everyone to live in a society. It is the focal point of understanding human individuals who are members of the community and interact with each other.

Attitudes towards environmental security and environmental influences have a negative impact on actions against security disturbances received. This finding shows that the attitude of fishermen who are increasingly concerned about environmental security has resulted in lower security disturbances, such as vigilant acts, alcohol consumption and even nightlife amusement visits. The attitude shown by fishermen is a positive attitude that is consciously carried out to create a safe and comfortable environment in their society.

Environmental awareness, environmental influences, and actions against security disturbances have a significant influence on fishermen participation in the environment. Understanding the environment also has a positive influence on the environmental awareness. This finding shows that the awareness of fishermen on the environment by not littering on the beach area, increasing the awareness of nature conservation, and the environmental influences and security disturbances faced by fishermen are lower as the level of alcohol consumption and nightlife visits are reduced. This is also reflecting the level of participation of fishermen. The higher understanding of the fishermen's environment can increase fishermen's awareness on their surroundings.

Fishermen are one of the professions that also have the obligation to defend the state, which is to participate in maintaining the resilience of Indonesia's marine territories. To express and actualize the love of their motherland, the fishermen guards the social conditions of the community from the negative influence of the environment and understanding the physical and social environments. Fishermen's life is influenced by environmental factors. Environmental aspects have a very strong influence on the lives of fishermen in defending the state. A country can carry out its life cannot be separated from the influence of its environment, the influence that arise from the reciprocal relationship between the philosophy of the nation, ideology, aspirations, ideals and conditions of society, culture, traditions, natural conditions, regions and experiences. These elements are interrelated between the environment and its factors, mutual relationships between environmental factors themselves and mutual relations between elements of a factor, and mutual relations with the environment.

Based on the Abraham Maslow's Need Theory ([Luthans et al., 2015](#)), safeguarding the state in the context of the state defense is the implementation of self-actualization needs. Every person always wants to exteriorize themselves, each individual is able to maintain harmonious relations between each other in community life. The emphasis is on understanding individuals who are members of society and interact with each other. Self-actualization is the highest motivation people can expect. One parameter of good citizens is that concerning the role of citizens in facing all challenges, threats, obstacles and disturbances (CTOD) faced by the nation and state that will threaten the integrity of the nation and the state in achieving national goals, in accordance with their respective fields and professions. In other words, the defense of the state must be carried out by all citizens in accordance with their respective fields and professions, including the fishing profession.

CONCLUSION

From this research, it can be concluded that:

- 1) Environmental security knowledge has a positive influence significantly on attitudes towards environmental security. The higher the level of environmental security knowledge of the fishermen, the more secure the environment. This means that traditional fishermen consciously show respected attitude of taking care of their environment from all forms of threats both domestically and from abroad that are considered endangering the country's sovereignty, the integrity of the state, and the safety of all nations.
- 2) Attitudes towards environmental security have a negative influence significantly on actions against security disturbances. This reflects the attitude of fishermen increasingly concerned about the security of the environment, thus the environment is more secure.
- 3) Environmental influences have a negative impact significantly on actions against security disturbances. This means that the lower environmental influences, such as alcohol consumption by the fishermen while doing their job and nightlife amusement visits, the lower the environmental security disturbances occurred.
- 4) Understanding the environment has a positive influence significantly on the fishermen environmental awareness. This finding shows that the higher level of understanding of the fishermen's environment can increase the awareness of fishermen about their surroundings, such as awareness on not littering on the beach and awareness of nature conservation.
- 5) Environmental awareness has a positive effect significantly on participation in the environment. This shows that the awareness of fishermen on the environment, such as awareness on nature conservation and not littering on the beach, is higher, thus increases the participation of fishermen in the environment.

- 6) Environmental influences have a negative impact significantly on participation in the environment. This finding also shows that the participation of fishermen is higher, so that environmental influences, such as the level of alcohol consumption and nightlife visits by the fishermen are lower.
- 7) Actions against security disturbances have a positive influence significantly on participation in the environment. These results indicate that actions against security disturbances, such as higher reporting actions, also increase the level of fishermen participation in the environment.

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