

THE EFFECTIVENESS OF COORDINATION ON DISASTER MANAGEMENT BY THE GOVERNMENT DISASTER AGENCY IN OGAN ILIR REGENCY

* Faisal Nomaini¹, M.H. Thamrin², Gatot Budiarto²

¹) Lecturer of Department of Communication Science, Social and Political Sciences Fakultas, Sriwijaya University, Indonesia

²) Lecturer of Department of Public Administration, Social and Political Sciences Fakultas, Sriwijaya University, Indonesia

Email: faisalnomaini@fisip.unsri.ac.id thamrinmh@yahoo.com gatotbudiarto@fisip.unsri.ac.id

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ABSTRACT: Effective Natural Disaster Management Activities are prioritized targets at the National and regional levels. Implementing natural disaster management activities in certain regions are the regional government through the Regional Disaster Management Agency (BPBD). Apart from being the spearhead for implementing natural disaster management activities, BPBD also acts as a coordinator for other related agencies in the natural disaster management. The Regional Government of Ogan Ilir Regency as the study locus of the research which is the main data source for this article, has the problem of weak coordination function between BPBD and other agencies in natural disaster management activities. To ensure this problem, this research has been conducted on the effectiveness of the coordination function using a quantitative design through a survey of the BPBD and agencies involved in natural disaster management activities. The effectiveness of the coordination function as a variable is viewed in four dimensions, namely the unity of action, communication, division of labor, and discipline. From the results of two-dimensional research, the coordination function obtained effectiveness in the medium category and the other two dimensions gained effectiveness in the low category. Meanwhile, overall the achievement of the level of effectiveness of the coordination function in natural disaster management activities in the Ogan Ilir Regency Government is moderate (the effectiveness of the coordination function is moderate).

Keywords: BPBD, Natural Disasters, Coordination Function



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1. INTRODUCTION

During the period 1995 to 2015, data shows that 91% of disaster events were caused by natural disasters [1]. The results of a study put forward by [2] [3] even though in a far apart time span resulted in the same conclusion, namely that cities are the areas most vulnerable to the impact of a natural disaster. The trend that occurred in the past was that the occurrence of a disaster was only partially responded to by the government, even when disasters were only responded to by using an emergency response approach.

Indonesia as one of the countries in the world that is often hit by natural disasters is faced with the need to solve disaster problems as best as possible. Natural disasters have begun to be recognized as a problem that must be comprehensively understood and taken seriously in Indonesia, at least since the tsunami disaster in Aceh in year 2004. The purpose of natural disaster management according to [4] is to reduce the various impacts that arise from a

disaster. Disaster management itself is defined as a process that has the goal of reducing the risks and consequences of a disaster [4]. Meanwhile, [5] explains that disaster management is a social process that aims to reduce the risk of disasters that have occurred and predict and control future disasters.

As a comprehensive and of course continuous process, disaster management activities themselves consist of several dimensions such as disaster risk calculations, the concept of disaster prevention, mitigation, follow-up in disaster recovery (including calculating the required funds), and recovery procedures from impacts. a disaster [6] [19]. The Government of the Republic of Indonesia itself immediately took various concrete actions in disaster management, including by establishing the National Disaster Management Agency (BNPB) as a government agency that is specifically responsible for disaster management activities through Presidential Regulation Number 8 of 2008 about the National Disaster Management Agency. The

establishment of an official disaster management agency is also carried out at the regional level, namely Regional Disaster Management Agencies (BPBD) which are scattered in various provinces and regencies/cities in Indonesia as a derivative of the BNPB.

In its role as a national agency that is at the forefront of disaster management, BNPB still needs to improve its organizational performance and responsiveness in disaster management activities. No exception at the regional level, BPBD as an extension of the national agency also still needs various improvements in its contribution to disaster management activities, including in the BPBD of Ogan Ilir Regency which is the locus of studies on previously carried out research. One of the problems that emerged and became the background of the research that has been carried out is the still weak coordination between agencies in disaster management even though structurally a Regional Disaster Management Task Force has been formed which consists of several agencies and is commanded by BPBD of Ogan Ilir Regency.

Disaster management activities as a comprehensive activity cover a series of disaster management activities before, when a disaster occurs, and after a disaster and therefore require the involvement of various agencies in its implementation. It is in this section that coordination becomes a point that plays an important role in supporting the success of disaster management. The topic of coordination in both optimization studies, roles and coordination functions has become one of the main streams of research in the field of disaster management that takes the perspective of public administration and management.

[20] *The Influence of the Coordinating Function of Related Service Officers on Disaster Management Preparedness in Aceh Tengah Regency, Aceh Province* The findings show that delegation of authority, regulation of technology use and coordination in the details of the main tasks that are not good enough to dominate in predicting the probability of related service officers to participate in preparedness. Christanti (2013) examines the *The Role of the Coordination of the Regional Disaster Management Agency (BPBD) Medan City in the Efforts of Flood Disaster Management in Medan City* concluded that the Medan City BPBD has not coordinated according to its main tasks and functions due to budget issues from the central government. Meanwhile, [17] in his research on *Optimization of Natural Disaster Management Coordination and Implications for Regional Resilience* concluded that the slow reaction of the government and the ineffective coordination of disaster management is the cause of

the large number of victims who died during the disaster.

Previous research that has been the main source of data from this paper has a different focus from some of the studies previously described. The issue that is emphasized is how effective is the coordination function between agencies that have a role in natural disaster management activities. The research carried out in Ogan Ilir Regency was motivated by the tendency of not optimal coordination between agencies in the Ogan Ilir Regency Government in disaster management even though structurally a Regional Disaster Management Task Force which consists of several elements and Regional Government Agency (OPD) has been formed. The coordination function does not work effectively and even tends to lack coordination in disaster management activities. Ironically, so far there has been no evaluation conducted by the Regional Government regarding the ineffectiveness of the coordination function.

Coordination is needed both internally and externally by an organization [7]. [8] explain that coordination must be applied at every level of an organization as well as from a collection of various organizations. [9] states that coordination is an orderly effort to provide the right amount and time and direct the implementation to produce a uniform and harmonious action on predetermined targets. Furthermore, [10] explains that coordination is an activity to balance and move the team by providing a location for work activities that are suitable for each and keeping the activity carried out in proper harmony among the members themselves. [9] explains that the coordination function is as follows: (1) coordination is an organic function of the leader; (2) To ensure the smooth working procedures of the various components in the organization; (3) As an effort to direct and unify activities which implies integration carried out in harmony and simultaneously/synchronization of all actions carried out by the organization; (4) As a dominant factor in the survival of an organization at a certain level and is determined by the quality of the coordination efforts carried out; (5) To establish a working relationship or communication network; (6) In an effort to harmonize every integrated action, step and attitude of decision-making officials and executors; (7) For the arrangement of specializations in a variety of tasks. In addition, [15] [16] [18] emphasize that the most important factor for a good coordination is 'trust'.

There are four dimensions that are used to find out how coordination works within an organization. These four dimensions are called the coordination function [10]. The coordination function according to [10] consists of (1) the dimension of unity of action, this dimension is theoretically interpreted as an obligation of the leadership to be able to manage

the efforts/actions of each individual activity so that there is harmony within the group where they are cooperate; (2) communication dimension, this dimension has the scope of (a) information dissemination activities regarding events in an environment; (b) activities to interpret information; and (c) activities to communicate information, values and norms from one generation to another; (3) the dimensions of the division of labor, namely the activity of detailing tasks and jobs so that each individual in the organization is responsible for carrying out a limited set of activities and the purpose of this dimension is that a specialized.

2. METHOD

There are 2 (two) main problems raised in research activities, namely to determine the achievement of the effectiveness of the overall coordination function as well as based on each dimension in natural disaster management activities at the agency level in the Ogan Ilir Regency Government. To refine the results of the analysis, different tests were also conducted on the achievement of the level of effectiveness of each of the dimensions of the coordination function. The consequence of the research questions that will perform different tests is the emergence of the research hypothesis. The hypothesis proposed is "*It is suspected that there is no difference in the achievement of the level of effectiveness of each dimension of the coordination function in natural disaster management activities at the agency level in the Ogan Ilir Regency Government (H₀)*".

Research conducted using a quantitative approach. [11] suggests a definition of a quantitative approach, namely:

"A quantitative study, consistent with the quantitative paradigm, is an inquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers, and analyzed with statistical procedures, in order to determine whether the predictive generalizations of the theory hold true".

The quantitative approach used is descriptive quantitative with a survey design. The quantitative design is descriptive because in the implementation of the research it does not provide any treatment or condition the research variables. The survey design according to [12] is a way of making observations in which indicators regarding variables are answers to questions given to respondents both orally and in written form. The research instrument analysis process was carried out by testing the validity of the instrument using the inter-item consistency method and testing the reliability of the instrument by using the split-half procedure formula.

The statistical analysis method used is descriptive and inferential analysis. Descriptive analysis. used to get a picture of the frequency distribution or the proportion according to the characteristics studied from the research variables. This analysis will be displayed in the form of a frequency distribution table. Meanwhile, the inference analysis will be used to test the differences in the achievement of the level of effectiveness of each dimension of the coordination function as well as a method of testing the research hypothesis. The procedure for implementing hypothesis testing first is through testing the normality of the data. The data normality test in this study was carried out using the chi-quadrat formula (chi-square). If the data is normally distributed ($p - value$ is higher than significance level), the problem formulations of these two studies will be analyzed through parametric statistical techniques. However, if the data is not normally distributed, the problem formulations of these two studies will be analyzed through non-parametric statistical techniques.

The sample of this research is individuals who are involved as implementers by each agency for natural disaster management activities. Agencies that become units of analysis are agencies directly involved in natural disaster management activities, namely (1) Regional Disaster Management Agency (BPBD); (2) Social Service (through Disaster Response element); (3) Department of Agriculture and Food Security; and (4) Fire Fighting Unit (UPK). The total number of samples in this study were as many as 50 individuals who would become research respondents. The details are as many as 20 people from the BPBD task force and structural elements, 10 people from the Social Service (TAGANA Element), 10 people from the Department of Agriculture and Food Security, and 10 people from the PMK Unit.

The measuring instrument used was a research questionnaire. The research questionnaire was created with reference to the theory of the coordination function used and then derived into the following operational definitions:

Table 1. Operational definition

Variable	Dimensions	Indicator
	1. Unity of Action	1. Clarity of the chain of command that is applied in every disaster management activity. 2. Compliance with activity commands and instructions given in the implementation of a disaster management task / activity. 3. Ability to always prioritize the importance of orders

		related to disaster management activities.
Coordination	2. Communication	<ol style="list-style-type: none"> 1. Availability of all information regarding matters relating to disaster management activities. 2. Clarity of information flow and media connecting between components in each disaster management activity. 3. Ability to understand all information related to disaster management activities.
	3. Division of work	<ol style="list-style-type: none"> 1. Have clear powers, functions and roles among SKPDs that are members of the disaster management task force. 2. Have a clear work flow systematics among SKPDs that are members of the disaster management task force. 3. The ability to adapt and work together in a team for the achievement of a goal.
	4. Discipline	<ol style="list-style-type: none"> 1. Have a full sense of responsibility for the success of disaster management activities. 2. Having creativity and innovation as part of a sense of responsibility for completing tasks in every disaster management activity. 3. Availability of a reward and punishment system that is enforced in the implementation of disaster management activities.

3. RESULTS AND DISCUSSION

Testing the validity and reliability of research instruments is the first stage carried out when analyzing research data. The validity test results show that all statement items in the questionnaire used to measure the coordination function variable with a significance level of 5% (95% confidence interval) are declared valid. By using 10 research respondents specifically for testing the validity and reliability of the research instrument, the critical number or r-table is 0,632 for the 5% significance level (95% confidence interval). The test results show that the lowest calculation result is 0,641 and the highest yield is 0,920. This means that the calculated number is above the threshold, namely 0,632. Likewise with the research instrument reliability testing. The r-table value at N = 10 with a significance of 5% (95% confidence interval) is

0,632 and the calculated r value obtained is 0,986. Thus the r count on the results of the instrument reliability test in this study was 0,986 exceeding the value of r table for a significance level of 5% (95% confidence interval), namely 0,632. If the calculated r correlation number obtained exceeds the r table number, then the research instrument is declared reliable, and can be used to obtain research data. Thus, all of the 36 items in the research questionnaire were declared valid and reliable to be used as a measuring tool in this study.

To determine the level of achievement in each dimension, a helper table is used the range of empirical scores for each dimension by calculating the total empirical score (all respondents) for each question item multiplied by the interval value of each of the question items. Furthermore, from this calculation, 5 (five) levels of respondent's answer category will be obtained which is a description of the effectiveness of the coordination function in each dimension. The empirical score ranges from the four dimensions of the coordination function in this study can be seen in table 2.

The table above is a helper table to determine the achievement of the effectiveness category of each dimension. Each dimension is represented by 9 (nine) statements. The explanation is that each dimension has a chance of achieving one of the five predefined categories of effectiveness. If the empirical score of all respondents' answers is at; (1) 0 - 450 then the effectiveness of these dimensions is very low; (2) 451 - 900, the effectiveness of these dimensions is low; (3) 901 - 1350, the effectiveness of these dimensions is moderate; (4) 1351 - 1800, the effectiveness of these dimensions is high; and (5) 1801 - 2250, the effectiveness of these dimensions is very high.

The following table is the calculation result of all respondents' answers to the research questionnaire. The results displayed are the tabulated results of the research respondents' answers for each dimension of the coordination function. The achievement of the dimensions of the coordination function in natural disaster management activities at the agency level in the Ogan Ilir District Government is shown in table 3.

From the table above, which is the conclusion of the achievement of the effectiveness of each dimension in the coordination function, it can be explained that there are two dimensions that get the level of effectiveness achievement in the medium (sufficient) category and two dimensions that get the level of achievement of effectiveness in the low (less) category. Neither dimension has reached the 'high' effectiveness category or the 'very high' category.

Table 2. Empirical Score Range of Each Coordination Function Dimension

Dimensions				Percentage (%)	Effectiveness category
<i>Unity of Action</i>	<i>Communication</i>	<i>Division of work</i>	<i>Discipline</i>		
Number of Items: 9	Number of Items: 9	Number of Items: 9	Number of Items: 9		
Score	Score	Score	Score		
1801 - 2250	1801 - 2250	1801 - 2250	1801 - 2250	81 - 100	Very high
1351 - 1800	1351 - 1800	1351 - 1800	1351 - 1800	61 - 80	High
901 - 1350	901 - 1350	901 - 1350	901 - 1350	41 - 60	Moderate
451 - 900	451 - 900	451 - 900	451 - 900	21 - 40	Low
0 - 450	0 - 450	0 - 450	0 - 450	0 - 20	Very low

Source: Researcher Processed Data

Table 3. Achievement Results of Each Dimension of the Coordination Function

Coordination Function		Coordination Function Dimensions			
Achievement Percentage (%)	Category of Coordination Function Effectiveness Achievement	<i>Unity of Action</i>	<i>Communication</i>	<i>Division of work</i>	<i>Discipline</i>
81 - 100	Very high				
61 - 80	High				
41 - 60	Moderate	Score: 56.40% 1269 (Moderate)			Score: 57.91% 1303 (Moderate)
21 - 40	Low		Score: 39.60% 891 (Low)	Score: 38.66% 870 (Low)	
0 - 20	Very low				

Source: Primary Data Field Research September 2018

Dimensions that get a low achievement are the dimension of communication and the dimension of division of labor. The communication dimension in the operational definition is defined as 'an activity of collecting and disseminating, interpreting and communicating information related to natural disaster management activities from one agency to another'.

There are several problems identified in this dimension which are the causes for this dimension to achieve low effectiveness, including (1) detailed information about resources at the disaster site that can be used to cope with disasters that occur rarely even exist; (2) clarity of information and data regarding the completeness of equipment, operational funds, and other information prior to the implementation of the activity is rare, even some respondents stated that it is not available; (3) clarity of information flow and intermediate media between components in each disaster management activity rarely exists; and (4) most of the respondents stated that they were seldom able to communicate any information they received related to the implementation of activities to other team members.

It seems that the exchange of information as the main instrument in this dimension of communication is not yet optimal. Theoretically, [13] states that the most difficult part of the task of processing information in an organization is interpreting and transmitting the information obtained. In running an organization, of course, good communication is needed in order to transfer

information in an appropriate manner. Organizational communication is the sending and receiving of various organizational messages within formal and informal groups of an organization [14].

The second dimension with low achievement is the division of labor. The dimension of division of work is operationalized as an activity to provide details of tasks, jobs, directions, and instructions at the individual or agency level in the responsible natural disaster management team in order to carry out natural disaster management activities effectively. Based on the answers of research respondents, there are several problems that cause this dimension to achieve low effectiveness, including (1) availability clarity of functions for each agency that is part of the task force during natural disaster management activities is rare; (2) clear and measurable contributions and roles for each agency that is part of the team for natural disaster management activities rarely even tend to never be held; (3) the majority of respondents stated that there were no guidelines in the form of SOPs which were generally applicable to the implementing team and functioned as general guidelines for the implementation of activities; (4) the majority of respondents stated that there had never been a specific guideline as the main task and function of each team in the task force in natural disaster management activities; and (5) routine activities for division of tasks that are tailored to the capacity and internal development of each agency are rare.

The main problem that occurs is the lack of Standard Operating Procedures (SOPs) in natural disaster management activities. SOPs is an important guideline on organizational structure and can serve as a basic standard for conducting evaluations. [15] explains that with clear and measurable SOPs, an organization will get many benefits in its work division activities.

In the next section is a descriptive analysis of the level of effectiveness of the coordination function for natural disaster management activities at the agency level in the Ogan Ilir Regency Government. The following are the results of the answers of all respondents regarding the effectiveness of the coordination function:

Table 4. Coordination Function Effectiveness Level

Answer Options (Letter and Value)	Achievement Category			Research result		
	Score Range	Percentage of Achievement	Success Category	Empirical Score	Percentage of Achievement	Achievement Success
Choice of Answers (A) (5)	7201 - 9000	81 - 100	Very high	4333	48.14%	Moderate
Choice of Answers (B) (4)	5401 - 7200	61 - 80	High			
Choice of Answers (C) (3)	3601 - 5400	41 - 60	Moderate			
Answer Choice (D) (2)	1801 - 3600	21 - 40	Low			
Choice of Answers (E) (1)	0 - 1800	0 - 20	Very low			

Source: Primary Data Field Research September 2018

Based on the calculation of the overall answers of the research respondents, an empirical score of 4333 was obtained. This empirical score when converted into a percentage of achievement was 48.14% (*empirical score: highest score x 100 = the obtained percentage* (4333 : 9000 x 100 = 48,14%). The achievement result with a percentage of 48.14% is in the success category in the 41% - 60% range which is the medium category. This means that the conclusion obtained is that the level of effectiveness of the coordination function for natural disaster management activities at the agency level in the Ogan Ilir Regency Government as a whole is moderate (the effectiveness of the coordination function is moderate). If we return to the results of the achievement of each dimension in the coordination function where dimensions that get the level of effectiveness achievement in the medium (sufficient) category, two dimensions that get the level of effectiveness achievement in the low

(lacking) category, and there is no single dimension that achieves the effectiveness category 'high' or the category 'very high', then It is very logical that when the overall calculation is carried out to determine the effectiveness of the coordination function, the results obtained are the level of effectiveness of the coordination function is moderate. These findings certainly illustrate to us that the natural disaster management activities carried out even though it has involved various agencies within the local government of Ogan Ilir Regency did not produce high coordination effectiveness.

The next analysis is testing the research hypothesis. To determine whether the research hypothesis testing will use parametric statistical testing or non-parametric statistical testing, first the data normality will be calculated. by using the chi-square (X^2) as follows:

Table 5. Data Normality Calculation

No.	Interval Class	f_o	f_h	$(f_o - f_h)$	$(f_o - f_h)^2$	$\frac{(f_o - f_h)^2}{f_h}$
1	63 - 73	12	1.13	10.87	118.16	104.56
2	74 - 84	13	6.79	6.21	38.56	5.68
3	85 - 95	10	17.08	-7.08	50.13	2.93
4	96 - 106	7	17.08	-10.08	101.61	5.95
5	107 - 117	6	6.79	-0.79	0.62	0.09
6	118 - 128	2	1.13	0.87	0.76	0.67
	Σ	50	50	0	309.83	119.89

Source: Primary Data Field Research September 2018`

In the calculation above, the price is obtained $X^2_{obtained} = 119,89$. The results from $X^2_{obtained}$ these will then be compared with X^2_{table} with dk (degrees of freedom) $6 - 1 = 5$ and the error is set 5% with the price $X^2_{table} = 11,070$. Price $X^2_{obtained} = 119,89$ stated \geq price $X^2_{table} = 11,070$ so that the

data distribution is declared not normally distributed.

Hypothesis testing will be done through *Kruskal-Wallis test*. The Kruskal Walls test is a ranking-based nonparametric test whose objective is to determine whether there is a statistically significant difference between two or more groups (or independent variables on the dependent

variable) with a numerical data scale (interval / ratio) and an ordinal scale [12]. Furthermore, the calculation will be carried out based on the Kruskal-Walls Test which will be displayed as follows:

$$H = \frac{12}{N(N+1)} \sum_{j=1}^k \frac{R_j^2}{n_j} - 3(N+1)$$

$$H = \frac{12}{36(36+1)} \left[\frac{(233,5)^2}{9} + \frac{(95,5)^2}{9} + \frac{(86)^2}{9} + \frac{(251)^2}{9} \right] - 3(36+1)$$

$$H = 0,009(14893,26) - 111$$

$$H = 134,04 - 111 = 16,94$$

$$H = 23,04$$

From the results of the above calculations through testing *Kruskal-Walls test* obtained $H = 23,04$. This H_{obtained} calculated price will then be compared with the Chi Square table (Sugiyono, 2015: 256). The Chi Square value is $dk = k - 1 = 4 - 1 = 3$ at an error level of 5% (significance at 0.05), namely 7,81. From this result it is known that the value of $H_{\text{obtained}} > \text{Chi Square table}$ ($23,04 > 7,81$). Hypothesis testing principles through testing *Kruskal-Walls test* this is if Calculate $H_{\text{hitung}} < \text{Chi Square table}$ then H_0 accepted and if $H_{\text{obtained}} \geq \text{Chi Square table}$ H_0 rejected. Thus based on the results of the calculation in this study which reads " H_0 presumably there is no difference in the achievement of the level of effectiveness of each dimension of the coordination function in natural disaster management activities at the agency level within the Regional Government of Ogan Ilir regency " is rejected. This means that it can be concluded that there is a difference achievement of the level of effectiveness between the dimensions of the coordination function in natural disaster management activities at the agency level within the Ogan Ilir Regency Government.

4. CONCLUSION

There are several conclusions obtained based on the research results, namely:

1. Each dimension of the coordination function obtains different effectiveness achievements. The highest percentage achievement is in the discipline dimension, while the lowest percentage achievement is in the division of labor. In the measure of the effectiveness category, two results were obtained from the effectiveness category, namely the dimension of action unity and the dimension of discipline which were in the medium effectiveness category while the communication dimension and the division of labor dimensions were in the low effectiveness category.
2. Overall The level of achievement of the effectiveness of the coordination function in natural disaster management activities at the agency level in the Ogan Ilir Regency Government as a whole is moderate (the

effectiveness of the coordination function is moderate).

3. The research hypothesis (H_0) is declared rejected. Thus it is concluded that There are differences in the achievement of the level of effectiveness of each dimension of the coordination function in natural disaster management activities at the agency level within the Regional Government of Ogan Ilir Regency.

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