

## Understanding And Implementation of The Concept of Natural Disaster Mitigation Materials in Geography Learning at Man 2 Palu City

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### ABSTRACT

Natural disasters can occur in a way suddenly or through an ongoing process in a way slowly. Disaster Of course can give rise to impact loss from various aspects, then required understanding to the public from an early age through education in schools/madrasas about types of disasters and their mitigation To minimize the impact caused. Teachers have an important role to provide learning about disasters and mitigating natural disasters. Objective 1. How students understand about draft material mitigation disaster nature in the eyes lesson geography at MAN 2 Palu City, 2. How teachers implement it learning about material mitigation disaster nature in the eyes lesson geography at MAN 2 Palu City. Sample viz student class XI IPS with total 53, one eye teacher lesson geography as informant . Type of research This is a descriptive survey. Data collection techniques through questionnaires , interviews and documentation . Research results showing students' understanding on indicator 1. Types and Characteristics Natural Disaster, obtained percentage an average score of 76% with category good; 2. Understand Cycle Countermeasures Disaster, obtained an average score of 63% with category good ; 3. Analyze Distribution of Areas Prone to Natural Disasters in Indonesia, obtained an average score of 76% with category good ; 4. Identifying Institutions That Play a Role in Countermeasures Natural Disasters, with an average score of 63% is in the category good; 5. Explain Community Participation in Mitigation of Natural Disasters in Indonesia with an average score of 66% is in the good category. Percentage average value \_ overall 72.3%, with study results showing students' understanding about draft material mitigation disaster nature in the eyes lesson geography at MAN 2 Palu City is in the category good .

**Keywords:** *Disaster Mitigation, Geography Learning*

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### INTRODUCTION

Natural disasters are no stranger to humans. For the community, a disaster is an event or disaster that can cause loss of property, objects or lives caused by natural and non-natural factors. (Hartuti & Purworini, 2020) argue that a disaster is an event of damage and shock that can cause destruction to the social structure and population affected by a disaster, the community cannot overcome this and needs outside parties. The intensity of

natural disasters in Central Sulawesi Province is relatively high, including earthquakes, floods, tsunamis, flash floods, landslides, forest and land fires, drought, extreme waves and abrasion.

Central Sulawesi once experience disaster earthquake on September 28 2018 with \_ M7.4 strength centered 26 Km north Donggala and 80 Km northwest of Palu City with depth 10 km. Shock strong earthquake \_ produced a tsunami that hit the city of Palu is in Palu Bay , as well liquefaction ( change land So mud so that swallow building above ) esp area Petobo and Balaroa in Palu City ( PuSGen , 2018). Incident The earthquake , tsunami and liquefaction that occurred in Central Sulawesi in 2018 claimed more victims of 4000 inhabitants death and disappearance , incident This triggered by reactivation cesarean koro hammer . Apart from cesarean Hammer Koro Province This is also crossed by a fault Matano is very active . Condition complex tectonics \_ added with density resident amounting to 45 km<sup>2</sup> making province This be one \_ province with mark index risk highest in Indonesia in 2013. Based on Index Risk Indonesian Disaster (IRBI) 2020, Central Sulawesi Province has index risk 144.96 ( high ).

The community and children need to understand natural disaster mitigation from an early age through education at schools or madrasas. In Law of the Republic of Indonesia Number 24 of 2007, it is stated that mitigation is a series of efforts to reduce disaster risks, both through physical development and awareness and increasing the ability to face disaster threats. To minimize victims and losses due to natural disasters, education on disaster management needs to be carried out, this can be done through disaster education, with this education it is hoped that the community will have the knowledge, understanding, skills and attitudes of disaster preparedness and disaster emergency response.

It has been agreed that disaster education can be carried out through formal education. Formal education is a structured and tiered educational pathway which includes primary education, secondary education and higher education. In this regard, in the 2010-2014 National Disaster Management Plan, it is planned to implement disaster preparedness in schools/madrasahs. In line with this plan, the Head of the National Disaster Management Agency (BNPB) Regulation Number 4 of 2012 was issued regarding the implementation of disaster-safe schools/madrasahs. In this guideline it is said that a safe school is a learning community that is committed to a safe and healthy culture, is aware of risks, has a mature and well-established plan before, during and after a disaster and is always ready to respond in times of emergencies and disasters.

One of the activities of formal education is carrying out learning activities carried out by two actors, namely the teacher and students. The teacher's behavior is to create environmental conditions for learning and the student's behavior is to learn. These two behaviors will be related to the development of learning materials, which can be in the form of knowledge, understanding, attitudes and skills. The relationship between teachers, students and teaching materials is complex and dynamic. Thus, learning activities must be designed as well as possible in order to achieve learning objectives optimally.

Learning activities are a system of various components that are interconnected with each other, including: objectives, materials, methods and learning evaluation. Teachers

must pay attention to these learning components in implementing learning activities, both in making Learning Implementation Plans and in implementing the learning process. The integration of disaster education related to the concept of natural disaster mitigation material is stated in the 2016 High School/Madrasah Aliyah Geography Subject Syllabus in Basic Competency 3.7 with five coverage indicators for discussion. Implementation of the concept of natural disaster mitigation material in the school or madrasah environment starting from the implementation of learning is carried out directly by the teacher based on the Learning Implementation Plan (RPP) that has been prepared.

The implementation of learning has been regulated in Minister of Education and Culture Regulation Number 22 of 2016 concerning Process Standards for Primary and Secondary Education dividing the implementation of learning into three activities, namely preliminary activities, core activities and closing activities. Even though the learning planning has been made well, the implementation of learning in the field has not been optimal, due to several obstacles faced by teachers and students, such as the use of methods that are not appropriate to the characteristics of students, the use of inappropriate strategies, the development of materials and the use of media related to subject and student characteristics, as well as lack of supporting facilities.

By studying the concept of natural disaster mitigation material, it is hoped that students will gain an understanding of disasters from an early age and be responsive when there is a disaster that can occur anytime and anywhere. Apart from that, students are expected to gain understanding and be able to interpret the things contained in something theory nor the concepts studied in indicator syllabus so that objective learning in education can be achieved.

The initial interview that the researcher conducted with one of the geography teachers who taught in class books and assignments sometimes some students are not able to. According to the informant, social studies students are always encouraged to be able to understand the material, and students' understanding of disaster mitigation material after taking part in learning can be seen from the results of students' grades or learning outcomes related to various natural disaster mitigation material. Furthermore, after researchers investigated, MAN 2 Palu City had never conducted research related to understanding the concept of natural disaster mitigation material and implementing geography learning related to this material.

## **METHOD**

type of research is a descriptive survey. A descriptive survey is a type of research that explains and collects information from a questionnaire in which the variables have been arranged. This research requires researchers to go directly into the field, either face-to-face or online, to obtain data. The data is then processed and analyzed so that the results can be concluded. The types of data in this research are primary data and secondary data. Primary data is data taken directly from the object/subject being studied. The data required in this research was obtained through a questionnaire instrument distributed using the *Google Form application* online and filled in by class XI IPS students at MAN 2 Palu City who

had completed geography learning related to natural disaster mitigation material . Then the interview data was obtained from the teacher in the field of geography which was used as a source of information. Then secondary data was obtained from various sources that support researchers, including class XI IPS geography books/2013 curriculum teaching materials, learning tools (syllabus and lesson plans), teacher and student data (Sugiyono, 2017) .

## FINDING AND DISCUSSION

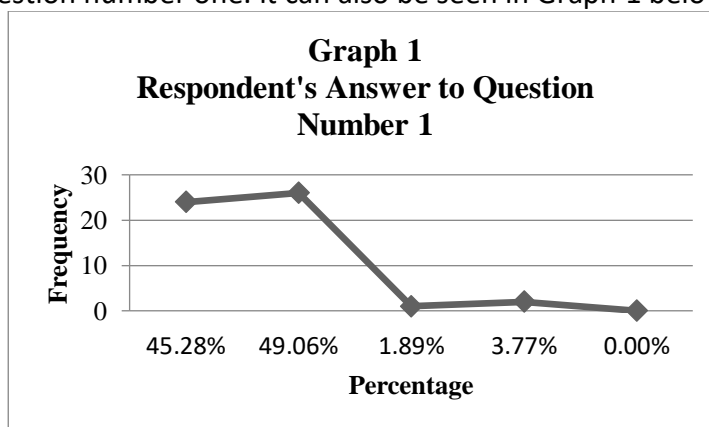
Disaster is incident or Suite threatening and disturbing events \_ life and livelihood society caused , both by factors \_ nature and/ or nonnatural nor factor man so that result the occurrence of fatalities human , damage environment , loss treasure objects , and impacts psychological .

**Table 1 Answers Respondents to Question Number 1**

No.	Respondent's Answer	Frequency	Percentage
1	Strongly agree	24	45.28 %
2	Agree	26	49.06 %
3	Doubtful	1	1.89 %
4	Don't agree	2	3.77 %
5	Strongly Disagree	0	0 %
<b>Amount</b>		<b>N= 53</b>	<b>100%</b>

Source of results from processed respondent data

From Table 1 it can be seen that 24 people said they **strongly agreed** (45.28%), then 26 people said **they agreed** (49.06%), 1 person (1.89%) said they **were unsure** . **2 people agreed** (3.77%), and 0 people (0%) **strongly disagreed** . Based on the data, the highest number of respondents, namely 26 people (49.06%) out of 53 respondents, answered in **the affirmative** . So it can be concluded that the data shows that many people agree with the statement on question number one. It can also be seen in Graph 1 below:



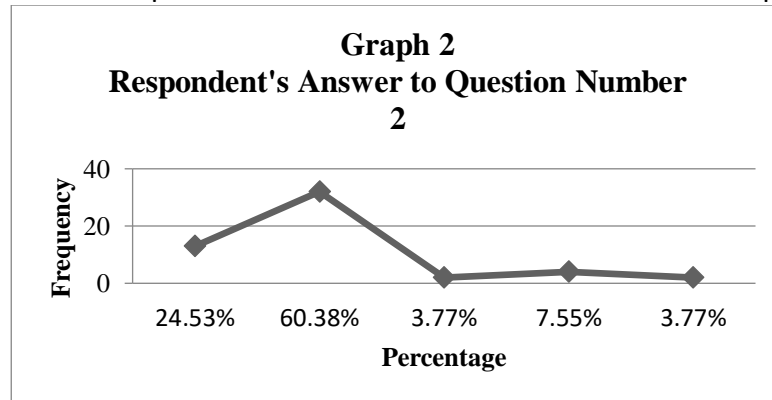
Disaster natural is incident or arrange it threatening and disturbing events \_ life and livelihood society caused by factors \_ natural , non-natural , or factor human .

**Table 2. Answers Respondents to Question Number 2**

No.	Respondent's Answer	Frequency	Percentage
1	Strongly agree	13	24.53 %
2	Agree	32	60.38 %
3	Doubtful	2	3.77 %
4	Don't agree	4	7.55 %
5	Strongly Disagree	2	3.77 %
<b>Amount</b>		<b>N= 53</b>	<b>100%</b>

Source of results from processed respondent data

From Table 2 it can be seen that 13 people said they **strongly agreed** (24.52%), then 32 people said **they agreed** (60.38%), 2 people said they were **unsure** (3.77%), who said **they were not . 4 people agreed** (7.55%), and 2 people (3.77%) **strongly disagreed** . Based on this data, the largest number of respondents, namely 32 people (60.38%) out of 53 respondents, answered **agree** . So it can be concluded that the data shows that many people agree with the statement on question number two. It can also be seen in Graph 2 below:



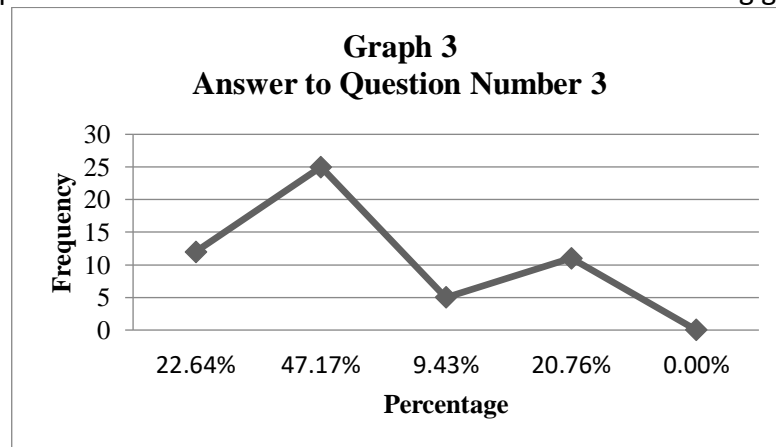
Non- natural disasters is resulting disaster \_ incident or Suite non- natural events include , among other things failure technology , failure modernization , epidemics and plagues disease .

**Table 3. Answers Respondents to Question Number 3**

No.	Respondent's Answer	Frequency	Percentage
1	Strongly agree	12	22.64 %
2	Agree	25	47.17 %
3	Doubtful	5	9.43 %
4	Don't agree	11	20.76 %
5	Strongly Disagree	0	0 %
<b>Amount</b>		<b>N= 53</b>	<b>100%</b>

Source of results from processed respondent data

From Table 3 it can be seen that 12 people (22.64%) said they **strongly agreed** , then 25 people said **they agreed** (47.17%), 5 people (9.43%) said they **were unsure** . **11 people agreed** (20.76), and 0 people (0%) **strongly disagreed** . Based on this data, the largest number of respondents, namely 25 people (47.17%) out of 53 respondents, answered in **the affirmative** . So it can be concluded that the data shows that many people agree with the statement on question number three. It can also be seen in the following graph:

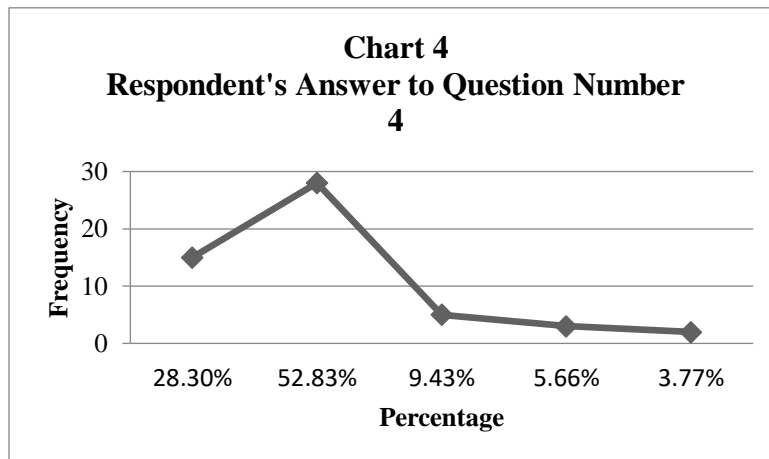


Disaster social is resulting disaster \_ incident or series events caused by humans include \_\_ conflict social between groups or intercommunity society and terror .

**Table 4. Answers Respondents to Question Number 4**

No.	Respondent's Answer	Frequency	Percentage
1	Strongly agree	15	28.30 %
2	Agree	28	52.83 %
3	Doubtful	5	9.43 %
4	Don't agree	3	5.66 %
5	Strongly Disagree	2	3.77 %
<b>Amount</b>		<b>N= 53</b>	<b>100%</b>

Source of results from processed respondent data



It was found that students' understanding regarding natural disaster mitigation material in geography subjects was in the good category, this was based on the overall average percentage score of students regarding the concept of natural disaster mitigation material in geography subjects at MAN 2 Palu City, namely a score of 72.3 % according to the interval score interpretation criteria between 60% - 79.99%. Even though students' understanding is in the good category, based on respondents' answers regarding negative statements, it was found that the majority of students did not understand the concept of material in the negative statements in statement questions number 8, 10, 15, 17, 19, 27 and 31. In answering statement number 8, namely out of 53 students, 29 students answered agree and strongly agreed with 5 students. This means that most students cannot understand the differences between the characteristics of flash flood disasters and the characteristics of volcanic eruptions.

Then statement number 10 was found by 23 students to answer strongly agree and 22 students agree, meaning that students were not yet able to differentiate the factors causing landslides between natural factors and human factors. For statement question number 15 found participant educate in answer statement question in answered strongly agree and agree that is a total of 21 students , which means part big student Not yet can understand in general and sequential stages of natural disaster management.

Likewise, in statement number 17, it was found that 28 students answered in the affirmative and 17 students strongly agreed, which means that the majority of students were not able to differentiate or understand the material about the disaster management cycle between emergency response and post-flood disaster. Then in statement question number 19, it was found that 25 students answered in the affirmative and 18 students strongly agreed, meaning that the majority of students were not able to understand the difference between rehabilitation and reconstruction in the disaster management cycle material. Furthermore, there was material regarding identifying institutions that play a role in managing natural disasters. In statement question number 27, there were still many students who answered in the affirmative, 30 students answered strongly and 13 students answered strongly in agreement, meaning that the majority of students were not able to understand the difference between the function and authority of the Meteorology,

Climatology, Geophysics Agency . with the duties of the National Disaster Management Agency.

Furthermore, in the material indicators explaining community participation in mitigating natural disasters in Indonesia, it was found in statement question number 31 that 33 students answered strongly agree and 12 students answered strongly disagree, meaning that the majority of students were not able to differentiate between community participation in disaster mitigation. with government policies in disaster management.

M. Fadillah (2014:16) argues that the 2013 curriculum strives For more embed values reflected in attitudes \_ can compare straight with acquired skills \_ participant educate through knowledge on the bench school . In other words between *soft skills* and *hard skills* can embedded in a way balanced , side by side , and capable applied in life daily with exists 2013 curriculum , he hopes participant educate can own competence attitudes , skills and knowledge that increase and develop in accordance with level education that has been taken so that will can influential and decisive success in life next .

Pahrudin Agus (2019:6) emphasized that learning in context the 2013 curriculum must held with systematic , procedural , and scientific . A must perspective built is that learning in context the 2013 curriculum must done in a way more OK , OK compared to with learning previously so that No will Again happen change curriculum only happens at the level concept and not happens at the level implementational . In other words that change curriculum from the 2006 curriculum became the 2013 curriculum should be No only happens at the level concept and administration but until its implementation in the learning process . Because it's actually a learning process is *real curriculum* ( curriculum real ).

Type of syllabus in The 2013 curriculum consists of over two parts that is syllabus developed at the level national and syllabus developed by the so -called teachers syllabus level unit education . Developed syllabus \_ level national consists from three part that is column Basic Competencies (KD), material learning , and activities learning .

Institutions formed to deal with natural disasters have closely related goals and functions, namely efforts to reduce the incidence of casualties, environmental damage, property losses and psychological impacts. These institutions have specific tasks according to their respective fields:

(1) National Board for Disaster Management.

Sinartejo Wisnu (2019) explains "The National Disaster Management Agency is a non-ministerial government institution that carries out government affairs in the field of disaster management. BNPB is under and directly responsible to the President."

BNPB's duties are as follows:

- (a) Providing guidance and direction for disaster management efforts which include disaster prevention, emergency response, rehabilitation and reconstruction in a fair and equitable manner;
- (b) Determine standardization and requirements for implementing disaster management based on statutory regulations;
- (c) Conveying information on disaster management activities to the community;
- (d) Reporting the implementation of disaster management to the president once a month

- under normal conditions and at any time during emergency response conditions;
- (e) Use and account for national and international donations/aid;
- (f) Accountable for the use of budget received from the APBN;
- (g) Carry out other obligations in accordance with statutory regulations; And
- (h) Develop guidelines for the formation of a Regional Disaster Management Agency.

BNPB's functions are as follows:

- (a) Formulating and establishing disaster management policies and handling refugees by acting quickly and precisely, actively and efficiently;
- (b) Coordinating the implementation of disaster management activities in a planned, integrated and comprehensive manner.

(2) Regional Disaster Management Agency.

The Regional Disaster Management Agency is a regional government agency that carries out disaster management in the region. This agency was formed by the regional government in coordination with the National Disaster Management Agency.

The Regional Disaster Management Agency has the following tasks:

- (a) Establish guidelines and direction in accordance with local government policies and the National Disaster Management Agency for disaster management efforts including disaster prevention, emergency management, rehabilitation and reconstruction in a fair and equitable manner.
- (b) Determine standards and requirements for implementing disaster management based on statutory regulations.
- (c) Compile, determine and inform disaster risk maps.
- (d) Develop and establish permanent procedures for handling disasters.
- (e) Carrying out disaster management activities in the region.
- (f) Report the implementation of disaster management to the regional head every month under normal conditions and at any time during emergency disaster conditions.
- (g) Accountable for the use of budget received from the regional income and expenditure budget.
- (h) Carry out other obligations in accordance with statutory regulations.

(3) Center for Volcanology and Geological Disaster Mitigation (PVMBG)

The Center for Volcanology and Geological Disaster Mitigation is a unit within the Geological Agency of the Ministry of Energy and Mineral Resources which was formed based on the Decree of the Minister of Energy and Mineral Resources concerning the Organization and Work Procedures of the Department of Energy and Mineral Resources. This institution aims to manage information on volcanic potential and manage geological natural disaster mitigation, while its mission is to minimize casualties and property losses from geological disasters. The task of the Center for Volcanology and Geological Disaster Mitigation is to carry out research, investigations, engineering and services in the field of volcanology and geological disaster mitigation. Meanwhile, its function can be described as follows:

- (1) Preparation of technical policies, norms, standards, procedures and criteria, as well as plans and programs in the field of volcanology and geological disaster mitigation;
- (2) carrying out research, investigations, engineering, thematic mapping and geological disaster risk analysis, as well as early warning of volcanic activity and potential ground movement and providing technical recommendations for geological disaster mitigation;
- (3) development of the functional position of volcano observer;
- (4) monitoring, evaluating and reporting on the implementation of research, investigation, engineering, thematic mapping and geological disaster risk analysis, as well as early warning of volcanic activity and potential ground movement and providing technical recommendations for geological disaster mitigation; And
- (5) implementation of administration of the Center for Volcanology and Geological Disaster Mitigation.

(4) National SAR Agency (BASARNAS)

The National SAR Agency (BASARNAS) is a non-departmental government agency that is under and directly responsible to the President. The National SAR Agency has the task of assisting the President in carrying out government affairs in the field of search and rescue . In carrying out these duties, the National SAR Agency carries out the following functions:

- (1) Formulation of national and general policies in the field of SAR;
- (2) formulation of technical policies in the field of SAR;
- (3) coordination of policies, plans and programs in the field of SAR;
- (4) coaching, mobilizing and controlling SAR potential;
- (5) implementation of SAR alert;
- (6) implementation of initial actions and SAR operations;
- (7) coordinating SAR potential in the implementation of SAR operations;
- (8) education, training and development of human resources in the field of SAR;
- (9) research and development in the field of SAR;
- (10) data and information and communication management in the field of SAR;
- (11) implementation of relations and cooperation in the field of SAR;
- (12) management of state property/wealth which is the responsibility of the National SAR Agency;
- (13) providing guidance and general administration services;
- (14) supervision over the implementation of tasks within the National SAR Agency;
- (15) submission of reports, suggestions and considerations in the field of SAR.

(5) Meteorology, Climatology and Geophysics Agency (BMKG)

The Meteorology, Climatology and Geophysics Agency (BMKG), previously known as the Meteorology and Geophysics Agency (BMG), is a Non-Ministerial Government Institution (LPNK) in Indonesia which has the task of carrying out government duties in the fields of meteorology (weather), climatology (climate), air quality and geophysics in accordance with with applicable legislation. The functions and authorities of BMKG can be described as follows:

- (1) Formulation of national policies and general policies in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (2) Formulation of technical policies in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (3) Coordination of policies, plans and programs in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (4) Implementation, guidance, control, observation and processing of information data in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (5) Data and information services in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (6) Submitting information to agencies and related parties as well as the public regarding climate change;
- (7) Delivery of information and early warnings to related parties and the public regarding disasters due to meteorological (weather), climatological (climate), air quality and geophysical factors;
- (8) Implementation of international cooperation in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (9) Carrying out research, assessment and development in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (10) Implementation, development and control of instrumentation, calibration and communication networks in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (11) Coordination and cooperation of instrumentation, calibration and communication networks in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (12) Implementation of education and training for government expertise and management in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (13) Implementation of professional education in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (14) Implementation of data management in the fields of meteorology (weather), climatology (climate), air quality and geophysics;
- (15) Guidance and coordination of the implementation of tasks and administration within the BMKG environment;
- (16) Processing state property/wealth which is the responsibility of BMKG;
- (17) Supervision of duties implementation within BMKG;
- (18) Submission of reports, suggestions and considerations in the fields of meteorology (weather), climatology (climate), air quality and geophysics.

Indonesian geography expert produces something formulations , especially those produced at workshop seminars Enhancement Quality Teaching Geography in Semarang 1988 , “ Geography as science that studies similarities and differences phenomenon geosphere with corner look territoriality or environment in context room .” ( Sinartejo

Wisnu, 2019: 4). Furthermore ( Sugiyanto , 2017:4) argues that study geography center attention to phenomena geosphere in connection relationship , distribution , interaction room , or territoriality .

## CONCLUSION

The percentage result of the average score on the Understanding Types and Characteristics of Natural Disasters indicator is 76% in the good category. Understanding the Disaster Management Cycle, 63% is in the good category. Analyzing the distribution of areas prone to natural disasters in Indonesia, 76% are in the good category. Identifying Institutions That Play a Role in Natural Disaster Management, 63% are in the good category. So that Students' understanding of the concept of natural disaster mitigation material in geography subjects at MAN 2 Palu City, obtained an overall average percentage score of 72.3% in the good category. Students generally have an adequate understanding of disasters. However, there are still students who cannot understand the differences between the characteristics of flash flood disasters and the characteristics of volcanic eruptions, cannot differentiate the factors causing landslides between natural factors and human factors, and cannot understand in general and sequentially the stages of natural disaster management. Then Still there is Students are not yet able to differentiate or understand material about the disaster management cycle between emergency response and post-flood disaster. Students cannot understand the difference between rehabilitation and reconstruction in the disaster management cycle material. Students are not yet able to understand the difference between the functions and authority of the Meteorology Climatology Geophysics Agency and the duties of the National Disaster Management Agency. Students are not yet able to differentiate between community participation in disaster mitigation and government policy in disaster management.

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