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The Indonesian Navy Hydrography and Oseanography Center Capacity in Disaster Management for Supporting National Security

Yuli Rahmadani[1], Sutanto[2], Fauzi Bahar[3], Wilopo[4*]
Indonesia Defense University
Corresponding Author: Wilopo wilopo02@gmail.com

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A B S T R A C T

Act No. 34 of 2004 concerning the Indonesian National Army (TNI) stated that one of others military main tasks beside war is support natural disaster management, refugees, and provide assistancy, assisting in search and rescue in accidents (search and rescue). Thus, Pushidrosal has also functions in disaster management, both in natural disasters and non-natural. disasters, as well as in search assistancy and assistancy in accidents (search and rescue). The research aimed to analyze the role of Pushidrosal in supporting disaster management in Indonesia. The research used qualitative descriptive methods. The results showed that Pushidrosal has conducted real and active researches in disaster management research through investigative survey for sea transport safety, as well as investigative survey for natural disasters such as earthquake and tsunamy. Pushidrosal has also conducted investigative survey to find out the caused of tsunamy such those has been done in Palu and Banten

INTRODUCTION

Law No. 34 of 2004 concerning the TNI states that one of the main tasks of military operations other than war carried out by the TNI is to help overcome the consequences of natural disasters, displacement, and provide humanitarian assistance and assist with search and rescue in accidents (search and rescue), so based on the law According to the law, Pushidrosal must have the capacity to carry out disaster management, of course in accordance with Pushidrosal's portfolio, therefore researchers are interested in examining Pushidrosal's capacity to support disaster management in Indonesia.

The Indonesian Navy's Hydrographic and Oceanographic Center (Pushidrosal) has the task of carrying out hydro-oceanographic guidance in order to support TNI and civilian interests, and preparing data and information on defense areas at sea in order tosupports the main tasks of the Indonesian Navy.

LITERATURE REVIEW

Figure 1. Pushidrosal is Holding a Discussion About Mapping

This task makes Pushidrosal the bearer of the military hydrographic function and at the same time the bearer of the civil hydrographic function in Indonesia who is responsible for providing hydrological data and information in Indonesia's territorial waters and jurisdiction that is accurate, up-to-date and guaranteed availability to support the utilization of national marine space in order to make Indonesia a world maritime axis.

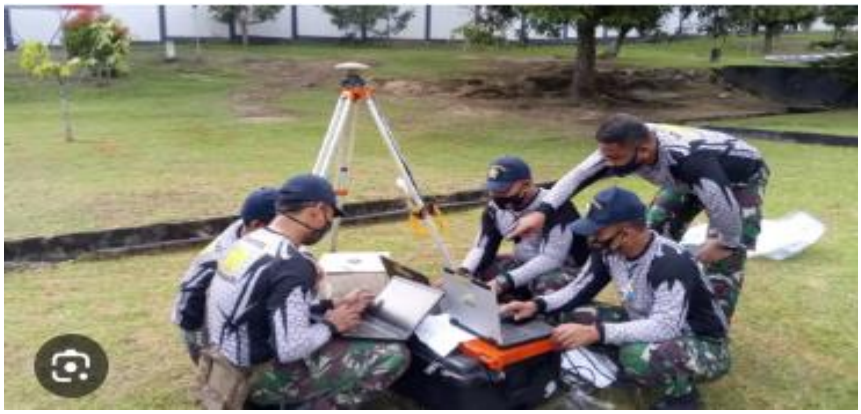

Figure 2. Pushidrosal is Holding an Opsurta Event in Balikpapan Sea

METHODOLOGY

The methodology used in this research is a qualitative research method with a descriptive approach design. . The qualitative research method is a type of method for describing, the meaning that a number of individuals or groups of people ascribe to social or humanitarian issues (Creswell 2013:4-5). This qualitative research approach was used to analyze the capacity of the Indonesian Navy's Hydrographic and Oceanographic Center in supporting disaster management in Indonesia.

RESULT AND DISCUSSION

Law Number 24 of 2007 concerning Disaster Management states that potential causes of disasters in the territory of the Unitary State of the Republic of Indonesia can be grouped into 3 (three) types of disasters, namely natural disasters, non-natural disasters and social disasters. Natural disasters are disasters caused by events or a series of events caused by nature, including natural earthquakes, tsunamis, volcanic eruptions, floods, droughts, hurricanes, landslides, forest or land fires due to natural factors, plant pests, and space events / celestial objects. Non-natural disasters are disasters caused by non-natural events or series of events, including forest or land fires caused by humans, transportation accidents, construction or technology failures, industrial impacts, nuclear explosions, environmental pollution, space activities, failure of modernization, epidemics. , and disease outbreaks. Social disasters are disasters caused by events or a series of events caused by humans which include social unrest, social conflict between groups or between communities, and terror.

Disasters handled by Pushidrosal are natural disasters, tectonic earthquakes, whether or not followed by tsunamis, and non-natural disasters in the form of technological failures, transportation accidents, as well as tidal floods and land subsidence, especially in the Special Capital Region of Jakarta.

Capacity is the ability or strength that can be exercised to achieve a goal. The capacity implemented at Pushidrosal is an activity that has been carried out in carrying out its role as the Indonesian Navy Development City in the field of hydro-oceanography to support disaster management in Indonesia.

Pushidrosal, in supporting disaster management in Indonesia, has a program called an investigative survey which was originally called an emergency survey. The investigative survey carried out was grouped into three things. The first is an emergency in the context of navigation safety, for example sinking ship accidents, ship collisions and others, including airplanes that crash at sea. This investigative survey must be carried out immediately if an incident occurs because it concerns the safety of human lives who must quickly get help. The second is an emergency due to natural disasters such as earthquakes and tsunamis. The third is an emergency survey to support military operations other than war, including training carried out by both the Indonesian Navy and the Indonesian National Armed Forces. When carrying out an exercise in a location, a survey and mapping is carried out before the exercise is carried out.

Pushidrosal's capacity during an earthquake and tsunami consists of three disaster management phases, namely carried out before the disaster, during the disaster and after the disaster. In the pre-disaster phase, Pushidrosal carried out disaster preparedness activities that had been programmed to carry out disaster management. In its work program, every year Pushidrosal allocates a budget to carry out hydro-oceanographic surveys as an effort to anticipate disasters, namely by conducting surveys to find locations for beaching in disaster-prone areas. This is done as an alternative if the ports or piers no longer function or are destroyed due to the earthquake and tsunami. The beaching area is used as an alternative place for distributing logistics, evacuating personnel, emergency first aid or medical evacuation if land road access is cut off or impassable.

During the disaster phase, Pushidrosal carried out emergency response activities to support disaster management by carrying out:

- Issue Notices to Mariners (NtMs) to inform marine users to be careful when navigating in disaster-affected areas. NtMs also conveyed news of requests for assistance to ships if they were sailing through the waters surrounding the disaster and found victims while crossing these waters to provide aid and assistance.
- Damage Assessment such as:

1. Ports or docks that are affected by the earthquake and tsunami disaster have the potential to damage and endanger ships that will dock at the port. The authorized institution must carry out detailed checks and guarantee the security and safety of shipping. Pier capacity is vital in distributing logistics and medical services, especially in areas that are isolated or where land transportation routes are cut off.
2. As an alternative, Pushidrosal can double-check the beaching area that has been prepared previously to ensure the safety of the ship when beaching on the beach.
3. Check the readiness of the channel to the pier or beaching area for shipping safety and install emergency navigation navigation signs as a guide for ships that will pass through these waters to the beaching area or pier.
4. Taking into account the limitations of the dock and beaching area, an anchorage area has also been prepared for large tonnage ships as hospital ships or used as a waiting area for ships before entering the port.

In the post-disaster phase, Pushidrosal carried out disaster mitigation activities to support disaster management, namely:

1. Carrying out field verification or resurvey of navigation map data (Indonesian Sea Map) regarding the position and changes that occurred as a result of the earthquake and tsunami disaster
2. Carrying out research on the BM (Bench Mark) around the disaster location to determine changes or shifts in the impact of the earthquake disaster.
3. Carry out a bathymetric survey in offshore waters or the epicenter of the earthquake to determine the causes of the earthquake and tsunami as well as the changes that occurred as a result of the earthquake.
4. Carrying out updates to nautical maps covering areas affected by the earthquake and tsunami disaster. Apart from that, bathymetric data was also checked after the earthquake which could result in changes in depth contours.

Earthquake and Tsunami in Palu and Banten before the earthquake and tsunami occurred in Palu and the tsunami in Banten, Pushidrosal had carried out seminars to anticipate earthquakes and tsunamis in Palu and the Sunda Strait, this was carried out in connection with the construction of a TNI AL base in Ratai Bay, Lampung and a ship base diving in Palu, Central Sulawesi. The seminar is to reduce the risk of disasters and potential losses due to future disasters, especially tsunamis which have the potential to impact the infrastructure being developed by the Indonesian Navy. The seminar provided several inputs for the Indonesian Navy, including the need for dissemination of earthquake maps in the area to be built, building construction must be made earthquake resistant, adjustments to the shape of the pier, as well as standard SOPs or Emergency Response Plans if at any time a tsunami occurs.

When the earthquake and tsunami occurred in Palu, Pushidrosal sent an Immediate Response Unit Team with the task of checking the damage around the docks at the port to see whether they could still be used or not, taking bathymetric data around the port and channels to secure the shipping lanes of Palu port. This aims to provide shipping security guarantees for ships entering the Palu area, both for regular shipping and shipping carrying humanitarian aid. Other tasks include looking for a beaching area if the ship cannot berth at the port, looking for a berthing area at the port and for anchoring the hospital ship.

Pushidrosal also sent KRI Spica - 934 to carry out a bathymetric survey to determine the cause of the tsunami. The cause of the tsunami in Palu is a question for the general public and institutions competent in the field of disasters because the tsunami occurred after the BMKG lifted the tsunami warning, so there must be another cause that caused the tsunami.

The tsunami that occurred in Palu was very interesting because from the results of the earthquake source mechanism, Palu had a strike-slip type of fault which should not have generated a tsunami. The criteria for a tectonic earthquake that can cause a tsunami are that the earthquake has an epicenter in the middle of the sea with a shallow depth (0-30 km), a magnitude of at least 6.5 magnitude, and a source mechanism with an up or down anchor fault pattern for ships with large tonnage. who could not enter the port or the queuing area for After KRI Spica – 934 carried out a bathymetric survey, based on the data obtained, it could be seen that the cause of the tsunami in Palu was caused by an underwater landslide caused by an earthquake. With the bathymetric survey carried out by Pushidrosal, the cause of the tsunami in Palu was answered.

The Banten tsunami, which occurred suddenly without an earthquake, caused the community and institutions competent in the field of disaster to be confused about the causes of the tsunami. This incident caused many casualties because there was no early tsunami warning due to the unusual cause of the tsunami. A tsunami that usually occurs is preceded by a tectonic earthquake on the seabed, causing water waves that cause a tsunami. BMKG as an institution whose function is to convey information and early warnings to relevant agencies and parties as well as the public regarding disasters because meteorological, climatological and geophysical factors have not been able to determine with certainty the cause of the tsunami in Banten.

Pushidrosal, to support disaster management, sent KRI Rigel – 933 to carry out an investigative survey with the task of finding the cause of the tsunami in Banten which was not preceded by an earthquake. After carrying out a bathymetric survey, KRI Rigel – 933 obtained data that provided answers to the causes of the tsunami in Banten. Based on this data, the cause of the tsunami in Banten was caused by landslides around Mount Anak Krakatau, as a result of the volcanic activity1.

According to scientists, the tsunami that came without being preceded by an earthquake has now concluded that the tsunami was categorized as a volcanic tsunami or in other words, a tsunami triggered by the eruption activity of Mount Anak Krakatau in the Sunda Strait. Scientifically, this cause is logical, because volcanic eruptions can cause the body of the mountain to slide into the water, causing instability in the sea column. The instability of the sea column generates long waves that spread in all directions, including to the nearest coastal areas, namely the west coast of Banten and south Lampung. The long waves generated by geological activity are what create tsunamis.

CONCLUSIONS AND RECOMMENDATIONS

From the analysis and discussion of the data obtained, it was concluded that Pushidrosal has the capacity and is active in supporting disaster management in Indonesia, especially disasters that occur at sea, both natural and non-natural disasters such as earthquakes and tsunamis, transportation accidents and technological failures.

Pushidrosal's capacity can be seen from the activities carried out in disaster management, both carried out independently by Pushidrosal and in collaboration with other institutions. Thus, it is hoped that Pushidrosal will remain active in supporting disaster management in Indonesia in order to maintain national security and national defense.

FURTER STUDY

Further research will be directed at a more in-depth study of the role of Pushidrosal in assisting national security. First, is the effectiveness of Pushidosal in supporting its main tasks and functions in assisting the military operations of the Indonesian Navy. Second, is the effectiveness of Pushidrosal in supporting its main tasks and functions in assisting the military operations of the Indonesian Navy other than war. In addition, it is necessary to conduct comparative research between the main tasks and functions of Pushidrosal for military operations of war and military operations other than war.

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