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Strengthening Communities of Earthquake Victims through a Sanitation Program (Installation/Clean Water Supply and Portable MCK in Kampung Tugu Rw 3 Cibeureum Village, Cugenang, Cianjur)

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A B S T R A C T
Community Service Incentive Program Community Service Integrated with Freedom to Learn Campus Freedom Based on Key Performance Indicators for 2022 entitled Strengthening Communities for Earthquake Disaster Victims through the Sanitation Program (Procurement of Clean Water and Portable MCK in Kampung Tugu Rw 3 Cibeureum Village, Cugenang, Cianjur) that held from 12th-17th December 2022. This activity aims to ensure the availability of clean water and MCK in tents of residents'. The method used is a descriptive analysis with doing observations, installing water pipes, water pumping machines and MCK, digging, casting the foundation of the water tower scaffolding, assembling and welding the water tower scaffolding then make installation. The results show that clean water and MCK are available and can be used.

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INTRODUCTION

An earthquake with a magnitude of 5.6 on the Richter scale rocked Cianjur Regency, West Java province, Monday 21 November 2022 at 13.21 WIT. After the M5.6 earthquake that shook the area damaged a number of houses and buildings as well as other important facilities in Cianjur district and its surroundings. Damage to public facilities whose level of damage is still identified includes government buildings, educational facilities, places of worship. Residents in Cianjur felt quite strong shaking for 10-15 seconds. Apart from the Cianjur area, the Bogor Regency BPBD reported that earthquake shocks in this area were felt for 5 -7 seconds. The earthquake with magnitude (M)5.6 was centered on land 10 km southwest of Cianjur Regency, West Java Province.

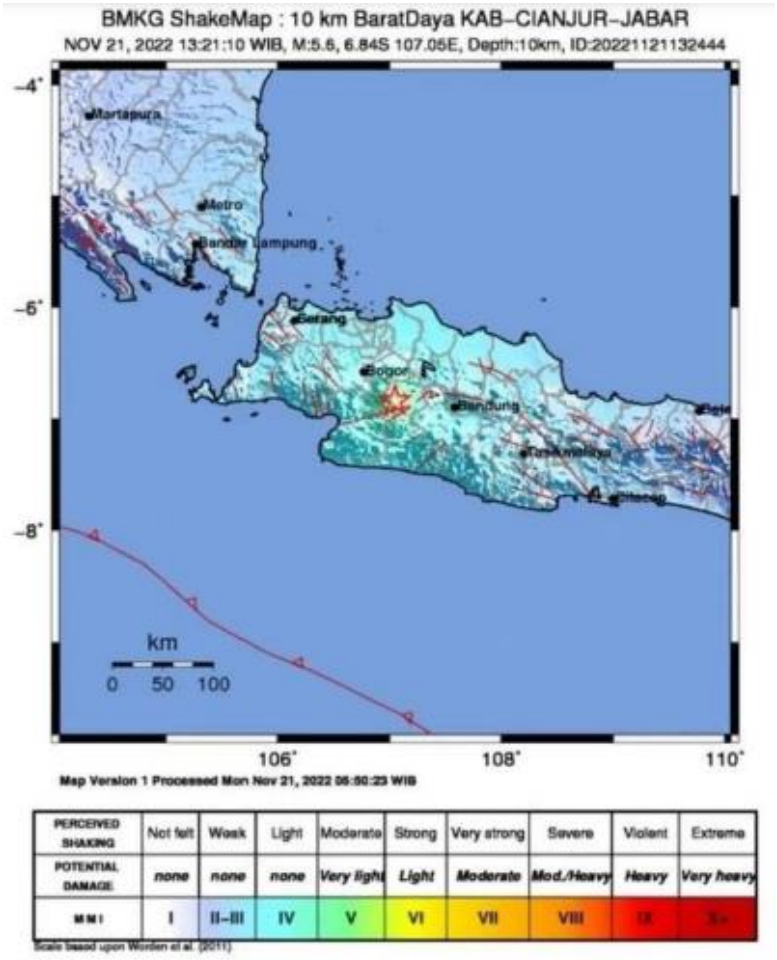

Figure 1. Location and Strength of the Cianjur Earthquake

Earthquakes are vibrations or shocks that occur on the surface of the earth due to the sudden release of energy from beneath the surface which creates seismic waves. Earthquakes are usually caused by the movement of the earth's crust or the earth's plates. In addition, earthquakes can also be caused by volcanic eruptions. An earthquake can also be interpreted as an event where the earth vibrates due to a sudden release of energy in the earth which is marked

by the breaking of rock layers in the earth's crust. The frequency of earthquakes in a region refers to the type and size of earthquakes experienced over a period of time. On November 21, 2022 at noon (13:21:10 WIB) there was a Mw 5.6 earthquake in the Cianjur area, West Java. Based on BMKG data, as of November 22 2022 there have been 140 aftershocks recorded with magnitudes 1.2-4.2 and an average depth of around 10 km, of which 5 of these earthquakes were felt by the surrounding community. The Mw 5.6 mainshock had an impact and was felt in the city of Cianjur with the V-VI MMI (Modified Mercalli Insensity) intensity scale.

Garut and Sukabumi IV-V MMI; Cimahi, Lembang, Bandung City, Cikalong Wetan, Rangkasbitung, Bogor and Bayah with an intensity scale of III MMI; South Tangerang, Jakarta and Depok with an intensity scale of II-III MMI. According to temporary information from BNPB until November 22 2022 at 17.00 WIB that this earthquake caused 268 fatalities and more than 2,000 houses were damaged. Natural disasters are extraordinary events and occur in various parts of the world. The impact caused by natural disasters is extraordinary for those who experience it. In fact, certain natural disasters can cause a large number of fatalities, both injured and dead. Indonesia is a country prone to natural disasters. Various natural disasters have occurred in various regions in Indonesia from year to year and the victims are not small [1; 2]. Natural disasters in Indonesia include tsunamis, volcanic eruptions, earthquakes, floods, landslides, forest fires, coastal erosion and erosion. Natural disasters do not only cause physical casualties, but also cause deep physical disturbances and trauma. The loss of property and the lives of their loved ones caused some victims to experience stress and mental disorders. Mitigation and Preparedness is a very vital stage in disaster management [3; 4].

Law No. 24 of 2007 concerning Disaster Management mandates to carry out disaster management efforts in an appropriate, fast, based on priority, coordination, integration, efficiency, effectiveness, transparency, accountability, partnership and empowerment. One example is currently happening in the Cianjur area. Based on the Phase 1 Report on the results of a field inspection of the earthquake incident in Cianjur Regency, West Java Province which was carried out by the PVMBG Emergency Response Team - the Geology Agency, namely that the Cianjur earthquake occurred on November 21, 2022 at 13:21:10 WIB. The epicenter of the earthquake was at coordinates 6.84 LS – 107.05 and a depth of 11 km with a magnitude of 5.6 [5]. As of November 28, 2022, at 07:00 WIB, the BMKG had recorded 297 aftershocks with the largest magnitude of M4.2 and the smallest M1.0. The Geological Agency has mapped the locations and levels of damage to buildings and locations of ground movements which have been collected both through surveys and information sourced from the mass media and residents, with a summary as follows: a) The most severe damage occurred in areas composed of breccia deposits and G lava. Gede (Qvyg). Morphologically, the areas that were damaged were generally areas with undulating hill morphology. In Cugenang District, the intensity reached VIIVIII MMI (Modified Mercalli Intensity) marked by massive damage to buildings, especially in Gasol and Sarampad Villages, Cugenang.

Apart from Cugenang Subdistrict, quite severe damage with an intensity of up to VII MMI also occurred in Cianjur, Warungkondang and Gekbrong Subdistricts. In Kadudampit Village, Rancagoong Village, Cilaku District, a unique phenomenon occurred, many 2-3 storey buildings suffered heavy damage and even one minimarket building completely collapsed; b) In addition to building damage, earthquake shaking also triggers ground movements. The largest ground movement triggered by this earthquake was located in Cijedil Village, killing more than 30 people. This ground motion is in an area composed by Old Volcano Products (Qvot) which have experienced weathering. In Sarampad Village, in Kampung Cisarua to be precise, the earthquake shaking also resulted in ground movements with the dimensions of length, width, height and area, respectively 70 m, 70 m, 2 m and 3,400 m2; c) Regional VS30 maps for the Cianjur and Sukabumi areas have been prepared by the Geological Agency. This map shows the rock hardness on the surface, the smaller the value of Vs, the softer the rock, and vice versa. Damage to buildings and ground movements are located in areas composed of rock class C (hard soil) and D (medium soil). The most severely affected areas are generally located in class C areas; and d) Taking into account all sources of earthquakes, both active faults on land, subduction and background earthquakes as well as local geological conditions (Vs30 and basin depth/sediment thickness above bedrock), the Geological Agency has prepared a Regional Earthquake Hazard Area Map Cianjur and Sukabumi. The map is made using a probabilistic approach for a return period of 500 years. On the map it appears that all the damage to buildings and ground movements are located in areas that are highly prone to earthquake shocks. The results of the analysis carried out by the geological analysis of the earthquake are as follows [5]:

a) Because the magnitude is not too large, this earthquake does not cause a continuous fracture to the surface (surface rupture). However, the moving part of the fault (rupture area) can be estimated from the area where the epicenter of the main earthquake and aftershocks congregate. This area extends in a southwest-northeast direction, from Warungkondang to Karang Tengah, approximately 12 km long and 8 km wide;
b) By comparing the rupture area with the damage location, it appears that the most severe damage location is in the rupture area. While the area outside the rupture area experiences shocks with less intensity. It must be remembered that the source of an earthquake is a plane and the epicenter is the place where a fault causes an earthquake to start. Even though the epicenter is the starting point of the movement of a fault, the greatest movement or deformation does not always occur at the epicenter so that the most severe damage does not always occur at the epicenter;
c) Based on data on the distribution of the epicenter, focal mechanism, morphology, distribution of damage, and the results of InSAR (EOS product) it is estimated that the fault line of the earthquake source is oriented west southwest (WSW) - east northeast (ENE), with a sliding fault mechanism that is lateral and has a slope fault plane (dip) to the south. With a situation like this, of course, it is necessary to take steps to help and

even prevent as well as understanding which is very urgent to do considering that a disaster can come at any time. Based on the background above, the Universitas Kristen Indonesia participates in easing the burden on the brothers and sisters of the earthquake victims in Cianjur through Community Service Incentive Programs Integrated Community Service with Merdeka Learn Campus Merdeka Based on Key Performance Indicators in 2022 with the Kampung Bangkit Activity scheme (KKB) with the title: Strengthening Communities for Earthquake Disaster Victims Through Sanitation Programs (Installation/Provision of Clean Water and Portable MCK in Kampung Tugu Rw 3 Cibeureum Village, Cugenang, Cianjur.

IMPLEMENTATION AND METHODS

The goal and objective of this activity is to fulfill access to clean water and MCK for every earthquake victim in Cibeureum Village, Cugenang, Cianjur who lives in a tent for evacuation post 1 (green house post), Command Post 4, Emergency Musholah and Emergency School Tent so that there is availability clean water and MCK facilities in the area. The implementation method used in this activity is as follows:

1. Conducting observations (field observations) Observations were carried out in order to find clean water sources with a large flow of water and close to evacuation posts, emergency prayer rooms and emergency schools. In this stage a water source point was obtained at the location in front of the residents' houses which previously existed but had not been active since the earthquake.
2. Installing Water Pipes Installation/installation of water pipes is carried out by first dismantling the existing existing water pipes and replacing the pipes and repairing the pipe connections at the previous pipe connection to prevent/anticipate leaks in the pipes that have been installed so that water can be withdrawn using water pump can work properly.
3. Installation of Water Pump Machine (jetpump) Withdrawal of water is carried out using a jetpump engine (water pump machine) after the team has finished replacing and repairing the existing water pipes.
4. Excavation and Casting of the Water Tower Scaffolding Foundation Excavation and casting of the water tower scaffolding foundation is carried out at the location closest to the residents. The foundation used for the water tower scaffolding is the local foundation.
5. Assembling and Welding the Scaffolding of the Water Tower Scaffolding. Assembling and welding the scaffolding of the water tower poles is carried out in the nearest tent to the residents' evacuation using angle iron
6. Installation of Water Tower Tower Scaffolding Installation of water tower mounting tower scaffolding is carried out after the foundation is dry and can be joined by cuttings of water tower scaffolding poles with a foundation that has previously been given iron cuttings.
7. Installation of clean water pipelines. Clean water pipelines are installed from the point where the water is drilled to the tower which is equipped

with scaffolding (water tower holder). Then from the water tower, it will be channeled to schools and shelter tents which are equipped with a water faucet stop so that the Residents can collect and obtain water easily.

8. Installation of biofilter MCK equipped with microtech A total of 2 biofilter MCK equipped with septic tanks were installed near the emergency school tents which were also equipped with clean water installations in each MCK so that they could be used safely and comfortably.
9. Installation of Hebel in the MCK Area Hebel was installed at the location where the MCK was made. Hebel was installed as a result of the place where the MCK was installed had very slippery and loose soil when it rained which resulted in later access being difficult to the MCK location. safe and comfortable.

RESULTS AND DISCUSSIONS

The results of this activity include:

1. Availability of clean water that can be easily accessed by residents of Cibeureum Village, Cugenang, Cianjur.

Figure 2. Clean Water is Ready for Access in Cibeureum Village, Cugenang, Cianjur

2. Biofilter MCK with Microtech is available which can be used safely and comfortably by students in the emergency school tent (SD N Cibeureum) as shown in Figure 3 below:

Picture 3. Process and Results of Installing MCK Near Emergency School Tents

3. The results of this activity were covered by online media, namely Suara Media Nasional and shared in video form via Youtube. This activity has several benefits including:

I. For Earthquake Victims:

1. Residents of the earthquake victims in Cibeureum Village specifically who live in tents at evacuation posts can access clean water easily, safely and comfortably.
2. Residents who will carry out prayer services in an emergency prayer room can access clean water for ablution
3. Students and teachers who carry out the teaching and learning process in the emergency school tent at SD N Cibeureum can safely and comfortably use portable MCK equipped with a microtech biofilter

II. For the Lecturer Implementation Team:

1. Obtaining the opportunity to dedicate knowledge in the form of community service as part of the tri dharma of higher education
2. Gained direct experience of living and assisting the earthquake victims in Cibeureum Village

III. For Students:

1. Gaining opportunities and direct experience in the community in applying the knowledge that has been acquired on campus as the implementation of the MBKM curriculum
2. Gaining opportunities and direct experience in the community in applying the knowledge that has been acquired on campus as the implementation of the MBKM curriculum
3. Students can witness and going into earthquake-affected locations in providing help or assistance in accordance with the knowledge they get.

IV. For Institution (Universitas Kristen Indonesia) :

1. Recorded as one of the PTS recipients of Integrated Community Service Incentive Funds with Independent Learning Independent Campus Based on Key Performance Indicators for 2022 2. UKI can demonstrate active and participatory performance in supporting government programs for the advancement of society in general.

CONCLUSIONS AND RECOMMENDATIONS

The conclusion of this activity is that the Community Service Incentive Program Community Service Incentive Program Integrated with Merdeka Learning Campus Freedom Based on Key Performance Indicators for 2022 with the scheme of Rise Village Activities with the title: Strengthening Communities of Earthquake Disaster Victims Through Sanitation Programs (Installation/Procurement Clean water and portable MCK in the village of Tugu Rw 3, Cibeureum Village, Cugenang, Cianjur, went very well and provided enormous benefits for residents affected by the earthquake, especially for residents living in post 1 (green house post), post 4, Emergency Mushola, Emergency School Post, where residents can access clean arsenal and use toilets easily, safely and comfortably, so this can help them avoid the risk of disease due to a dirty environment. In addition, residents can access clean water for ablution water for residents who want to perform prayer services In providing benefits to residents who are target partners, this activity also has a very positive impact on institutions (in this case Universitas Kristen Indonesia) both lecturers and students in applying their knowledge for the benefit of society.

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REFERENCES

Dr. Kairun Nisa Berawi. (2020). Buku Pedoman Asupan dan Asuhan 1000 Hari Pertama Kehidupan. In Pusaka Media (1st ed., Vol. 1). Pusaka Media.

FAO, WHO, IFAD, UNICEF, W. (2022). Food Security And Nutrition In The World Repurposing Food And Healthy Diets More Affordable. Organization of the United Nations.

Hartini, D. A., Km, S., Kes, M., Leniwita, N. H., Kep, S., Kep, M., Anggraini, N. Y., Kep, S.Kep, M., Sri, N., Damanik, M., Kep, M., An, S. K., Mahendra, N. D., Kep, S., Kep, M.,P, N. D. M., Kep, M., & Kom, S. K. (2022). Gizi Kesehatan Pada Masa Reproduksi. Yogyakarta : CV Rizmedia Pustaka Indonesia.

Kemenkes RI. (2011). Keputusan Menteri Republik Indonesia Tentang Standar Antropometri Penilaian Status Gizi Anak (K. RI (ed.1). Kemenkes RI.

Miguel, G., & Manuel, P. (2016). Maternal and Child Nutrition. Lancet, 382(9904), 1549. https://doi.org/10.1016/s0140-6736(13)62316-8

Permenkes RI. (2020). Peraturan Menteri Kesehatan Republik Indonesia Nomor 2 Tahun 2020 Tentang Standar Antropometri Anak. In Molecules (Vol. 2, Issue 1).

Riskesdas. (2018). Hasil Riset Kesehatan Dasar Tahun 2018. Kementrian Kesehatan RI, 53(9), 1689–1699.

UNICEF. (2022). The State of Food Security and Nutrition in the World 2022.