

DISASTER MANAGEMENT OF THE REGIONAL DISASTER MANAGEMENT AGENCY (BPBD) OF GUNUNGKIDUL REGENCY IN DROUGHT-PRONE AREAS

*Diah Kumalasari¹, Adie Dwiyanto Nurlukman², Toddy Aditya³, Slamet Setiawan⁴

^{1,2,3,4} Government Science Study Program, Faculty of Social and Political Sciences, University of Muhammadiyah Tangerang, Tangerang City, Indonesia
Email: diahkumala502@gmail.com adiedwiyanto@umt.ac.id
toddy.aditya08@gmail.com Slametsetiawan1406@gmail.com

*Corresponding Author, Received: Sept 12, 2023. Revised: Oct 11, 2023. Accepted: Dec 06, 2023



This is an open access article distributed under the Creative Commons 4.0 Share-Alike 4.0 International License. If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. ©2022 by Journal Sjdgge

ABSTRACT: Gunungkidul Regency experiences a clean water crisis every year due to the prolonged dry season and the geological condition of the Gunungkidul region, which is dominated by karst mountains, so that rainwater that falls on the ground surface will immediately seep into the ground and then form underground rivers. This research aims to see how disaster management in drought-prone areas by the Regional Disaster Management Agency (BPBD) of Gunungkidul Regency. This research uses a qualitative method by conducting interviews and observations. The results of this study indicate that in the face of drought BPBD Gunungkidul Regency has carried out various disaster management activities consisting of pre-disaster stages which include mitigation, preparedness and warning activities by producing various activities of mapping disaster-prone areas, monitoring weather forecasts and the formation of Disaster Resilient Villages/Groves and Disaster Safe Education Unit Schools (SPAB), during disasters by providing clean water dropping assistance and post-disaster at this stage BPBD Gunungkidul Regency conducts activities, namely rehabilitation and reconstruction.

Keywords: Disaster Management, Drought, BPBD Gunungkidul.

1. INTRODUCTION

Every year Gunungkidul Regency, Yogyakarta Special Region Province, routinely experiences a clean water crisis caused by the arrival of a prolonged dry season. Even if the rainy season comes, the water that falls does not necessarily become a source of water for residents, this is due to the geological conditions of the Gunungkidul region which is dominated by karst mountains, so that rainwater that falls above the ground surface will immediately seep into the ground and form an underground river flow. According to BPBD Gunungkidul records, there are six kapanewon (sub-districts) that have reported being affected by drought and the data is still provisional because not all kapanewonn have reported [1].

In line with that, the people of Gunungkidul spend Rp 150,000 to Rp 170,000 to buy clean water, which usually can only be used for 2 to 3 weeks depending on each house [2] Despite having the most impact among other disasters, drought is lacking in attention by various parties, both nationally and globally.

Preparedness is needed to minimize the risk of drought-related disasters, and adaptation is needed. to improve resilience to disasters [3]. Deep dryness Law No. 24 of 2007 [4] by the state is categorized into natural disasters because they occur caused by nature and result in danger to people's lives, in the context of regional disaster management, The government of Gunungkidul Regency issued a Regional Regulation No. 6 of 2013 [5] contains about BPBD Gunugkidul as the government's effort in dealing with disasters.

In disaster management, the role of government is indispensable before, during and after a disaster. Disaster management is a form of providing services to the community which in practice must be managed to reduce suffering and losses due to disasters. As the organizer of affairs including disaster management, the government acts as the main stakehold First , disaster management is a choice of services that must be provided by the government.

Second, the government is legally responsible for the suffering of citizens. Third, the government as a manifestation of moral responsibility in disaster management [6] Discourse on disaster management can be seen based on several approaches that have been taken. First, research that explains that drought disaster management can be done by prioritizing adaptive local wisdom. Second, research that discusses disaster management in the form of the application of new innovations. The third research is based on drought disaster management technology using mitigation strategies, there are various strategies carried out by local communities [7]–[9].

Of the three studies, there has been no research that shows the importance of the role of government institutions in handling disasters that occur at the regional level. This study aims to see how disaster management in drought-prone areas by the Regional Disaster Management Agency (BPBD) of Gunungkidul Regency.

Drought is a natural disaster associated with low rainfall over a period of months to years and causing water scarcity [10], [11]. Drought is a natural occurrence that often occurs in various parts of Indonesia and poses a threat to systems and production such as agriculture, plantations, forestry, water resources and the environment of Indonesia [12].

Table 1. List of Drought-Prone Zones in 5 Regencies/Cities of DIY Province in 2022

No	Regency/City	District/Kepanewon
1	Yogyakarta City	Kemantren Umbulharjo Bagian Selatan
2	Kulon Progo Regency	Temon, Wates, Panjatan, Galur, Rendah, Sentolo, Sebagian besar Pengasih, dan Nanggulkan bagian selatan.
3	Sleman Regency	Gamping, Moyudan.
4	Bantul Regency	Srandakan, Sande, Bambanglipura, Pandak, Jetis, Betis, Bantul, Panjatan, Sedayu, Kasihan, Sewon, Pleret, Kretek, Imogiri bagian utara, Banguntapan, dan Piyungan bagian Barat.
5	Gunungkidul Regency	Purwosari, Panggang, Paliyan, Saptosari, Tanjungsari, Tepus, Rongkop, Girisubo, Ponjong, Wonosari bagian Selatan, Semanu.

From tables [13], [14] above it can be said that almost all districts / cities in the DIY region are experiencing drought even though this year's drought is not as severe as in 2019. Gunungkidul Regency is one of the five Regencies / Cities in the Special Region of Yogyakarta which every year must experience drought disasters, this is because the Gunungkidul Region is classified as a tropical area with a topography dominated by karst areas that are difficult to store groundwater and many caves, beaches and underground rivers that flow. These conditions result in less fertile, dry, and barren land [15].

To anticipate, prevent and overcome various threats from drought disasters, the Gunungkidul Regional Government has formed the Disaster Management Agency (BPBD) with the hope of becoming the frontline that is able to create Professionalization in disaster management.

2. METHOD

This type of research method is qualitative research, this study will explain how disaster management by BPBD Gunungkidul Regency. Researchers used primary data and secondary data, primary data obtained from interviews by researchers with one of the employees of BPBD Gunungkidul Regency and staff employees of Girisubo District and Rongkop District. Furthermore, secondary data is retrieved from a variety of legitimate sources, including documents, books, websites, journals, and other publications.

The validity of the data in this study is strengthened through triangulation, where what is meant by triangulation is a data examination technique to obtain truly valid data, in general in research there are three types of triangulations, including source triangulation, triangulation of data collection techniques and time.

Data processing in qualitative research requires evaluation, therefore the text must be

complete before making observations. In this study, the data that has been collected from informants will be recorded and then simplified and focused on more important parts to facilitate drawing conclusions.

3. RESULTS AND DISCUSSION

Based on the results of research conducted in Gunungkidul Regency, by observing and interviewing informants including government employees. Information obtained from BPBD Gunungkidul Regency, explained that in dealing with drought disasters, BPBD Gunungkidul Regency has various stages of disaster management to respond to disasters starting from pre-disaster, during disaster and post-disaster.

3.1 Pre-Disaster

Pre-Disaster as a very important initial stage to prepare everything needed during a disaster event to reduce the impact that will be caused by a disaster. Pre-disaster activities include mitigation, early warning and preparedness. From the results of the study, it can be seen that there are efforts made by BPBD Gunungkidul in the pre-disaster stage, including:

3.1.1 Mitigation

Mitigation is essentially prevention before it occurs, mitigation is carried out to prevent or reduce the adverse effects caused by the disaster [16] Reduction and prevention are the most important parts in disaster mitigation, the results of this study show that BPBD Gunungkidul Regency in the case of drought disasters the BPBD

First, BPBD Gunungkidul formed a Disaster Response Village/Village team as an effort to increase community preparedness for potential disasters that are likely to occur, out of 144 villages spread across Gunungkidul district, 85 have participated in training and mentored directly by the BPBD Gunungkidul team, in this activity the village government and the community actively participate in monitoring, analyzing, reducing disasters and will know what things only when there is a drought. This Disaster Response Village/Village, including assisting BPBD of Gunungkidul Regency in carrying out drought prevention efforts. Second, the establishment of the Disaster Safe Education Unit School (SPAB). This SPAB was established in 2019 with the hope that schools have the readiness to anticipate disasters, this activity is carried out directly by the BPBD Gunungkidul team such as socialization activities about

carried out mapping activities from 18 sub-districts spread across the Gunungkidul area regarding which areas are at risk of experiencing a lack of clean water every year. BPBD Gunungkidul will coordinate with sub-districts to districts / villages regarding area mapping, this mapping is very important because it is a reference for the distribution of aid whose purpose is to be right on target.

3.1.2 Early warning

Early warning is a series of activities that aim to provide information to the public about upcoming natural events or disasters [17], there are no specific activities specifically for early warning, where in early warning activities BPBD Gunungkidul monitors weather condition forecasts published by the Meteorology, Climatology and Geophysics Agency (BMKG), after which BPBD Gunungkidul provides information to the community about the possibility of a drought in a place.

3.1.3 Preparedness

Preparedness is a series of activities to anticipate when a disaster occurs. Gunungkidul Regency is an area with a high disaster risk when compared to other regencies/cities in the DIY region.

There are a series of activities in dealing with / anticipating the occurrence of disasters such as landslides, floods, typhoons, droughts, and others.

disasters, first aid training in emergency conditions and the formation of school alert teams.

Community participation in pre-disaster activities is the most important thing to be improved as an effort to reduce disaster risk related to mitigation, preparedness, and early warning [18]. However, in fact, the fact shows that community participation in the development process of Disaster Resilient Villages/Kalurahan has not been thoroughly followed by the community, only people who are members of the working group who participate in this activity.

3.2 In Times of Disaster

Disaster emergency response means a series of activities carried out immediately when a disaster occurs to cope with adverse impacts such as rescue and evaluation, meeting basic needs, managing evacuation, and restoring facilities and infrastructure

[18]. When there is a drought, the disaster response carried out by BPBD Gunungkidul Regency to help meet the needs of the community is the provision of clean water dropping to areas that experience a lack

of clean water, with a procedure for requests from each sub-district that experiences a lack of clean water and needs to drop clean water as shown in figure 3.

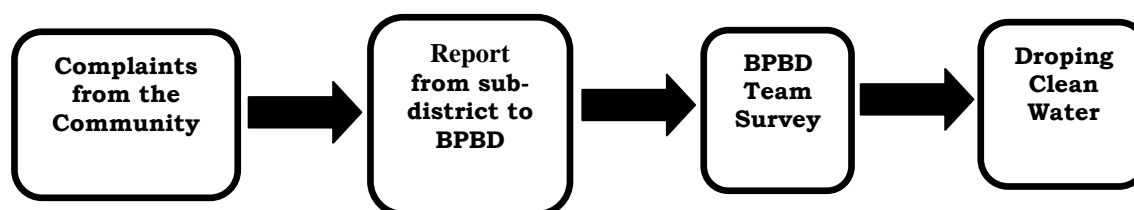


Fig.1 Clean Water Dropping Application Flow

Fig the fig. 1 regarding the flow of clean water dropping applications above, it can be described that:

1. There were complaints from the community regarding the drought disaster to the sub-district government.
2. The sub-district government will follow up the report by making a clean water disaster incident report letter that will submitted to BPBD Gunungkidul Regency (Attachment to the number of villages exposed drought).
3. The BPBD Gunugkidul team will conduct a survey of the location.
4. If really happens, the BPBD Gunungkidul Team will immediately drop clean water to the location.

3.2 Post Disaster

After the disaster occurs and the disaster response has been carried out, the next stage is rehabilitation and reconstruction, rehabilitation recovery to an adequate level of all aspects of public services while reconstruction rebuilds facilities and infrastructure and institutions. In this stage, BPBD Gunugkidul collaborates with the Public Works Office and PDAM Gunungkidul, there are various rehabilitation activities carried out are repairing Rainwater Reservoirs (PAH) and repairing damaged clean water pipes while reconstruction is carried out with various activities such as increasing the number of Rainwater Reservoirs (PAH) and clean water distribution pipes.

The disaster recovery process can take anywhere from a few weeks to more than a year, depending on the extent of the damage and the infrastructure to be repaired [21]. Efforts to

on the other hand, BPBD Gunungkidul coordinates with other agencies, both government and private parties, to work together to help people who experience a lack of clean water, such as the Social Office of the Special Region of Yogyakarta, the Ministry of Publi Workers and Public Housing (PUPR), DIY BPD Bank, Gojek Company.

The provision of water droppings to help the community meet unmet water needs due to drought, which usually starts from May to September [20]. However, in fact, the provision of water dropping assistance to residents who lack clean water can be said to be ineffective and not the best solution to overcome drought because this assistance is only one of the efforts in the short term, it is hoped that the government can provide a solution for long-term efforts to maintain a balance between water availability and use.

rehabilitate and reconstruct are still being carried out today, however, many problems have become problems so that there are complaints from the community regarding the distribution of PDAM water that is not smooth and the development of pipe networks that are not evenly distributed, it is hoped that in the future the fulfillment of clean water needs through piping systems will be expanded and Improved in order to reach all areas, both urban areas and areas experiencing drought.

From data from BPBD Gunungkidul Regency, there are 6 sub-districts that have experienced a crisis in getting clean water since 2021, namely Girisubo District, Rongkop District, Saptosari District, Panggang District, Purwosari District and Paliyan District, hereby researchers take 2 sub-district areas representing other sub-districts to conduct interviews and observations carried out in Girisubo District and Rongkop District, The two districts located at the far end of the eastern part are

bordered by Central Java Province which is known for its beaches that have white and beautiful sand. Girisubo sub-district consists of 8 villages 5 between Songbanyu, Tileng, Karangawen, Tongu, Nglindur experiencing a clean water crisis while Kepanewon Rongkop consists of 8 villages 2 including Melikan and Peringombo.

With the field findings found that the community is accustomed to the occurrence of droughts that occur every year which have an adverse impact on agricultural products, livestock, and others, therefore there are various strategies carried out by the surrounding community to reduce the impact of clean water shortages that occur including:

1) Tank Water Purchase

Although the community gets clean water dropping assistance from the government, the community is also independent to buy clean water. Each tank is usually priced at Rp 100 thousand

to Rp 130 thousand for Girisubo and Rongkop sub-districts depending on the distance of the water carrier.

2) Utilization of Artificial Lake (Embung)

Embung is a pond-shaped water conservation building that can accommodate rainwater, run off, and other water sources for agricultural, plantation, and livestock activities, especially in the dry season [22]. Not only as a water reservoir, the reservoir is also used as a fishing spot with the management by the surrounding community.

3) Rainwater Reservoir (PAH)

The community's strategy in utilizing rainwater by accommodating it in rainwater reservoirs. The rainwater reservoir has three components, namely the roof, pipes / gutters and the reservoir [23]



Fig. 2 Rainwater Reservoir (PAH)

Fig 2 above is a photo documentation of the Rainwater Reservoir (PAH) in each house to collect water when it rains and tank water that is usually purchased as well as clean water dropping assistance. There are weaknesses in the Rainwater Storage System (PAH), namely the uncertainty of rainwater (quantity) and rainwater quality that only meets clean water quality standards [24]. Therefore, there needs to be support from policy makers to the community to facilitate the implementation of the PAH system at the household scale so that socialization and counseling activities are needed to the community regarding rainwater quality standards.

From the description above, it can be said that the community has strategies to reduce the impact of drought disasters, especially in Girisubo District and Rongkop District, Various strategies carried

out by the community that have been carried out for years and generations.

4. CONCLUSION

The Regional Disaster Management Agency (BPBD) of Gunungkidul Regency has carried out various stages of disaster management to overcome the problems and impacts of drought disasters in drought-prone areas in Gunugkidul Regency, but this activity can be said to be not optimal, this is proven in several stages that have been carried out. First, Pre-disaster at this stage activities are carried out. by BPBD Gunungkidul Regency which consists of mitigation, preparedness and early warning which produces various programs such as mapping disaster-prone areas, monitoring weather forecasts and the establishment of Disaster Tanguh Village/

Kalurahan and Disaster Safe Education Unit (SPAB) Schools. In the pre-disaster stage, BPBD Gunungkidul Regency carried out clean water dropping activities which were given to people who lacked clean water. But in fact, this activity is still considered ineffective because dropping activities are only one solution in the short term. Furthermore, after the disaster at this stage BPBD of Gunungkidul Regency carried out activities, namely rehabilitation (repair of PAH and clean water distribution pipes) and reconstruction (addition of PAH and clean water distribution pipes), but in this activity there were still complaints to the community because of the uneven distribution of PDAM water and the development of uneven pipe networks.

There are several suggestions given as an effort to improve and maximize disaster management activities both during pre-disaster, during disaster and post-disaster such as holding socialization and counseling activities regularly, adding artificial lakes or PAH, adding the number of waters drops to the community, expanding PDAM piping networks and optimizing programs that have been made both those that have been implemented and have not been implemented.

5. REFERENCES

- [1] David Kurniawan. Enam kecamatan di Gunungkidul Kekeringan,” *HarianJogja*, 2022.<https://jogjapolitan.harianjogja.com/read/2022/08/11/513> (accessed Oct. 17, 2022).
- [2] Kompas. Kekeringan, Warga di Gunungkidul Habiskan Rp 150.000-170.000 untuk Beli Air Bersih,” *kompas.com* , 2022. <https://yogyakarta.kompas.com/read/2022/08/24/154615778/>
- [3] A. Mu, awanah Sukmawati, and P. Utomo, Analisis Risiko Kekeringan di Bantul 2021.
- [4] Undang-Undang Republik Indonesia indonesia Nomor 24 Tahun 2007 Tentang Penanggulangan Bencana, “Undang-Undang No 24 Tahun 2007 2007.”
- [5] Peraturan Daerah Kabupaten Gunungkidul No 6 Tahun 2013, Peraturan Daerah Kabupaten Gunungkidul Nomor 6 Tahun 2013Tentang Penyelenggaraan Penanggulangan Bencana.
- [6] B. M. Faturahman. Reformasi Manajemen Bencana. 2017
- [7] A. Purwanto, E. Suharini, and W. Setyaningsih, Info Artikel. 2018. <http://journal.unnes.ac.id/sju/index.php/edugeo>
- [8] A. R. Damari Komunitas Pendidik Nusa Kampung Asten Gunung Leutik and D. Benteng. Teknologi Pompa Air Listrik untuk Menanggulangi Krisis Air di Desa Ciaruteun Iilir Binaan Komunitas Pendidik Nusa Bogor (Electric Water Pump Technology to Resolve the Water Crisis in Ciaruteun Iilir Village Assisted by the Komunitas Pendidik Nusa Bogor). 2022.
- [9] S. Purnomo, G. Halik, Y. Dhokhikah, R. Ulil Absari, and A. Salsa, “Penilaian Bencana Kekeringan dan Strategi Penyediaan Air Bersih di Wilayah Utara Kabupaten Lumajang,” *Jurnal Teknik Pengairan*, vol. 12, no. 2, pp. 92–103, Dec. 2021, doi: 10.21776/ub.pengairan.2021.012.02.02.
- [10] A. Munawanah Sukmawati, and P. Utomo, Analisis Risiko Kekeringan. 2021.
- [11] I. S. Surya and I. G. N. Suwetha. Edukasi Kesiapsiagaan Bencana. 2021
- [12] W. Nuarsa, I. Wayan, and S. Adnyana, Pemetaan Daerah Rawan Kekeringan di Bali-Nusatenggara dan Hubungannya dengan ENSO Menggunakan Aplikasi Data Penginderaan Jauh. 2015.
- [13] Tataruang.id, Peta Yogyakarta Lengkap dengan Kabupaten dan Kota,” Jun. 2022. <https://www.tataruang.id/2022/06/27/peta-yogyakarta-lengkap-dengan-kabupaten-dan-kota/>
- [14] dpu.kulonprogokab.go.id/, Dinas Pekerjaan Umum Kabupaten Kulonprogo, *Dinas Pekerjaan Umum Kabupaten Kulonprogo*, 2022. <https://dpu.kulonprogokab.go.id/>
- [15] J. Nugroho, M. Zid, and M. Miarsyah, Potensi sumber air dan kearifan masyarakat dalam menghadapi risiko kekeringan di wilayah karst (Kabupaten Gunung Kidul, Provinsi Yogyakarta),” *JPLB*, vol. 2020, no. 1, pp. 438–447, [Online]. Available: http://www.bkpsl.org/ojswp/index.php/jplbJP_LB,4
- [16] D. Mahardika, E. Larasati, J. H. Soedarrto, S. H. Tembalang, and S. Kotak. Manajemen Bencana. 2019
- [17] D. R. Minhar and F. Aco. Mitigasi Bencana. 2021
- [18] R. Kinanthi. Manajemen Bencana. 2020
- [19] F. Wulandari and Waluyo. Efektivitas Pemanfaatan Dana bagi Hasil Cukai Hasil Tembakau dalam Bidang Kesehatan di Kota Surakarta Tahun 2018,” *Bestuur*, vol. 7, no. 1, pp. 15–25, Aug. 2019, doi: 10.20961/bestuur.v7i1.28418.
- [20] K. Air Tanah di Desa Rawan Kekeringan Kecamatan Sempor Kabupaten Kebumen Annisa Islammei Rahayu and W. Setyaningsih Jurusan Geografi, “Geo Image (Spatial-Ecological-Regional) Info Artikel,” 2019. [Online]. Available: <http://journal.unnes.ac.id/sju/index.php/geoimage>
- [21] H. K. Bakti and A. Nurmandi. Pemulihan Bencana. 2020.

- [22] D. Kunto Nurkukuh. Identifikasi Pola Pemanfaatan Ruang Publik di Embung Langensari Yogyakarta. [Online]. Available: <https://journal.sttnas.ac.id/rekaruang>
- [23] S. Apriyani, G. Sri Wuryanto Prasetyo Utomo, H. Feriadi, M. Arsitektur, F. Arsitektur dan Desain, and U. Kristen Duta Wacana. Adaptasi Masyarakat dalam Menghadapi Bencana Kekeringan. 2020
- [24] Rahayu Sulistyorin*, Gatot Eko Susilo, Siti Anugrah Mulya Putri Ofrial Sinergi *et al.*, Alternatif Penanganan Permasalahan Infrastruktur Kebutuhan Air Bersih di Kota Bandar Lampung Melalui Rain Water Harvesting. 2020. [Online]. Available: <https://sinergi.lppm.unila.ac.id>