

Landscape Photography in Mapping Potential Natural Disasters in Ponorogo Regency



Fotografi Landscape Dalam Pemetaan Potensi Bencana Alam di Kabupaten Ponorogo

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ARTICLE INFORMATION		
<p>Keywords Photography, Landscape, Map, Disaster, Geotagging</p>		<p>ABSTRACT <i>Ponorogo has a natural beauty comparable to that of one of the arts, Reyog Ponorogo. This study is based on the idea of visual communication through landscape photography, which captures the inherent beauty of the area. However, hidden beneath the unique natural beauty comes the risk of catastrophic calamities that endanger life and property. This research creates the natural beauty of Ponorogo, which has the potential for natural catastrophes, by combining geotagging photography techniques and disaster maps from the National Disaster Management Agency (BPBD). Landslides and flash floods are the most major dangers. The government and the people are expected to investigate the combination of nature photography and natural catastrophe maps in order to preserve nature.</i></p>
<p>Kata Kunci Photography, Landscape, Map, Disaster, Geotagging</p>		<p>ABSTRAK Ponorogo mempunyai keindahan alam yang tidak kalah dengan salah satu keseniannya yaitu reyog ponorogo. Penelitian ini hadir dengan konsep komunikasi visual dengan pendekatan fotografi lansekap yang merekam keindahan alamnya. Tetapi dibalik keindahan alam yang eksotis, tersimpan potensi bencana alam yang mengancam jiwa dan harta benda. Dengan menggunakan Teknik pemotretan geotagging serta peta bencana dari Badan Nasional Penanggulangan Bencana (BPBD), penelitian ini menghasilkan keindahan alam Ponorogo yang menyimpan potensi bencana alam dibaliknya. Anacam paling serius adalah bencana tanah longsor dan banjir bandang. Gabungan antara fotografi alam dan peta bencana alam diharapkan menjadi kajian pemerintah dan masyarakat dalam melestarikan alam.</p>
<p>Article History Send 14th December 2021 Review 29th December 2021 Accepted 27th Februari 2022</p>		<p>Copyright ©2022 Jurnal Aristo (Social, Politic, Humaniora) This is an open access article under the CC-BY-NC-SA license. Akses artikel terbuka dengan model CC-BY-NC-SA sebagai lisensinya.</p> <div style="text-align: right;"> </div>

Introduction

Landscape photography is capturing an image that embodies the spirit of the outdoors (Priest, 2018). This phrase is referred to as a landscape in the Big Indonesian Dictionary (Kamus Besar Bahasa Indonesia), and it refers to the arrangement outside the structure (to regulate the natural scenery) (Kemdikbud, 2022). Landscape photography depicts the world's huge and limitless areas. Because landscape photography falls under the topic of nature photography, it will almost always feature nature. However, many landscape photographs do include man-made objects or structures. Another feature of landscape photography is the lack of, or virtually complete absence of, a human presence. Humans are absent, leaving only pure nature, with themes such as landforms, weather, and ambient light vividly visible.. Landscape photography is the art of capturing pictures of nature and the outdoors in a way that brings your viewer into the scene (Priest, 2018). Landscape photography, often known as nature photography, is an attempt to capture nature through photographic techniques and present it to the public in a variety of ways.

Landscape photography is the art of capturing pictures of nature and the outdoors in a way that brings your viewer into the scene. From grand landscapes to intimate details, the best photos demonstrate the photographer's own connection to nature and capture the essence of the world around them (Grese, 2002)

Landscape photography, often known as landscape photography, is a discipline of photography that depicts landscapes from the perspective of soil components, pond water, sky, and other aspects of life in a location. Lighting, composition, and other technical variables such as depth of field, focal length, and speed all play a role in effective landscape photography. In terms of technical considerations, the crisper the landscape photograph, the better.

Landscape photographers have the same motivation as painters: they like beauty and wish to capture it in their own unique style, in this instance the natural beauty around them. Landscape photography is also popular among individuals who are driven by a desire to appreciate the beauty and preservation of the natural world. A notable example is William Henry Jackson, who in the 19th century used a collection of his images to persuade Congress to establish the Yellowstone National Park in the United States, making it the world's first nature reserve. (Hales & Jackson William Henry, 1984). The President presented Ansel Adams with a conservation-related honor and medal in appreciation of his work's contribution on wilderness conservation and environmental awareness. Adams is known for his black-and-white nature photographs (Rumor Kamera, 2020). Landscape photography isn't considered photojournalistic because it isn't a form of recording. Landscape photography is about more

than just shooting images of landscapes in the traditional sense. We often find ourselves waiting for circumstances to shift from ordinary to remarkable. Landscape photography, which includes views of the beach, sea, cliffs, rivers, lakes, mountains, woods, and waterfalls, has long been an element of outdoor photography. Landscape photography emphasizes landscapes by enhancing the view and discovering beauty. Humans and animals can be excluded or included, but if they are, they are simply used as a comparative scale. The location, time, and object are the most crucial considerations while photography landscapes (Abdi, 2012).

"From the outset, scenic photographs have captivated the hearts of photography enthusiasts. Landscape photography, as one of the most popular types of photography, encompasses both a broad and a narrow subject. From nature's true beauty to abstraction, from the basic to the complex. No other genre of photography has been able to combine such a diverse and often seemingly conflicting subject matter together in a single unified image"(Sukarya Deniek G, 2009).

One of the benefits of photography is that it can capture real-life occurrences, can be trusted, and can create a picture. As a result, photography may be utilized as a visual communication tool to produce beneficial communication or as promotional material for information. The primary function of photography as a medium of communication is to generate works of communication. The term "communication work" refers to a communication process involving photography that includes aspects of aesthetics or beauty. A person who employs photography in his or her communication process is said to be able to better his or her work or artistic output. Visual communication is the practice of using visual elements to communicate information or ideas (*How To Use Visual Communication (and Why It Matters)* / TechSmith, n.d.). Photography's position as a medium of visual information cannot be supplanted by other media since it is a medium of communication. (Harsanto, 2018).

Photography is no longer a subject of study from an artistic standpoint, thanks to the progress of the digital era and the newest mapping technology. It may now evolve much more extensively than we expected. We may already experience the presence of technological techniques such as the Global Positioning System, or GPS, in everyday activities such as traveling, identifying a location, or indicating the direction in which we will drive or walk.

The National Disaster Management Agency, or BNPB, has established an online mapping of probable calamities using the website address <https://inarisk2.bnpb.go.id/> (BNPB, 2021). As long as we are linked to the internet network, we may use this map to navigate directly. This mapping was still under improvement by BNPB at the time of this research, thus many aspects aren't perfect and we can't access them. Natural and/or non-natural forces, as well

as human variables, combine to endanger and disrupt people's lives and livelihoods, resulting in human deaths, environmental damage, property losses, and psychological effects.

The study's aim is landscape photography approaches in the context of visual communication regarding Ponorogo Regency's natural potential and natural beauty. This natural beauty must be balanced with a rise in people and natural resources, as well as use, which is linked to the threat of natural catastrophes. The goal of this study is to merge two current mapping models: BPBD's online catastrophe mapping and Adobe Lightroom's geo tagging mapping technique. Both of these systems have their own set of benefits and drawbacks. Adobe Lightroom has the ability to read immediately and completely where we are photographing. Meanwhile, the BPBD's mapping can detect the risk of natural catastrophes in Indonesia. Furthermore, using the multiply technique in Adobe Photoshop, the results of catastrophe mapping and shooting places are blended from two (two) layers into one primary layer.

Method

This study was done in the Ponorogo Regency, with the focus on communities or locations in Ponorogo that have the potential for natural tourism. This research takes a descriptive qualitative strategy, collecting data through observation, recording, and interviews. The regions sampled for this picture shoot are spread out around the Ponorogo district in various locations. The majority of the places chosen have potential beautiful vistas characterized by mountain slopes and expansive rice-field or woodland landscapes. Ngrayun District, Sambit District, Pulung District, Ngebel District, and Badegan District are only a few of the sub-districts. In addition, various sub-districts in Ponorogo, including the city of Ponorogo, Balong sub-district, and several low-lying locations, have the potential for flooding.

Observations were obtained using maps from the BPBD, which are available for free online, as well as disaster-prone maps in Ponorogo, which can be found at <https://inarisk.bnpb.go.id>. Interviews were undertaken to learn more about the history, background, and latent potentials of the location, both in terms of tragedy and economic potential. Communicate directly with the Regional Disaster Management Agency (BPBD) of Ponorogo Regency to obtain accurate data regarding local geological conditions.

Results and Discussion

A. Analysis of Landscape Photography in the Perspective of Natural Disasters

Ponorogo is a territory with several different regional outlines. The Ponorogo region is separated into two primary areas, with the eastern and southern parts being mountainous, and the middle, northern half being mild. Ponorogo's western outskirts, which form the boundary with Central Java Province, are hilly. As a result, Ponorogo is almost encircled by places with changing weather. With diverse natural circumstances, it is a benefit in and of itself from a photographic standpoint. With the current scenery colored with mountains, hills, rivers, and woods, this situation enhances the beauty of the existing shot.

Disaster risk and potential has undoubtedly become one of the primary issues in growing the village's potential. However, these communities appear to be competing with the growth of Ponorogo, which is progressing towards being one of the cities that will become a tourist attraction. This circumstance aggravates the status and state of regional tourism development, which continues to push towns to establish a company or tourist destination without considering the risk of natural disasters. It is still fresh in our minds that the village of Banaran Pulung was devastated by a massive landslide on the steep slopes, which lost many lives. As digital and real-time image and mapping technology advances, we as a society and as academics acquire the ability to assess and offer ideas on catastrophe prevention and management in terms of natural pictures.

1. Landslide disaster

Because many of the morphological features in Ponorogo Regency are hills, it has the potential to undergo landslides. The information comes from a GIS study that includes a number of metrics that are overlaid and then weighted (score). According to the findings of this study, Ponorogo Regency is a slightly prone area to landslides in hilly and mountainous areas, while it is a slightly prone area in the lowlands (Yuniarta et al., 2015). Landslides, according to the BNPB definition, are a natural occurrence caused by a lack of proper land usage, particularly on slopes. In recent years, the severity of landslide catastrophes in Indonesia has grown, and the disaster region has been more widely distributed. This is owing to the increased usage of non-environmentally sound land in locations prone to landslides, as well as high rainfall intensity over a long period of time and increased earthquake frequency (Badan Nasional Penanggulangan Bencana, 2020).

a) Ngebel Lake Area

In terms of landscape photography, the beauty of Ngebel Lake has numerous benefits and aspects that may be investigated in order to promote Ponorogo from a different perspective. The forest is still lovely, and the contours of the various soil dynamics make the Ngebel region a popular tourist destination in Ponorogo. Not only that, but the Tirta Husada hot spring has made Ngebel more well-known outside of the lake. The scenery of rice fields and meandering roads welcomes you in and makes you want to stay longer. Because there are many locations that have not been created, Ngebel Lake offers a lot of potential natural resources that need to be studied and explored more. However, according to an examination by BPBD Ponorogo Regency, Telaga Ngebel has the potential for landslides, or even worse, the risk for landslides is rather significant. As a result, sensible planning based on an analysis of environmental impacts is required, which does not necessarily rely on experience, beauty, or economic factors. According to the Center for Volcanology and Geological Disaster Mitigation's September 2021 Earth Movement mapping data, the Ngebel Lake area is at high danger of landslides, according to the Ministry of Energy and Mineral Resources.

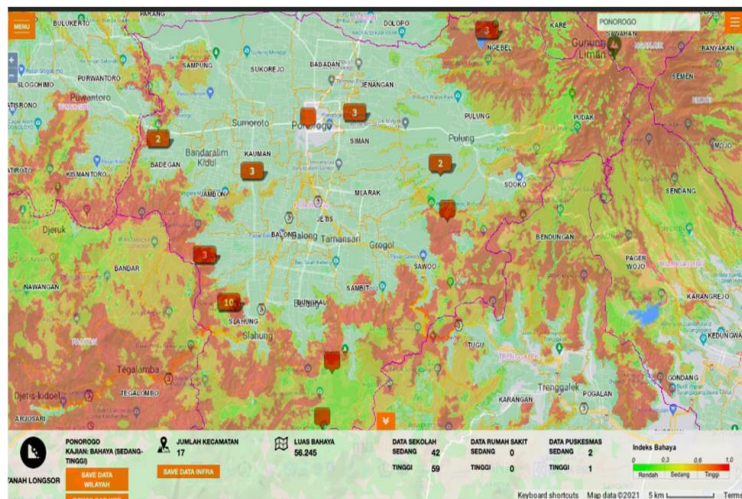


Figure 3. Digital processing of two maps between GeoTagging Photography and a landslide hazard map in Ponorogo Regency using Adobe Photoshop software.
Map Source : Adobe Lightroom (BNPB, 2021)



Figure 1. One of Ngebel Lake Panorama in Landscape Photo Perspective.
Photo: Oki Cahyo

b) The area around Bendo Sawoo Reservoir

The next water tourism area that will become an alternative destination is the Bendo Reservoir. Bendo Reservoir is located in Ngindeng Village, Sawoo District, Ponorogo Regency, East Java. The Bendo Reservoir was officially opened for operation by President Jokowi on September 7, 2021. With this reservoir, it is expected to be able to irrigate 7,800 hectares of rice fields or agricultural land. (Tempo.co., 2021). Bendo Reservoir, located near Ngindeng Sawoo hamlet but more readily accessible via Mlarak District, is an alternative to Ponorogo Regency's artificial water tourism. Even though the Bendo reservoir has not been formally accessible to the public until this report, the public has shown a strong desire to see the dam. It's no surprise that the Bendo Reservoir has become one of Ponorogo's newest tourist attractions. However, in addition to the bendo reservoir itself, the area surrounding the bendo reservoir is incredibly attractive, with vistas of the hills and vast stretches of untouched green forest. Geographical characteristics that rise and decrease while nature remains lovely make the Bendo Reservoir region capable of becoming a natural tourism attraction and ready to be developed as one of the village's potentials. Natural disasters such as landslides or landslides are common in the area surrounding the Bendo reservoir. However, it is not as awful as the one by the lake. The Bendo reservoir and its surrounds have a high danger index of soil movement, according to monitoring from <https://inarisk.bnpb.go.id>.



Figure 2. The view from the foot of Mount Bayangkaki with the view of the Bendo Dam in the distance. Photo: Oki Cahyo



Figure 11. Mount Bayangkaki from the corner of Pulung. Photo: Oki Cahyo

c) Ngrayun Distric

The Ngrayun District is largely mountainous, with an area of 184.76 km² and a height of roughly 700 meters above sea level. As a result of this situation, Ngrayun District has a wide range of natural tourism assets. The majority of tourist attractions in Ngrayun rely on natural beauty in still-beautiful conditions. Because of its high and steep terrain, Ngrayun presents some unique geographical challenges. Watu Semaur is one such case. This hill is special because its sound echoes and reflects back when we talk; "semaur," which means "to echo," is a natural phenomena that occurs when we speak and reflect back what we say loudly. Ngrayun District has several localities that have created their own regional tourism. According to Google Maps, Ngrayun District boasts a large number of tourist attractions, practically all of them are centered on natural tourism. The Watu Putih Tourism Object is in Tanjung, Ngrayun, Ponorogo Regency, East Java, followed by the water terjun Supload in Krajan, Selur,

Ngrayun, Watu Semaur, Tumpak Siman tourism object, Kedung Gamping, Mount Prongos, and other places.



Figure 13. Watu Semaur Tourism Object in Krajan, Selur, Ngrayun, Ponorogo Regency.
Photo: Oki Cahyo



Figure 14. A view of the rice fields in Cepoko Village, Ngrayun Ponorogo.
Photo: Oki Cahyo

d) Balong and Slahung Districts

Slahung sub-district boasts a number of natural tourism attractions and is working to expand its offerings. Mount Loreng, located south of the Slahung market and visible from the major road leading to Pacitan, is one of them. The summit of Pringgitan, located in Dusun Bedok, Wates, Slahung, Ponorogo Regency, is no less unusual. The summit of Mount Pringgitan is a popular tourist attraction, especially for people who prefer outdoor activities such as camping. Mount Pringgitan's top is still pretty beautiful and natural, thus we frequently see wild creatures like monkeys here. There are multiple waterfalls in this region since the springs are still huge and active.

In an effort to enhance nature-based tourism, the Balong District has lately seen tremendous development. Tourism has grown in the sub-south district's and west, in an area with characteristic hills and still-beautiful natural surroundings. Mount Beruk is the most prominent tourist attraction in the Balong sub-district, and it is located in the hamlet of Karangpatihan Balong, about 10 kilometers from Balong. The Karangpatihan village administration collaborated with community youth organizations to create this Mount Beruk trip. This tour was a huge hit in 2018-2019, going viral on social media and attracting a large number of tourists.

Because certain villages are in the red zone or risky zone and have a high potential for landslides, BNPB and BPBD should pay close attention to the village government's efforts to boost village tourism. Land movement owing to bare forest conditions, which are utilized over land as agricultural land for maize, spices, and other crops. Another danger lurks in the form of a forest fire calamity. Although this tragedy occurred just on the boundaries of the Ponorogo region, it should be recalled that this incident or fire generated additional disasters such as landslides.



Figure 16. Natural tourist spot of Mount Beruk in Krangpatihan Balong. Photo: Oki Cahyo



Figure 17. Forest fire in the Tapak Bimo hill, Duri Slahung village. Photo: Oki Cahyo



Figure 18. The scenery in Broto village and towards the natural attractions Sadranan Slahung Ponorogo Waterfall. Photo: Oki Cahyo

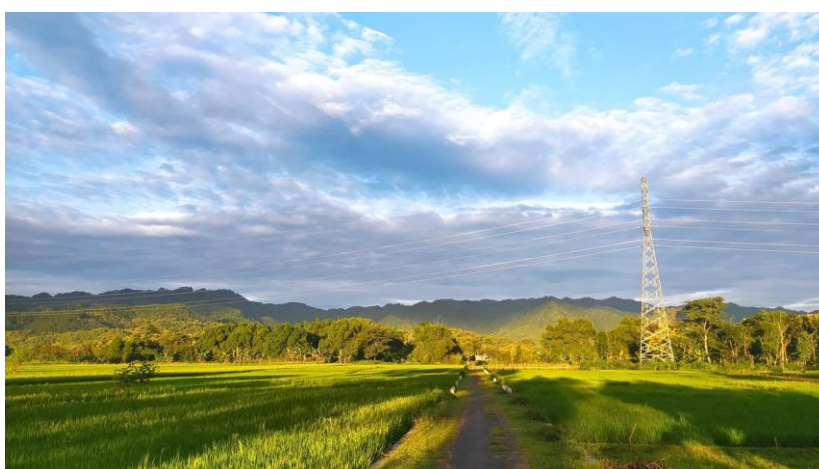


Figure 22. The view from Ngloning Slahung Village in the morning Photo: Oki Cahyo

2. Danger of Flood Disaster

PONOROGO, iNews.id - Hundreds of homes in four Ponorogo Regency sub-districts were inundated on Tuesday (16/2/2021). As a result of the tragedy, one house fell. Meanwhile, some locals have fled. The greatest flooding, according to iNews.id monitoring, happened in Sentono Village, Jenangan District. Hundreds of homes were inundated at this spot, with water levels reaching adults' knees. This is the most recent information from the city of Ponorogo, which was flooded in 2021 (Subekhi, 2021). Ponorogo is the Solo River's confluence and tributary. Ponorogo's low topography renders the city area, as well as the eastern and northern areas of the city, vulnerable to floods. Ponorogo was also hit by a big flood in 2008, which shut down the municipal government and crippled about half of the city for many days, causing billions in losses.

a) Badegan District and Surrounding Areas

Badegan is a sub-district in the Ponorogo Regency of Indonesia's East Java Province. The province of Central Java lies right adjacent to this district. The Sumorobangun dam, which was constructed during the Dutch colonial era and is still operational today, controls the flow of a huge river in the Badegan sub-district. The Badegan sub-district is reasonably protected from floods due to its topographical circumstances, which include a huge and wide river. However, landslides continue to pose a concern to regions beneath the foothills that are directly near to Central Java.



Figure 25. Rainbow Bridge Rest Area Biting, Badegan Photo: Oki Cahyo



Figure 26. Badegan River and the scenery around the river. Photo: Oki Cahyo



Figure 28. Landscape of Ponorogo city on the east side or around Pasar Pon.
Photo: Oki Cahyo

B. Discussion on Analysis of Landscape Photography in the Natural Disaster Map of Ponorogo Regency.

Natural disasters come all the time without being planned in advance, but today's technology allows mapping, forecasts and natural signs to be measured systematically with certain calculations. The development of science and research does not rule out the possibility that disasters can be predicted in advance. So as to minimize the loss of life and property. With technology advancements, photography is becoming more versatile and may be utilized in conjunction with other technologies. The Global Positioning System technology, sometimes known as artificial GPS, is one of them. This technology allows us to know where we are and capture images in that location, albeit it is not 100 percent precise because there is normally a variation of around 10 meters from the actual location where the photo was taken. Ponorogo, as a tiny city that continues to expand in numerous sectors, particularly tourism, requires information and a point of reference in order to enhance village tourism as well as regional natural resources. However, the threat that lurks is no less grave when we fail to conserve environment and natural resources, as well as exploit all of their potential properly. Natural catastrophes are something that neither individuals nor locations can prevent. However, with a dash of technology, anything can be viewed and studied.

The National Disaster Management Agency, or BNPB, is an Indonesian federal government entity tasked with dealing with natural catastrophes. The local district or municipal administration is responsible for BNPB and BPBD, or Regional Disaster Management Agency. BPBD has created an early warning system in the form of a digital map that anybody with an internet connection may access. The broad public or regular people may easily examine and comprehend this map. This map is fairly comprehensive,

since it includes highways, contours, and satellite photos, among other layers and map types. The flaw in this mapping is that we have no idea where we are or the dangers of natural catastrophes that may be lurking around in Ponorogo. As a result, this piece blends the intricacy of BNPB mapping with photography works by emphasizing local knowledge of a Ponorogo region. The combination of two BNPB maps and digital photo processing provides a response in which we know the location of the impending calamity, allowing us to take action and try to rescue ourselves. This research is particularly effective in generating tourist products based on nature tourism in developing regional potential. Villages that want to create Village-Owned Enterprises, or BUMDes, must think carefully about how to build, renovate, or promote village tourism. This approach focuses and utilizes existing resources, such as the Map tool in Adobe Lightroom and the catastrophe mapping on the official BNPB website, rather than creating a system with flawless technicality for mapping. Adobe Lightroom has a map that is immediately linked to the spot we're shooting via GPS, allowing us to see where we're shooting. This map, however, is not linked to the BNPB's catastrophe danger map. The BNPB map, on the other hand, is quite comprehensive and precise in illustrating the risk of natural catastrophes with high potential.

Conclusion

Natural disasters are becoming more predictable as technology advances, society evolves, and humans gain more experience. Maps created using digital satellite imagery, as well as supporting technologies like as photography and the global positioning system, or GPS, have made the displayed information easier to interpret and read for everyone. In addition, the internet's importance in immediately spreading information.

Natural catastrophes, particularly landslides, have a high potential in Ponorogo Regency, according to BNPB mapping. However, the risk of disaster is comparable to the present natural tourism potential, which the local village authority is continuing to cultivate. Similarly, the mapping of prospective disaster-prone areas, such as floods or droughts that trigger forest fires, is no less dangerous. As a result, Ponorogo Regency faces a calamity hazard that should not be underestimated. To lessen the danger of community casualties, it involves widespread collaboration among many parties as well as the government's participation.

The government is required to use landscape photography as a reference resource in formulating regional development strategies and maintaining regional tourism assets, particularly those based on nature. More tourists will be able to see the site firsthand and appreciate its natural beauty as a result of this photographic style. Nature conservation becomes

a study material in the following management of nature and the environment when nature photography like this is used.

Acknowledgement

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