

The Eruption of Mount Kelud in 1919: Its Impact and Mitigation Efforts

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Abstract—Lying upon a ring of fire makes Indonesia vulnerable to volcanic disasters. Mount Kelud is one of the most active volcanoes in Indonesia and notorious for its violent and destructive eruptions. During the twentieth century, Mount Kelud has erupted in 1901, 1910, 1919, 1951, and 1990, of which the 1919 eruption was among the biggest one. It has been described as one of the worst volcanic disasters. Drawing upon the available historical sources, this paper aims at discussing the eruption of Mount Kelud in 1919. Two major issues to be dealt with here are: 1) the impact of the 1919 Kelud eruption and its responses, and 2) the efforts made by the authorities to mitigate the eruption disaster. The eruption caused many fatalities and large scale devastation. Even though the eruption of Mount Kelud was not as cataclysmic as that of Tambora in 1815 or that of Krakatau in 1883, but it marked the more systematic way of coping with the volcanic disaster. Moreover, from the event a closer relationship was observable among the Europeans and the natives, who had long been separated by a strict racial boundary.

Keywords—Mount Kelud eruption, disastrous impact, rehabilitation, mitigation, Dutch colonial era

I. INTRODUCTION

Volcanoes not only pose a blessing but a danger as well. On one hand, volcanic particles with its rich nutrients coming out during the eruptions, constantly contribute to the rejuvenation of soil fertility. Commenting on Java, for example, Whitten Soeriatmadja and Affif[1] stated that the formation of fertile alluvial soils and plains in many parts of Java produced through ash deposits, lahars, lava and mud flows has been contributed by the existing volcanoes. With the fertilizing elements they provide, the volcanoes have supported the people of Java and elsewhere on earth to grow plenty of foodcrops required for their survival. On the other hand, history has also provided many illustrations of the disasters resulting from volcanic eruptions. The impact of volcanic eruptions was often very destructive to the people and their related interests because of causing many losses, large scale devastation and unbearable human sufferings. The worst disasters linked to the volcanic eruptions in Indonesia in the past were created for example by the eruption of Mount Tambora in 1815 and the eruption of Krakatau in 1883[2].

Volcanic eruption-linked disasters have often occurred in Indonesia. Historical records have shown the disasters caused by the eruptions of Krakatau, Merapi, Kelud, Semeru, Agung, Tambora, Lokon, and so on. The high

frequency of volcanic disasters is closely linked to the geological fact that as commonly known, there are many volcanoes in Indonesia and many of them remain very active. Apart of creating strong impressions on its beauty, volcanoes also create fears among the people residing in the adjacent areas for disasters from the eruptions.

Categorized as a strato-volcano type, Mount Kelud (sometime also spelt as Kelut) is one of the most active volcanoes in Indonesia that often causes volcanic disasters. At least 30 major eruptions have been recorded in the history of Mount Kelud. During the 20th century, Mount Kelud has recorded five major eruptions, namely in 1901, 1919, 1951, 1966 and 1990[3]. The history of Kelud eruptions shows that it has a characteristic of sudden, explosive eruption[4]. The process of Kelud eruption as a strato-volcano type that has a crater lake normally begins with a freatic eruption, which later develops into a freato-magmatic eruption and followed by magmatig eruption in a sudden and short time, no more than 10 hours[3]. Dr. Manfred van Bergen, a petrologist at Utrecht University, The Netherlands described Kelud as a very dangerous volcano because it has a crater lake and consequently, its eruptions will always be accompanied by enormous lahar flows[5]. The danger of the Kelud eruption has been immortalized in a traditional expression circulating among the people of East Java saying, “*yen Gunung Kêlut njêblug, Kedhiri dadi kali, Blitar dadi latar, Tulungagung dadi kêdhung*” [“When Kelut volcano erupts, Kediri turns into a river, Blitar becomes a yard, Tulungagung becomes a lake”][6].

Even though there were many eruption disasters, historical writings on volcanic disasters in colonial Indonesia has emphasized the importance of Tambora and Krakatoa as the most illustrative environmental factor determining the course of human history in Indonesia and even had global repercussions[2], [7], [8]. The present paper is aimed at discussing the 1919 Mount Kelud eruption. This eruption was not as apocalyptic as that of Tambora in 1815 or that of Krakatoa in 1883.

The event, however, is interesting to discuss because it caused many fatalities and large-scale devastation. It was Kelud’s second largest of eruption in recorded history and Indonesia’s third largest volcanic disaster after Tambora and Krakatau eruptions. Similarly important, the event marked the beginning of a new way of coping with the volcanic eruption disaster and had interesting social consequences in the relationship between the Europeans

and the native Indonesians. Last but not the least, the availability of historical sources for elaborating the 1919 Kelud volcanic eruption disaster also serves another good reason to choose the topics. Two major questions are going to be answered in this paper: 1) What was the impact of the 1919 Mt. Kelud eruption, and 2) How did the colonial authorities and the communities respond to the disaster in order to mitigate the deadly and disastrous impact of the Kelud eruption?

II. ERUPTION AND ITS IMPACT

Mount Kelud eruption of May 1919 was a disastrous event. It occurred on the the mid-night of 19 to 20 May 1919[9]. This eruption has been called as the second largest of the Kelud eruptions throughout the 20th century. The blast of the eruption was very loud and was reportedly heard up to Kalimantan. The eruption pumped suddenly and forcefully crater lake water out of the caldera along with magma flooding down to its valley. Dr. J.H. Court, who made a field trip to the volcano a few days after the eruption, estimated that direct after the eruption, pumice chunks in the lahar and the mudflow, were far over 1000 Celcius degree and a week later cooled down to 375 Celcius degree. Pillars of steam clouds coming out of the old ground covered with magma were reported to remain observable[5].

The explosive eruption of Mount Kelud 1919 was described in several testimonies by eyewitnesses. Bung Karno in his autobiography describes that at the time when Mount Kelud began to erupt, he just arrived in his friends' house in Wlingi, about 20 kilometers from Blitar. The ground was said to have been strongly shaken and a frightening rumble roaring through the sky. Many people including horrified mothers, screaming children, and plantation workers run out of their houses. They felt the fear, confusion, and chaos due to the eruption. Mount Kelud was said to show the anger of gods and the sky turned to dark because of ash and charcoal thrown miles away. Boiling lahar with high velocity flowed swiftly down the mountainside to lower areas destroying everything in its way and settled between Blitar and Wlingi. The area was reportedly covered with smoke, fire, and poison. Bung Karno also heard that half the country was reportedly affected by the eruption [10].

In a Javanese manuscript, *Pajeblukipun Redi Keloet* [the eruption of Mount Kelud], jointly written by two eyewitnesses of the eruption, Mas Yudakusuma and S Dayawiyata, the eruption was described as follows:

On Monday Kliwon night, date: 18/19 Ruwah 1849 or 19/20 May 1919 around 1 to 2 am, there was a thunderous voice repeatedly like a thunderbolt, sounded up in my residence to shock everyone in the villages. At that moment I woke up and out (the house) perhaps a volcano at my residence called Mount Merapi, which had long been reported to erupt at that night it happened.... it was clear at my sight... Mount Merapi was safe ... But...in the sky still always heard a thunderous roar that came from the east of my residence[6].

At the night when the eruption occurred he thought that the thunderous blasts was probably from dynamite explosions used by a big planter to blast limestone hills in South Klaten for sugarcane estate area. He was surprised by ash rain showering his village and by the continuing thundering blasts repeatedly heard from the east [6]. Bursts of the volcanic materials changed the day into darkness. A report reveals that due to the heavy ash rains, the towns of Malang, Lawang, Tulungagung, Kediri, and Nganjuk remained in the darkness even though almost mid-day.

“Tuesday afternoon at half past 11.00 in Malang and Lawang it still looked pitch black. In all places the lights were turned on. Because of the heavy rain of ash, many plants and trees were damaged. In Malang thick ash was up to several dm. Likewise in the town of Kediri, ash rain was very heavy. Tuesday afternoon at 10:00 it was still pitch black. Especially in the town of Tulungagung. Although the electricity continued to be turned on but the sky still looked dark. Nganjuk town was similar too”[6].

Land surface and everything on it from buildings, roads, fields, and plantations to forest vegetation were covered in thick volcanic ash. The spread of volcanic ash moving westward was reported to reach Bandung (West Java) and Bali in the east.

The eruption of Mount Kelud not only caused rain of sand and volcanic ash. Along with the eruption, also lahar flowed in large volume. Based on the historical record of Kelud eruption, lahar flows would follow when at the time of eruption volume of crater lake water reaches more than 5 million cubic meters. When it erupted on May 20, 1919 the volume of crater lake water was recorded around 40 million cubic meters[3]. The force of eruption pumped the huge volume of craterlake water and caused enormous flows of lahar. There were three major directions of the lahar flows. One was through east of Blitar town damaging Wlingi District and the next villages. The second flow was through the west of Blitar town which destroyed Srengat, Udanawu, Bendha and others. The third flow passed Blitar town through Kali Lahar, devastating the town of Blitar[6].

Bladak Dam of Kali Lahar, which was built to reduce the lahar floods of Mount Kelud, was destroyed. With a speed of 60 km/h, the flows of lahar reached Blitar in less than an hour and destroyed everything standing on its way. The scale of damage reached dozens of kilometers of the volcano. Many villages were reported to have been flattened to the ground and even some of them were wipe out from the map [5]. Among the destroyed vilages were Summersari, Salam, Ngoran vilages in Udanawu district. Villages along the road stretching from Panataran Temple to Blitar were badly devastated and also Omboh, Sidareja and Sumberejo vilages of Wlingi[6].



Fig. 1 Destroyed houses and trees
(KITLV Collection No. KLV001052935)

The explosive eruption of Kelud in 1919 made the situation fall into chaos. People became frightened, confused, and panicked. They run around, trying to save themselves and part of their belongings. Many of them were not able to escape from the disaster and died from the eruption. Dr. G.L.L. Kemmerling, a geologist at the Netherlands East Indies mining services described in his report how miserable was the victims. Many residents were reported to have been trapped by lahar flood in their way to the railway and were dead. Some of them were able to escape from the lahar flood and thought already in a safe place in the ready train, but the lahar prevented it from leaving. Meanwhile, people on the train already on the road, who considered themselves safe, were deposited and miserably dead in the river when it crossed the railway bridge caught in surprise by lahar flood [5]. A report gives an illustration of the tragic escape of hundreds prisoners from the lahar flows. Around 900 prisoners screamed for help to open the prison doors, but no guards came to help. About 100 prisoners were reportedly able to get out of the jail but this was only for a very short time. They soon got trapped and dead by the increasingly large boiling lahar flows [6].

The disastrous eruption of Mount Kelud had a big impact. Many people died and lost their family members from the disaster. In his autobiography, Soekarno said that many were dead from the eruption [10]. Burgemeester of Blitar, J.H. Boerstra also reported many fatalities from the eruption in his administration area. The death toll was estimated to reach no less than 5,160 people [11]. There are a few detailed reports on the human casualties from the eruption. In the Kalicilik estate of Bendorejo (Blitar), 42 residents were reported to have lost including its supervisor (*sinder*) who was found dead in Kediri, whereas in Srengat district, hundreds residents including 7 Europeans were dead and missing [6]. The number of fatalities on the eruption on May 20, 1919 was ranked the second largest in the history of the Mount Kelud eruptions, i.e. after the biggest eruption that occurred in 1586 with fatalities reaching about 10,000 people [4]. With a number of corpses everywhere, Blitar town was reported to smell rancid [6].

Not only claiming human casualties, the economic impact of the Kelud eruption was huge. It caused material losses, both in the form of damaged infrastructure, public facilities, housings, and disruption of economic activities. In Blitar town many buildings were devastated by the lahar flows and some collapsed due to the unbearable

burden of volcanic deposits. Buildings that remained upright were covered by thick volcanic ash and many parts of their walls were broken down. On the scale of destruction, a report reveals:

“Instantly Blitar lost its form as a town, turned into a sea of lahar. It was dark as being covered by cloud resulting from the swift ash rain. The height of the lahar was approximately 1.6 m, houses around the town square were all damaged, many walled houses were collapsed. The Chinese, Dutch, Javanese settlements whose house-buildings between were somewhat distant could be said to be non-existent. Only the houses of brick walls that coincided and hand-in-hand were not so damaged, but the walls were broken down, such as the house of the resident master, the district house, the post office, the bank office, the clinic, the hotel, the detention center and the other” [6].

Regarding the damaged infrastructure, many bridges in Blitar were reported to suffer serious damage from the eruption. The bridges were destroyed and swept away by lahars, including among other 3 bridges connecting Blitar with Wlingi, 27 iron bridges and 1 wooden bridge connecting Talun with Kanigara [6]. Ganggangan bridge which was a bridge with a good iron frame and stretched 18.24 meters in length, were washed away and buried in lava mud. Similarly, the Pakunden bridge girders and pillars were lost in the lava flood. The main traffic routes connecting Blitar-Wlingi to Malang and Blitar-Srengat to Kediri, or from Blitar to Tulungagung were cut off in several places [12].

Likewise, railway infrastructure was also badly affected by the eruption of Kelud. Train trip could only reach Kalipucang [6]. As can be seen in Plate 2, Blitar railway station suffered remarkable damage from the rains of volcanic material. Several railway crossing bridges were cut off by lahar flows. The total financial loss suffered by the railroad company from the eruption was estimated to reach Rp.80,000 [6].



Fig. 2 Damaged Blitar Station
(KITLV Collection No. KLV001058201)

The eruption also affected severely the local economy. It was reported that more than 15,000 hectares of estates and farmlands were badly destroyed [13]. Most estate plants were wiped out, buried and covered with volcanic materials. The plantation companies operating on the slopes of Mount Kelud suffered the biggest losses as happened for examples to the estates of Bendorejo, Gantar

and Candi Sewu. Coffee was major commodity grown by the European estate companies. Starting from the slopes to the feet of Mount Kelud there were coffee gardens [6]. In addition to coffee, other crops included rubber, coconut, and cassava. All the crops were devastated and the companies also found their processing factories were paralyzed. In the meantime, they had to keep paying the workers' wages [13].



Fig. 3 Destroyed coffee plantation
(Photo: Dr. J. H. Coert in Nauta 2010).

Not only the European planters, the local farmers suffered huge financial losses as well. Many found their foodcrops in the fields destroyed by lahars. No less than 500 [354.8 ha] *bau* of farmlands were reportedly buried under lahar [6]. One estimate suggested that total damage of farmlands included 12,000 *bau* [8,515 ha] of unirrigated lands (*tegalan*) and 8,000 *bau* [5,676 ha] of irrigated lands (*sawah*) [6]. Many livestock such as horses, oxen, buffaloes, goats, and small ruminants also died from the eruption [13]. The loss of livestock meant that the farmers lost their saving, additional source of income, and were left without help in working on farm lands and transporting agricultural products to market.

Big natural disasters would commonly lead people to think of explanations for the causes of the events [2]. It is very likely that the 1919 eruption of Kelud also provoked similar thing. Unfortunately, detailed reports on such issue are almost absent. As indicated by Bung Karno in his autobiography, there seem to have been a belief circulating among the people that the disastrous eruption of Kelud was an expression of the anger of gods [10]. But, unlike the ideas circulating among the indigenous people, the Europeans understood the disastrous eruption of Kelud from a more scientific perspective, linking the explanation to a complex geological process [5].

III. RESPON TO THE DISASTER

Many were dead from the eruption, but there were also many more people who were able to survive in the disaster. Old people who once experienced the Kelud eruption ran towards south of Brantas river. Some went high places where lahars of Kelud never traversed, such as to Gebang Village, Bendagerit and PanjenKidul. Those who believed in sacred things evacuated themselves to mosques, graves and there were also others who only ran wildly[6]. Some people took a refuge in various places considered safe. SocieteitBlitar was one of the buildings in town still upright. But, this building could not

accommodate all refugees because parts of the building were also used as temporary offices for the post, telegraph and pawnshop services[6].

Many victims were stranded on the roadside or among the ruins of the buildings. They were confused and in a miserable condition. Their homes were gone and they had nothing but clothes in their bodies[6]. Lacking of basic needs for survival, a number of people were forced to steal other people's belongings. as told by Catholic missionary, Father J. Wolters, CM, Father van Goethem, CM, and Father J van Verriijt, CM[14], [15]. But, part of the stealings was also committed to by criminals who took advantage of the chaotic situation and looted goods from the abandoned, unguarded homes. At least four criminals were reported to have been caught by the authority for acting crimes[6].

In response to the emergency situation, the Dutch colonial government mobilized all the available resources to the worstly impacted area from other part of Java. There were no adequate facilities and personnel on site to help ten thousands victims. There was only one small hospital for the native and a joint plantation hospital called Blitar Klinik. The number of medical staff was limited too [16]. Therefore, many Europeans from other places in Java such as Bandung, Cimahi, Magelang, Semarang, Surabaya, Malang were brought to Blitar[6]. Some were medical personnel who were ordered to stay on site for 12 days and handled the victims. Not only in Blitar, hospitals, clinics, doctor's offices in the entire residency of Kediri were full with wounded people in a desperate need of medication. To express the government's full support, Governor General of the Netherlands East Indies visited the disaster. He also took a special time to meet the wounded victims in the places where they obtained medical treatment[6]. To overcome the post-eruption situation and to run the local economy, a small market was built near the evacuation site which became known as Pengungsen Market This market was intended to provide the various materials needed by the refugees and the surrounding community. The market location is now in the south of Kebon Raja, including within the Sananwetan Village area. Furthermore, the market activity was moved and centered in PasarPon. The market was intended to serve economic activities in the eastern region of Blitar and Pahing-Pakunden Market for the western part of Blitar, while waiting for the market to be built in the PasarvLegi. To the south of the market were shelter barracks that later was known as Tulungsari, to commemorate it as the location of a group of people in desperate need of help. The refugees stayed temporarily in the area while awaiting the rehabilitation of their residential areas[16].

Not only the government, a number of groups and individual also expressed their concern and supports to the disaster victims. On their own initiatives, committees were formed to run fund raising activities. A total aid at a value of F. 290.510 was reported to have been collected and sent to the eruption victims in Blitar Among the individual donors were Prince Hendrik, and Queen

Wilhemina of Netherlands, the Sunan of Surakarta. Committes mentioned the list of donors included among others: Pakempalan Bupati, Pakempalan Kridhawacana, Pakempalan Mardi Praja, Budi Utama Surakarta, Tentoon stelling kunstkring Deli, Komite Istri, Komite Purworejo, Komite Salatiga. The biggest fund was collected by Keloet fonds Surabaya reaching a total value of F. 200.000. The assistance provided was not only in the form of money, but also in the form of clothing and foodstuff such as corn, rice, and cassava [6].



Fig. 4 Refugees queuing for food ration in Societeit Blitar (KITLV Collection No. KLV001052928)

Oral tradition circulating among the local people mentions that since the 1919 Kelud eruption the relation between the Europeans and the indigenous people improved. The condition was different from the previous period showing that the indigenous people were not allowed to freely enter the building complex. There was a reluctance or even fear among the indigenous people entering the area and meeting with the Europeans. In addition, this place was built specifically to accommodate the activities of the Europeans. The indigenous people permitted to enter the area were those who worked in the Societeit Blitar. During the eruption the building became one of the evacuation centers. In this place many Europeans cooked rice to feed the refugees [6]. Since then Societeit Blitar had become a relatively more open place for the indigenous people.

IV. REHABILITATION AND MITIGATION

After the eruption, rehabilitation was undertaken on the damaged area. The efforts were seen as vital to restore the order and to bring the people's lives back to a normal state like before. The rehabilitation of damage caused by the eruptions not only restored the normal state, but also changed the face of Blitar town. A number of buildings with typical European features were missing, among them the Hotel Chemin de Fer. Tulungsari market was also moved to the north of the Court house. The rehabilitation activities were done by the government and independently through collective actions (*gotong royong*) by the communities[16].

A couple of days after the eruption ended, cleaning activities were performed. Many people in Blitar both Europeans and the natives joined the activities. Volcanic materials covering the roads and buildings began to be

removed. Some people dug and deepened the trenches [6]. Hundreds soldiers helped dredge roads and ditches, and also collected corpses buried by lava deposits. The bodies were loaded on a cart. They buried five-six corpses into one hole because too many dead bodies to handle[6].



Fig. 5. Piles of sand and mud are removed at the edge of the road after the eruption (Source: Tropenmuseum Collection No. 1000 2158)

The rehabilitation of damaged infrastructure took the form of construction works. The reconstruction of bridges became one of the main concerns. The four bridges connecting Blitar with Wlingi were seen as vital. The government decided to immediately rebuild these bridges, while dealing also with emergency traffic. The Kandangan bridge with 30 meters long wooden frame was removed due to the silting of Konto River which caused the rising level of river water. Part of the bridge was reused to build temporary bridges over the Sawentar river to connect Blitar with Wlingi. The work costed as much as F. 11,448 and by the end of 1920 the construction was completed [12].

Big construction works were undertaken on other vital bridges. To repair the Ganggangan Bridge, part of the iron frame was cut and reused to strengthen the Sangut bridge located near the capital of Blitar. In the 29-meter-long Pakunden bridge, which was washed away by the lahar, a new bridge was built to replace. The engineers were deployed to build temporary bridges near the drift bridge, so that the traffic between Blitar with Kediri and Tulungagung was not disturbed. The bridge across the Brantas River was inflated to a higher position so as not to be swept away by lahar. The elevation of the bridge was considered necessary because the Brantas river and several other rivers were covered in with thick sand up to 7 meters so that it underwent silting and rising river water levels. Costs incurred to repair and rebuild the damaged bridges reached f. 17,088 originating from government budget allocations, loan funds and donations from various parties[12].

One of the safety measures to contain the lahar threat of Mount Kelud was Dam Bladak. The dam was located in Kali Lahar, served as a safety dike when there was a lava flood. Kali Lahar is one of the main rivers that channeled lava vomit from the top of Mount Kelud. This dam was initially 10 meters high, and proved ineffective in the event of an eruption in 1919. Therefore, after the eruption of 1919 the dam was raised again to tame the beast of Kelud lahar threatening Blitar town. A new dam

called Salam Dam was built on Kali Jati, a branch of Kali Lahar with a purpose of protecting the District of Srengat[17]. The great Kelud eruption of May 1919 further pushed the Vulcanology Survey Institution deciding the first task it must perform was to drain the craterlake water through an artificial tunnel. The work began in September 1919 and took several years to complete. Bemmelen (1949) explained that his original plan was to dig a 955-meter tunnel. When work began, the crater was still dry and tunnel excavation started from both sides of the crater wall. Due to the high temperatures in the excavation work area (46° C), so the tunnel until 1923 could not be completed. At that time the crater was filled with water up to half (approximately 22 million cubic meters). Unexpected mud and gravel floods occurred and filled the tunnel being dug. The incident killed five workers, resulting in work being terminated in 1923.

A new plan was made to progressively lower the water level of the crater by drilling seven large parallel tunnels and using a siphon pipe to drain the crater water. This work was completed in 1926 and successfully reduced the volume of crater water to less than two million cubic meters. The big work became a serious concern of the colonial government, because the impact of Kelud eruption always caused huge losses. Therefore, according to Bemmelen, Mount Kelud was the first and most ambitious example of a design work built on a volcano to reduce the threat from the lake or crater [18]. The eruption of Mount Kelud 1919 also became the momentum of the formation of *Vulkaan Bewakings Dienst* by the Dutch East Indies Colonial Government under the auspices of Mining Service, on 16 September 1920. Since then the term *lahar* has been used internationally[3], [16]. The institution is now named the Center for Volcanology and Geological Hazard Mitigation.

The eruption destroyed the economic sector that had been developed by European entrepreneurs. The rehabilitation of the sector costed a lot because they almost had to start from the scratch. Some plantation companies that found their factories in a state of disrepair and most of the plantation crops they cultivated adopted a strategy to rise from a downturn by changing the type of estate crops in order to run their business or simply create an additional source of income to pay their employees. Rehabilitation of the plantation industry took a relatively long time, because it covered the number and types of complex work, as well as the vast area. However, not all companies succeed in doing so and were unable to operate again, for example *Olvado Oil Plant* in Sukorejo. As a result some companies decided to sell their assets or merged with other companies (Pers. Comm. Ric Widodo in Blitar 31 March 2011).

The indigenous people worked together to rehabilitate various facilities directly related to their interests. Roads, bridges and waterways in villages or kampongs were repaired through collective efforts (*gotong royong*), involving all the villagers. Likewise, the rehabilitation of worship places, markets, and village buildings involved

the participation of local people. The cooperation and cohesiveness of indigenous people in post-eruption rehabilitation impressed the Europeans. Initially, there had long been strict social segregation between the Europeans and indigenous people. For example, it was not easy for the indigenous people to enter *Societeit Blitar*. They were reluctant or afraid to approach this complex because it was clearly only for the Europeans. When Mount Kelud erupted, this complex became a shelter and a common kitchen for the refugees. Since this time the Europeans began to become more open and willing to communicate more closely with the indigenous people in the daily activities. The social segregation between the two groups became more loosely practiced and the shared experience of going through disaster made it possible.

V. CONCLUSION

The paper has shown that the 1919 eruption of Mount Kelud was an important historical event. Its importance is related to the fact that the eruption greatly affected the people's lives and the development of Blitar region. The eruption was catastrophic for causing large number of death tolls and severely damage to the infrastructure and the regional economy. The government, estate companies and the communities had to jointly cope with the impact of disaster especially in the evacuation and rehabilitation measures in order to bring their lives back to normal again. The eruption also created a momentum in the context of volcanic eruption disaster mitigation in Indonesia.

The discussion has provided an overview of the dynamics of people's lives in an area that has been hard hit by disaster. It tells a story about how to revive from the disaster-linked devastation. The eruption of Kelud required the government, plantation companies and the communities to restore the disrupted life back to normal. They not only had to undertake the rebuilding of old bridges connecting different areas, but also opened their eyes about the importance of building "a new bridge" that connected different people who had long been separated by a strict racial boundary. The experience of passing through the volcanic catastrophe opened the beginning of growing closer relations and cooperation between the indigenous people and the Europeans.

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