World Health Organization

Emergency and Humanitarian Action (EHA), WHO Indonesia

Situation Report (SR -3)
17 October 2007

Volcanic Activities, Mt. Kelud Volcano, East Java Province, Republic of Indonesia

Executive Summary

- 16 October 2007: Government raised the status of the volcano to level 4, the highest alert level and recommended people evacuate the area immediately.
- 116000 people living within a 10 kilometer radius of the volcano have been evacuated from Kidiri and Biltar districts.
- 17 October 2007: As the volcanic activity slowed down, people living in low risk areas were allowed to go back to their home.
- 41 out-reach health posts established, 200 health facilities on alert, 100 medical professionals mobilized, emergency health kits, mask essential equipments provided.
- Emergency health information system activated.
- 3 command health post at DHOs in Kidir, Biltar and Pere activated for health sector / cluster coordination in case of disaster.
- MOH, RCC and WHO conducted rapid assessments in the areas.
- Regional Crisis Center with the support of MOH and WHO in process of providing on-the job and on site refresher training on potential hazard related mass causality management.
- MOH and WHO exploring for additional resources to be provided to the potential high risk areas to strengthen emergency preparedness and response.

Caption: *Picture of Mt. Kelud's Crater Lake.*

Date of Incident
Wednesday, 26 September 2007.

General Information
Kelud volcanic lake is one of the most active and most dangerous stratovolcanos in Indonesia. Many lives were claimed by Kelud eruptions in the past six centuries mostly due to pyroclastic flows, surges and especially lahars. In the 1919 eruption, 5160 people were killed.
The last eruption was in 1990 killing 7 people and destroying two villages.

Volcanic activity

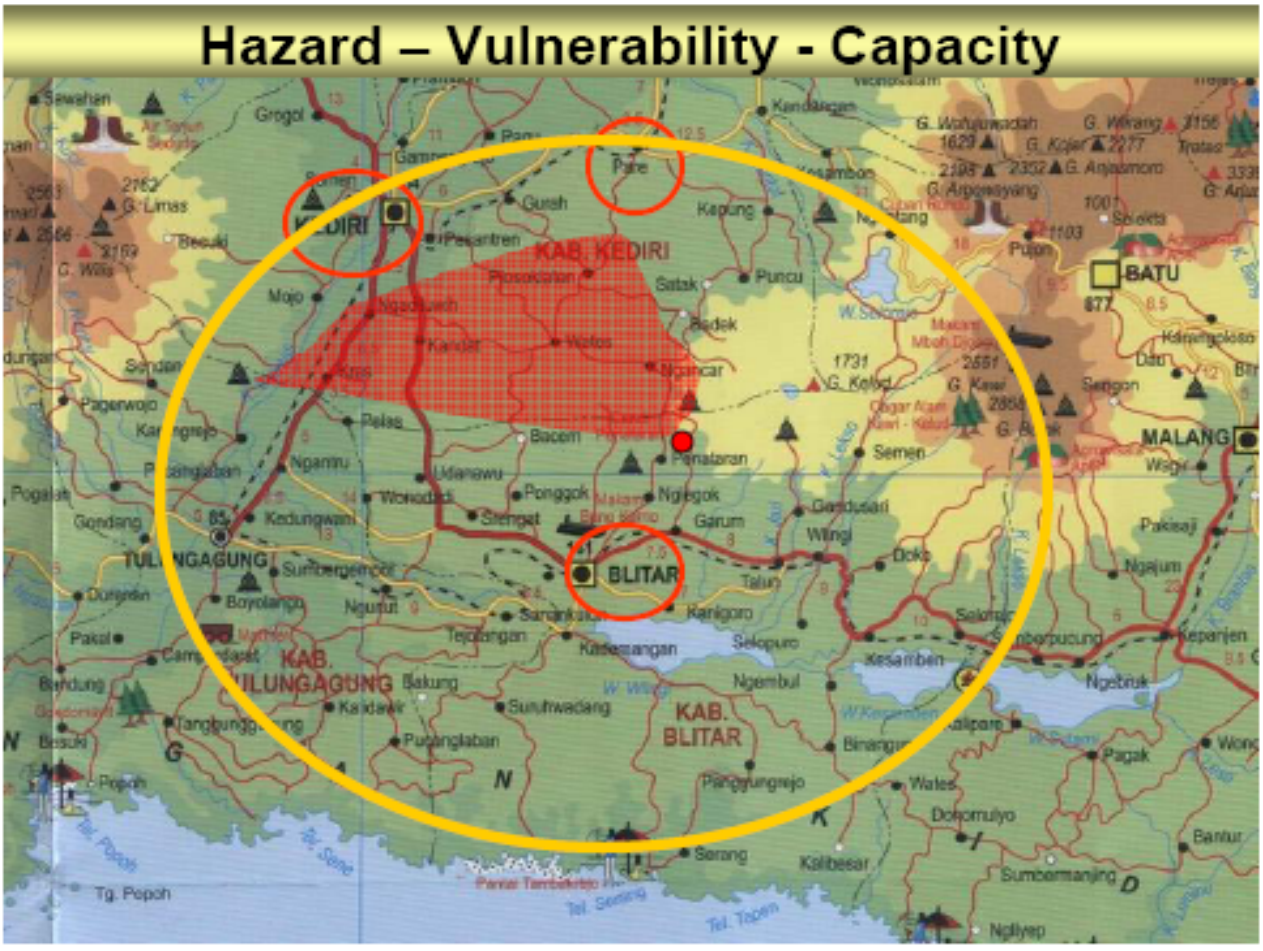
29 September 2007:
Based on observations, seismic activity, deformation, visual, temperature in the crater lake and water chemistry, Kelud was upgraded to alert level III (SIAGA).

16 October 2007:
- Government raised the status of the volcano on Java Island to level 4, the highest alert level and recommended people evacuate the area immediately.
- Lake temperature measured at depth 15 meters in the middle of the lake reached 37.8 degrees Celsius.

The crater lake is one reason Kelud is harder to monitor than many of the other volcanoes scattered across Indonesia's archipelago, as some of the warning signs are concealed below the water's surface. The crater lake of Kelud Volcano is now closed to the public and is monitored by TV monitors and seismographic equipments so scientists can detect any change in the lake's colour, likely to turn from turquoise to white as sulphur levels increase, temperature and earthquakes.

The volcanic earthquake can be associated with tectonic earth quakes effecting nearby districts. Potential landslides and flooding are additional hazards.

Location
Kelud volcano is located sharing Kediri District, Blitar District and Malang District, East Java Province; 90 km/55 miles southwest of Indonesia's second-largest city Surabaya and some 620 km/385 miles east of the country's capital Jakarta.



Caption: *hazard-vulnerability-capacity mapping*

Level of Alertness
Kelud Volcano status has been upgraded to the highest alert level IV (AWAS) since 16 October 2007.

Table showing alert level of Indonesia volcanoes and its codes:

Stages	Name	Code	Criteria	Interpretation
1	**Aktif Normal**	Green	Monitoring of visual, seismicity and other volcanic event do not indicate changes.	No eruption in foreseeable future.
2	**Waspada**	Yellow	Increasing activity of seismicity and other volcanic events, and visual changes around the crater.	Magmatic, tectonic or hydrothermal disturbance, no eruption imminent.
3	**Siaga**	Orange	Intensively increasing of seismicity with supported by other volcanic monitoring, obvious changes of visual observation and crater. Based on observation data analysis, the activity will be followed by main eruption.	If trend of increasing unrest continues, eruption possible within 2 weeks.
4	**Awas**	Red	Following the main eruption, the initial eruption begins to occur as ash and vapor. Based on observation data analysis, the activity will be followed by main eruption.	Eruption possible within 24 hours.

Vulnerable Population
It is estimated that about 476 620 people may be affected once the volcano erupts. 211 732 in Kediri District and 264 888 in Blitar District.

16 October: villagers living within a 10 kilometer radius have been evacuated.

17 October: as the volcanic activities slow down, people living in low risk areas of the mountains are allowed to return to their homes. Vulnerable groups, elderly, disables, children and pregnant women are encouraged to remain in the temporary shelters.

Evacuation and Health Posts
Below is total number of evacuated residents and health posts ready as of 16 October:

No	District	IDPs	Health Post
1	Kediri	36,200	-
2	Blitar	80,100	-
	Total	**116,300**	**41**

Casualty and Damage
Up to date, no reports have been received as yet on casualties and damages but it is expected that if the eruption occurs, it would be extremely dangerous and cause major damage to its surrounding.

Additional potential hazards to Surabaya City and surrounding areas

- Potential major earthquake, volcanic eruption and collapse of land in highly densely populated urban areas including Surabaya city as it has already been affected by gas and hot mud from the volcano.
- Major floods in the coming rainy season due to the river being shallow as a result of drainage of mud.
- Mud covered areas became larger, difficult to remove imposing weight to the ground.
- More than 50,000 cubic meters of hot mud flowing on daily basis.

- One of the most populated factory locations in Indonesia, and damages could lead to bio-chemical and radiation (BCR) hazards.
- Electricity and communication black out threatening security and leading to social unrest.

Health sector needs encountered

- Operational cost for heath staff to closely monitor, manage emergencies, provide day to day treatment, established disease surveillance and control.
- Additional radio communication equipments to strengthen early warning and emergency information.
- On site refresher training for health staff to manage mass casualities.
- Emergency health kits.
- Personal protective measures for health staff.
- Generator and mobile water purification equipments for mobile health posts.

Preparedness and Response

Government

- Officials have advised residents living within a 10 km (6.2 miles) radius of Kelud volcano to evacuate to safer areas.
- The provincial government of East Java are preparing themselves for the eruption by providing disaster contingency funds, preparing 12 spots for the flow of volcanic materials of the eruption along 10 rivers, and mobilizing vehicles and police personnel to be on stand by.
- In Blitar District, the local government is activating emergency response posts up to hamlet levels and conducted an emergency drill on 3 October. The local government and the vulcanology office have requested the residents to be on alert and to avoid staying within a five kilometer range from the crater.
- The Chief Executive Officer (KALAKHAR) BAKORNAS PB visited Kelud volcano on 3 October with his team to strengthen coordination in anticipation of the eruption.
- Ministry of Social Affairs prepared 100 tons rice at each district level and 200 tons rice at provincial level. Tents for public kitchen, clothing, ready-to-eat meals for IDPs, and 1.5 tons baby food supplement have also been prepared for distribution.

MoH – WHO Indonesia

- On 2 October, MoH – WHO team lead by Chief Crisis Centre MoH accompanied by MO, EHA-WHO conducted a rapid assessment in the potentially vulnerable areas. The team met with the Surabaya Regional Crisis Center team including professionals from hospitals, PHO and DHOs to strengthen emergency preparedness and response activities. Needs were identified and emergency supplies and operation cost provided for the initial phase. Necessary preparation and emergency information system was activated by the local teams based on the contingency plan and monitoring check list. Additional needs were identified and communicated back to the Crisis Center, MOH.
- On 10 October, MOH – WHO team lead by Head of Provincial Crisis Center accompanied by Medical Officer-EHA-WHO visited again to conduct operational assessment. Technical discussions were made with different professions and community at hospital, PHO, DHO, volcanologic monitoring sites and villages and the follow-up plan was modified based on the needs. MOH and WHO mobilized emergency medical supplies and health staff to support the high risk areas. Surabaya Crisis Center, technical team deployed with specialist from Dr. Soetomo Hospital to Kidiri, Pere, and Biltar district hospitals for technical assessment and on-the job training on trauma, ARI, eye infection management.

- The Regional Crisis Center in support of Crisis Center – Moh and WHO has identified Kidiri, Biltar and Pere as three possible first level command posts for health sector / cluster coordination to be activated in case of disaster.
- 15 October, MoH with the support of WHO, dispatched 4 mobile teams equipped with emergency mobile operational vehicles to different command posts for close supervision and management.
- 16 October, health post, mobile medical teams and health facilities provided medical services to the evacuated communities.
- 17 October, MOH and Regional Crisis Center have already mobilized 50 medical doctors and 50 medical staff for 41 medical health posts in Kediri and Blitar in close collaboration with the health centres (Puskesmas). 200 000 masks have also been distributed in Kediri, Blitar and Malang districts to both communities and health staff.
- Total of 288 health facilities are on alert status for both Kediri and Blitar district. The break down is as follows

List of health facilities prepared and providing health services in Kediri District

No	Health Facilities	Total (Unit)
1	Hospital	5
2	Health Centre	36
3	Satellite Health Centre	80
4	Ambulance	36
5	Private Medical Service Centre and Maternity House	42
	Total	199

List of health facilities prepared and providing health services in Blitar District

No	Health Facilities	Total (Unit)
1	Hospital	4
2	Health Centre	24
3	Satellite Health Centre	24
4	Ambulance	35
5	Arm Forces Medical Clinic	1
6	District Indonesian Red Cross	1
	Total	89

Follow-up action by MOH, Regional Crisis Center and WHO

1. Closely monitor changing situation in volcanic activities and potential earthquakes.
2. Provide on-site refresher training on management of health related mass casuality management resulting from volcanic eruption, earthquake, flood, landslide, biochemical and radiation hazards.
3. Provide additional communication equipments to strengthen emergency information system.
4. Provide operational cost to support early disease surveillance and control of communicable diseases.
5. Mobilize additional emergency health kits.
6. Support mobile water and sanitation equipments and water purification tablets for IDP sites.
7. Organize health sector coordination meeting.

International appeal

So far the government has not called for any international appeal but is working in close collaboration with local authorities and all interesting partner agencies and donors to support the field operation.

Emergency Health Information Center

Information relating to the Mt. Kelud volcanic activities is available in the EHA web link http://www.who.or.id/download/docs/eha/EHA-Info

Important Contacts

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Source of Information from Indonesia

Information is gathered from the following sources. This report is for reference only and should not be quoted as factual accuracy can change.

1. WHO
2. Crisis Center (PPK), MoH
3. Regional crisis Center, Surabaya
4. The Centre of Vulcanology and Geological Hazard Mitigation
5. UN System
6. BAKORNAS
7. Local and international news media