

# Sketching Volcanic Risks

(Working document of the Service national du RÉCIT de l'univers social)  
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## 1) Observe photos

With the help of various texts and images, draw a geographical sketch of the consequences of a volcanic eruption.



- Give the photo a title.
- What proportion exists between the natural and human elements in this photo?
- Describe your emotions when looking at this photo.
- Write a few words about the man in the foreground (lifestyle, work, housing).

## 2) Identify the consequences of a volcanic eruption as described in written texts

Use the following grid (complete grid available in appendix):

Volcanic Hazards	Consequences for the Population
1)	

## Text 1: Pinatubo's Eruption

And suddenly all hell broke loose. We had barely arrived and we were already heading towards Pinatubo. On the car phone we heard that the Americans had had time to evacuate 14,500 of the 16,000 people in their air base. Mud flows—those famous lahars made up of water and ash—surged down the slopes of the volcano at over 100 km/hr, sweeping everything in their path. We progressed with more and more difficulty towards the slopes of the volcano in growing darkness despite the fact that it was 11:30 in the morning. Mercinier was filming the peasants' road full of carts and cars overflowing with furniture, fleeing in the face of Pinatubo's wrath and other surreal scenes—like the parked cars, abandoned by their owners and now covered in over two metres of grey ash—these images would later be broadcast around the world and make the headlines of all the 8 o'clock news shows in Europe. Sky and earth shook with the volcano's explosions. Ash fell like rain. It took us five hours to travel the 70 kilometres to the city of Olongapo, where the extent of the damage was dramatically evident. Houses had been crushed under the weight of the falling ash; rivers had reached flood levels; concrete bridges had been swept away by lahars. And the volcano continued to spit death. The number of casualties was unknown but was sure to be high. (Several days later, the Volcanology Institute was to report 963 fatalities in that single day, June 16, 1991.) Violent explosions erupted once more, hurling columns of ash to heights of over 40 kilometres, which fell hundreds, if not thousands, of kilometres from Pinatubo—this ash was visible as far away as North Vietnam and Singapore. Debris covered the rice fields and crops for over 1,000 kilometres in all directions. The summit of Pinatubo was eventually destroyed by these repeated explosions; the volcano shrank by 165 metres as a result.

The earth still shook; tremors were felt as far away as Manila. Gilbert Mercinier and the sound man, Max Iffergane, filmed water buffalo submerged under ash up to their horns and fields that were completely covered in ash. Lines of buses escaping towards the capital were crammed with people, bags and furniture. The air was filled with sulphur oxides and reeked of rotten eggs. In total darkness at 11:30 a.m., we drove with our lights on: we were the first Western television crew on the scene, as the Manila airport had been closed for 48 hours; 10 centimetres of white powder covered the main airstrips and all the large carriers were forbidden from taking off or landing.

Translated excerpt from C. Brincourt and G. Lambert, *Grandir à Manille : Les 75 000 enfants du père Tritz* (Paris: Bayard Éditions / Centurion, 1995), p. 17–19.

## Text 2: Consequences of a Volcanic Eruption

### General characteristics

[...]

Damage results from type of material ejected such as ash, pyroclastic flows (blasts of gas containing ash and fragments), mud, debris and lava flows.

### Factors contributing to vulnerability

Settlements on the flanks of volcanoes.

Settlements in the historical paths of mud or lava flows.

Structures with roof designs not resistant to ash accumulation.

Presence of combustible materials.

Lack of evacuation plan or warning systems.

### Typical adverse effects

*Casualties and health:* Death from pyroclastic flows, mud flows and possibly lava flows and toxic gases. Injuries from falling rock, burns; respiratory difficulties from gas and ash.

*Settlements, infrastructure and agriculture:* Complete destruction of everything in the path of pyroclastic, mud or lava flows; collapse of structures under weight of wet ash; flooding, blockage of roads or communication systems.

*Crops and food supplies:* Destruction of crops in path of flows; ash may break tree branches; livestock may inhale toxic gas or ash; grazing lands may be contaminated.

### Possible risk reduction measures

Land use planning for settlements around volcanoes.

Protective structural measures.

### Typical post-disaster needs

Warning and evacuation; medical assistance, search and rescue; provide food, water and shelter; relocate victims; provide financial assistance.

(An Overview of Disaster Management, [http://www.undmtp.org/modules\\_e.htm](http://www.undmtp.org/modules_e.htm), page 36)

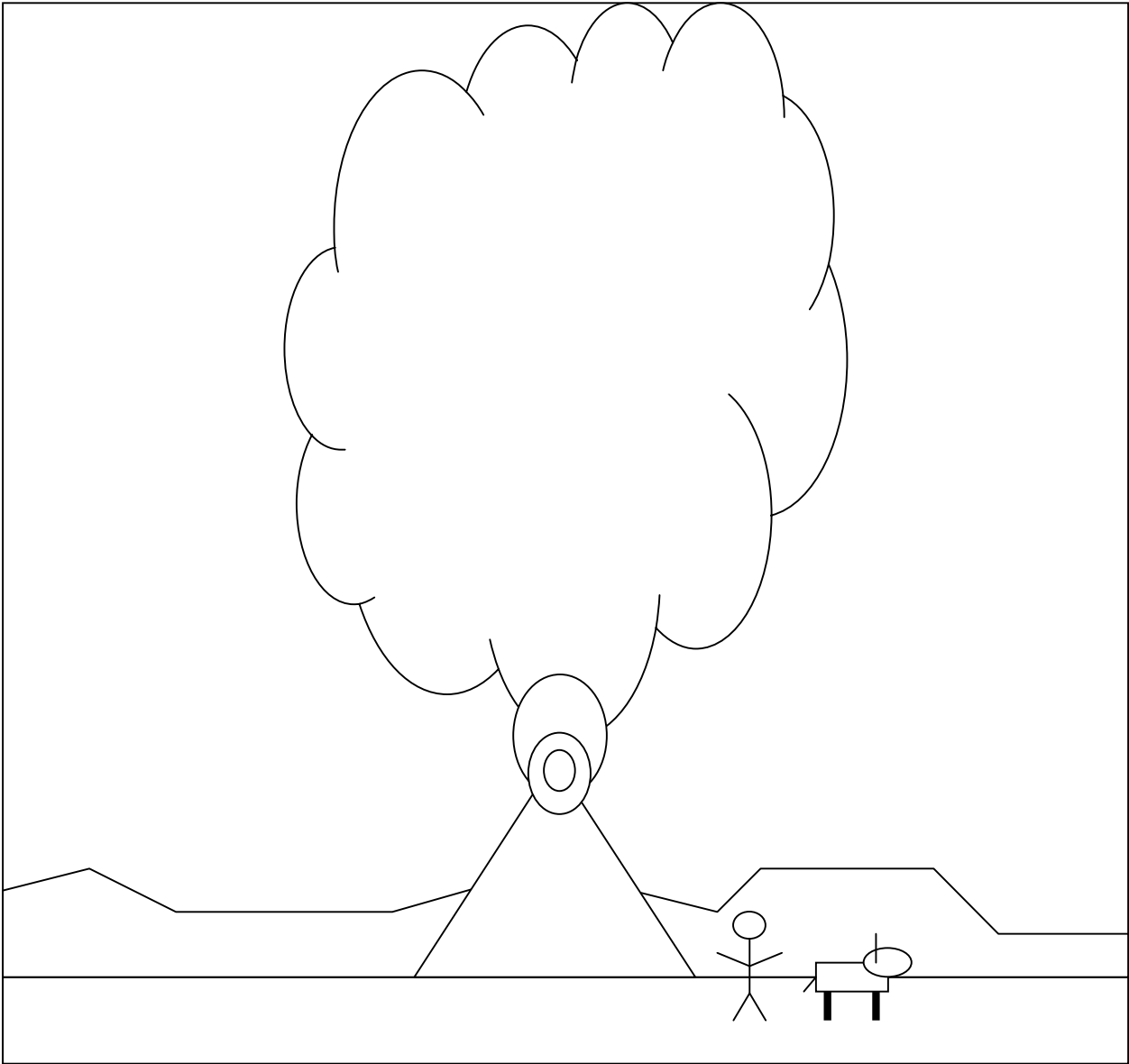
### 3) Pinatubo



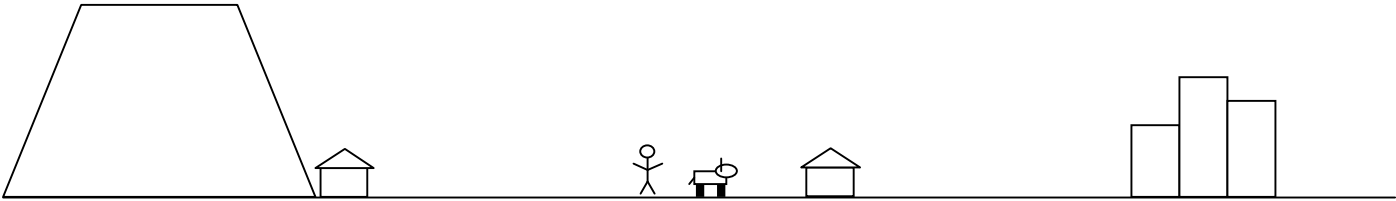
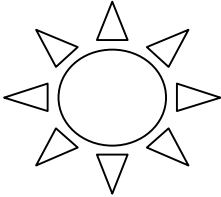
**Pinatubo's Eruption in the Philippines**

- Sketch and identify the elements that make up the landscape.
- Identify the natural and human elements of the landscape.
- Illustrate the consequences of the volcanic eruption for the man in the foreground.
- What does this image teach you about the consequences of volcanoes?

Draw a sketch that illustrates a consequence of Pinatubo's volcanic eruption.



Draw a sketch that illustrates several consequences of a volcanic eruption for the surrounding populations.

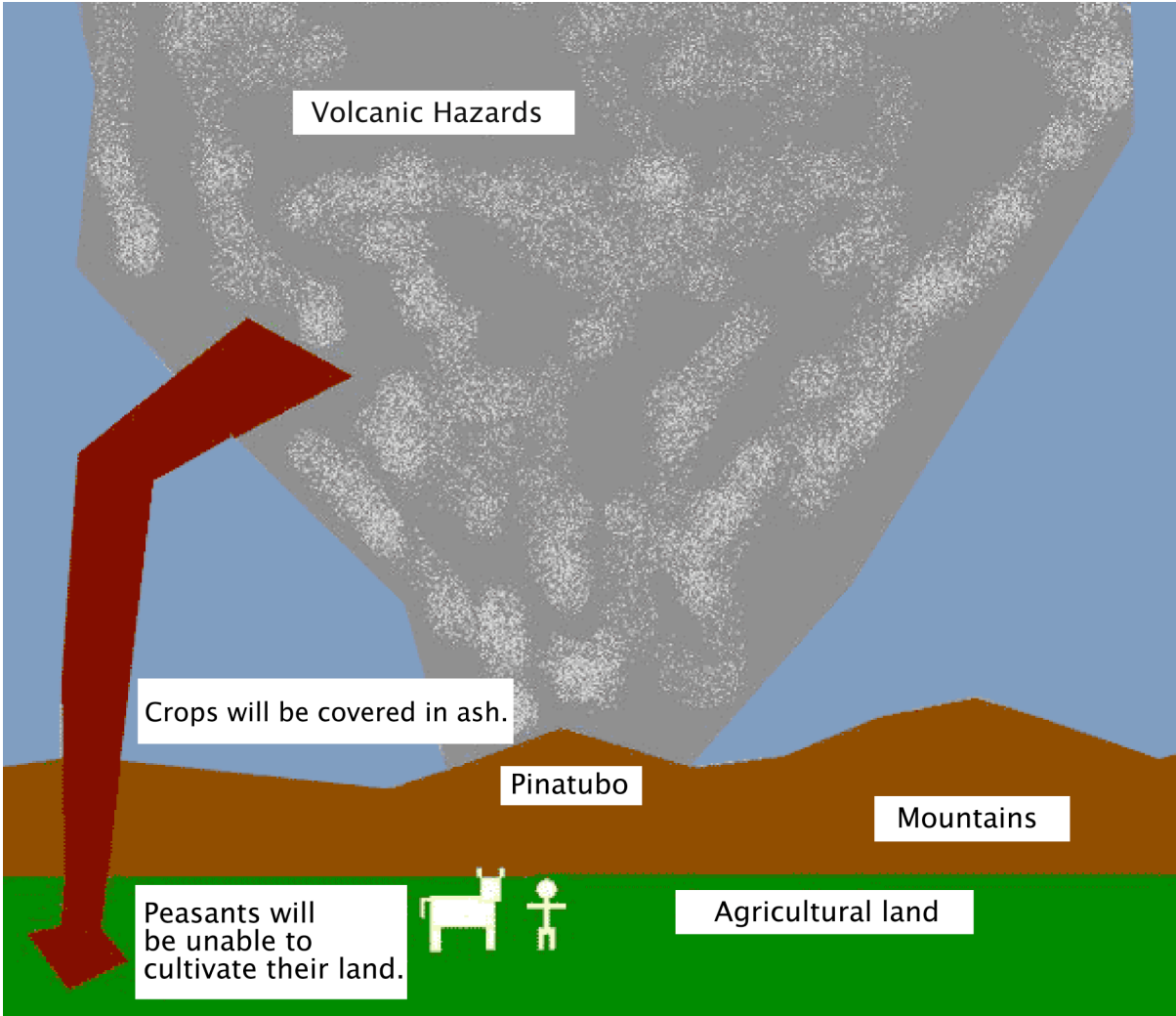


## Appendix

Reading grid:

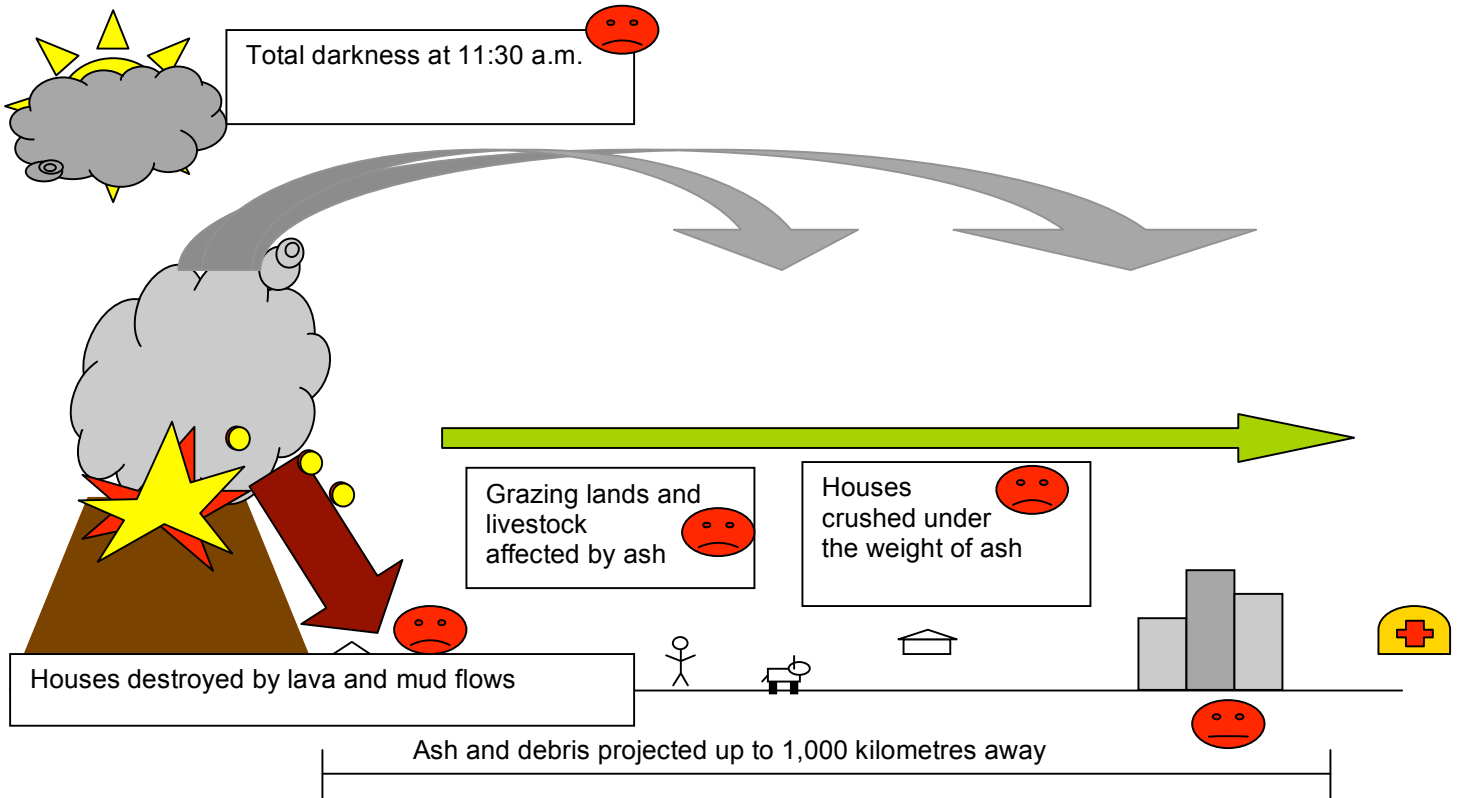
Volcanic Hazards	Consequences for the Population
1)	
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	

Example of a sketch:










**Example of a sketch:**

**Risks of a Volcanic Eruption for Surrounding Populations**



**Legend**

-  Risks of the volcanic eruption affecting the population
-  Lava flows
-  Projection of ash
-  Projection of debris
-  Darkness during the day
-  Red Cross relief camps
-  Evacuation of the population