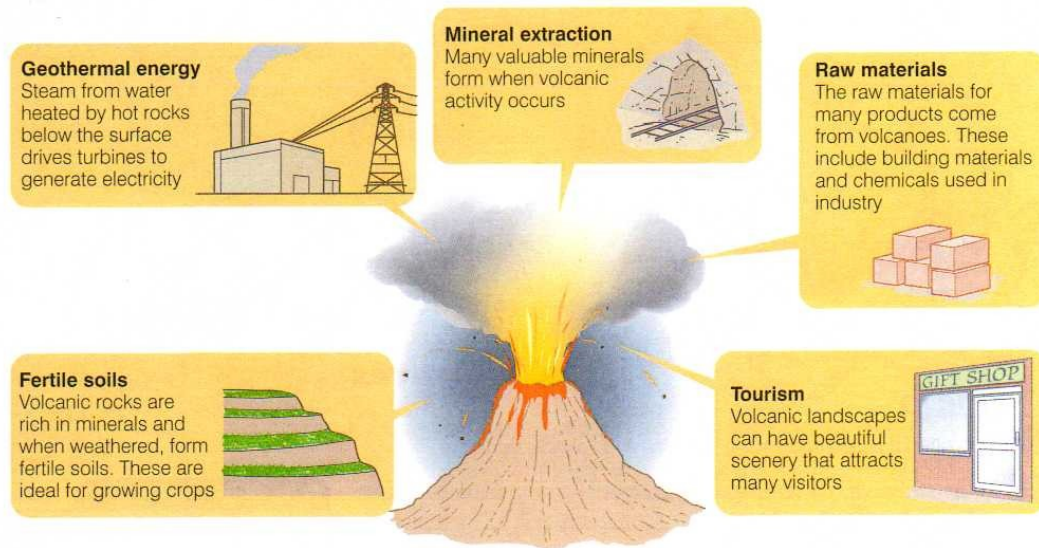


3.3 Living with tectonic hazards

Despite the hazards, many people continue to live in earthquake zones or areas close to volcanoes. As tectonic hazards occur relatively infrequently, they might feel that a major volcanic eruption will never happen in their lifetime, or that an earthquake will never strike their particular location. It may also be a case of 'there's no place like home'. After living in the same area for many generations, families develop a strong sense of heritage. Family and friends live in the area and they do not want to move elsewhere. In many less developed countries people simply cannot afford to move away, or it may be that as population pressure increases, more people are forced to live in areas of risk. In some cities building regulations do not allow development on areas that are at risk of **liquefaction**, but illegal shacks are sometimes built in these areas.

Volcanic areas offer many economic advantages (Diagram A). Many people live in these areas because the benefits outweigh the possible risks.



A Benefits of volcanic areas

Geothermal power

Geothermal power is widely used in places such as New Zealand, Hawaii and the volcanic island of Iceland, where it provides 70 per cent of energy needs. The Geysers field in northern California (USA) is the largest geothermal development in the world and provides enough energy for the city of San Francisco and its 765,000 people.

Geothermal energy is a renewable energy source which is clean and sustainable. Geothermal power plants release less than 1 per cent of the CO₂ emissions of a fossil fuel power plant and the steam and water are constantly reused.

In this section you will learn:

the reasons why people live in earthquake zones and in areas close to volcanoes.

Key terms

Liquefaction: the loss of strength that can occur in the ground during earthquake shaking.

Tourism

Tourism is now an important activity in many volcanic areas. People get jobs in hotels and restaurants, in the making and selling of souvenirs, in transport and as tour guides. People flock to marvel at eruptions and there are trails, viewpoints and visitor centres provided for them. Other volcanic features also attract tourists; hot springs and mudbaths have long attracted people because of their health benefits. Geysers such as Old Faithful (Photo B) in Yellowstone National Park (USA) are major tourist attractions.

Agriculture

Lava breaks down quickly to form fertile soil, especially in a hot, wet climate. Hawaii produces crops such as sugar, coffee and pineapples on volcanic soils that have taken less than 100 years to form.

Minerals

In volcanic areas, heated groundwater concentrates traces of minerals such as copper, gold, silver, and tin into rich veins. These are mined, along with precious stones such as diamonds. Many worked-out goldmines have now become tourist attractions in their own right.

Is it worth the risk?

Many people living in areas of tectonic hazards believe that advances in science and technology will make life safer for them. Whilst many volcanoes are closely monitored and people are evacuated when there are signs of an eruption, it is still impossible to accurately predict when an earthquake will occur. Much research has been done on this subject – especially in Japan, where the entire population is at risk from earthquakes – but with little success. In California (USA), despite the history of earthquakes, increasing numbers of people want to live there. Attractions such as opportunities for well-paid jobs and a pleasant climate and lifestyle, make it worth the risk.

Activities

Write a paragraph to explain how each of the following might benefit local people.

- 1 Volcanic scenery.
- 2 Material erupted from a volcano.
- 3 Heat beneath a volcano.

extension Use the internet to find out more about the ways in which one volcano is of benefit to people, for example Vesuvius (Italy), Mount Merapi (Indonesia), Mount St Helens (USA).



B Old Faithful

AQA Examiner's tip

There are potential benefits of living in areas that experience tectonic hazards. Learn some of these benefits in relation to specific locations.

links

Learn more about particular volcanic features in the USA and Iceland at www.nps.gov/yell and www.energy.rochester.edu/is/reyk