

# Assess the effectiveness of strategies used to manage the impacts of glacial proc...

[Experience](#), [Human Nature](#)



Guidance:

Candidates:

(i) should show knowledge and understanding of the problems arising from the impact of glacial processes and landforms on human activity or from the impact of human activities on glacial environments;

(ii) should show knowledge and understanding of the strategies put in place to manage these impacts;

(iii) should show an assessment of the effectiveness of the above strategies; better candidates should make an assessment of the effectiveness of the strategies discussed throughout, whereas the average candidate may only assess the strategies in passing or perhaps briefly in their conclusion.

Candidates need to demonstrate their knowledge and understanding of the problems arising from the impacts of glacial processes and landforms on human activity or the impact of human activity on glacial environments. There may be a discussion not only of the nature, but also of the seriousness of the impacts.

In order to assess the effectiveness of strategies adopted to deal with the impacts, candidates will need to briefly describe the strategies. Strategies will vary depending on the glacial environment chosen. The assessment should involve an evaluation of both the positive and negative aspects of the strategies adopted in relation to the aims of the strategies implemented.

Assess the effectiveness of strategies used to manage the impacts of glacial processes and landforms on Human activity.

<https://assignbuster.com/assess-the-effectiveness-of-strategies-used-to-manage-the-impacts-of-glacial-processes/>

## Problems arising from glacial processes and landforms

Strategies used to deal with these (remember to assess +tive and -tive)

Many strategies have been put in place to manage the impact of glacial processes. The types of glacial processes they would be managing range from erosional processes Glacial processes- avalanche, ablation glacial (flooding) & fluvioglacial deposition (landslides) Landforms- pyramidal peaks, arêtes, troughs, hanging valleys, lakes, outwash plain

In glacial environments such as the French Alps human activity is very popular with up to 100 million tourists going for holidays each year to enjoy the winter sports available. However strategies must be put in place to control the glacial processes in order to make the area safe to minimize the negative impact on humans. The methods used include prevention and control measures by both soft and hard strategies, but are they successful?

An avalanche is a type of glacial process and to deal with it strong, resistant buildings are constructed, as are avalanche barriers on the slopes and trees are planted near to pistes and woods made denser so as to break the flow as well as to hold the snow together reducing the risk of an avalanche starting. The choice of strategy is very much dependent to the nature of human activity, the density of the settlement and the impact the strategy could have on the surrounding nature.

Another factor that must be considered is the frequency and intensity of the avalanche as well as the potential impacts like fatality and damage to buildings and infrastructure. In Verbier Austria they have introduced a way to categorize areas which are at risk of avalanches by creating red and yellow

zones. In the red construction of any kind is banned while in the yellow specific safety measures must be applied and a strict building code followed. This should result in buildings that will withstand avalanches, protecting the people inside, even though they will not do anything to stop an avalanche actually occurring.

The town of Gältur in Austria is predominantly a yellow zone however when the huge avalanche of 1999 struck it was during the day when people were returning to their homes so weren't able to be protected by this strategy thus the death toll was 4000. Though a great deal of money is being invested in the various strategies, more pressure is being put on the planners, as the alpine towns are swelling thus putting themselves at further risk of avalanches as more and more trees are being cut down and the safe areas to build are almost full forcing more buildings in to the danger zones.

Glaciers aren't the only threat developing towns in the upland have to face. As the globe is going through climate change the rates of ablation in glacial areas is much higher. This is made worse by the increased popularity of the areas for tourists who access them through cars and planes, which contribute to the pollution. Furthermore activities like skiing and snowboarding damage the soil under the snow making it weaker, and young trees are damaged while older trees are removed for ski lifts or roads. These factors all accumulate in the potential danger of landslides, which can also be caused by the fluvio-glacial deposition during the summer periods adding to the instability of the land.

To deal with landslides, planners ensure that fragile areas are not being used to allow for the regrowth of vegetation. In resorts in the French alps the only means to get there is via train so no extra cars are present. Also codes of conducts are enforced to avoid young saplings from being damaged so that the soil in the future will be held together and strengthened by the presence of the roots. However, many of these strategies are there only to lessen the impact of an already present issue. They can not stop landslides from happening as they have little influence over the rate of ablation of the glacier.

Rapid retreat of glaciers increases run-off, contributing to the growth of glacial lakes and the conversion of some supraglacial lakes to moraine-dammed lakes. These lakes tend to breach the weak and unstable loose moraine dam, with catastrophic impacts downstream. Strategies for predicting future glacier lake formation are important for an early planning of safety measures, The Ngozumpa Glacier project aims to study the response of glaciers to climate change and to gain data to predict hazards like lake outbursts and slope failures. Glaciers in the Himalayas are some of the most prominent glaciers to undergo shrinkage due to global warming.

In the past years there have been many glacier lake outburst floods with many more unstable lakes currently being monitored such as the Tsho Rolpa in Nepal. These unstable glaciers have engineering projects conducted on them to lower the levels and mitigate the hazards. But, these works are not only expensive but are logistically difficult due to the fragile high altitude

environment. However they can be used to develop the potential of hydropower production.

Another area with which Hydropower potential has been explored is using hanging valleys. These occur where the main valley has been eroded at a much higher rate than the tributary valleys. After glaciation the latter are left at a higher altitude 'hanging' above the main valley. Streams that flow from such tributary valleys fall steeply creating waterfalls. The kinetic energy of the water is turned into electricity. The owners of the power stations must ensure that enough water is in the stream/river at all times to protect that habitat which can mean that no electricity is produced in the summer. I believe that many of the strategies in place to manage the impacts of glacial process and landforms on human activities are successful as we have better knowledge and technology to deal with them. Yet I do not think that they are utterly effective as they are all very expensive and the majority are to limit the impact rather than to stop it from happening in the first place.