

# The Human Impact of Climate Change in Peru

## Teachers Guide

The activities and resources focus on 3 areas of Peru, exploring the human impact of current climate change on the communities in these areas. It also examines the responses of these communities to their experience of climate change, called *adaptation* strategies.

Looking at the human impact of climate change through the experiences of 3 families in different areas of Peru, the resources asks pupils to examine the consequences of climate change for communities most at risk globally. Pupils shall develop empathy through considering the range of impacts on their livelihoods, health and security. Pupils are asked to consider their possible responses, and to compare those with actual adaptation measures, and their success. Pupils compare and contrast the experiences of different regions of Peru. Barriers to implementing adaptation strategies are considered, and the wider social and political links to the problems and their solutions. Pupils are also asked to consider the links between the experiences of people in Peru, and their responsibilities as global citizens to respond to the challenge of climate change injustice.

### Objectives

- Understand the uncertainty which climate change brings to weather patterns, illustrated through the experience in different parts of Peru
- Know what the impacts of climate change in different regions of Peru have been on people's lives
- Develop empathy with the lives of people in other countries through understanding their experiences of climate change
- Know what adaptation strategies people have used to cope with climate change in different parts of Peru
- Understand what factors affect the response of local people to climate change
- Develop a sense of moral injustice related to the issue of climate change, and a responsibility to take action as a global citizen

### Outcomes

- Be able to describe the experience of living with the consequences of climate change in one of the three regions in Peru
- Summarise the impact of climate change in one region of Peru, and identify similarities and differences between the other two regions
- Imagine possible responses to adapt in a region, and compare these to actual adaptations which have taken place
- Identify similarities and differences between adaptations in different regions of Peru

- Identify the environmental, economic, social and political barriers for adapting to climate change
- Decide where the highest risk and the highest responsibility for climate change rest globally

### ***Age Range***

The activities and resources here are designed for use primarily at Key Stage 3, although some support may be required in literacy support for Year 7 groups (such as assistance with keywords) and less able students.

The resources could be adapted for use at Key Stage 4, with more independence given to pupils to explore barriers for adaptation in Peru through research.

### ***Suggested structure***

It is recommended that teachers use the resource to enable a whole class to grasp the differences in experience between 3 regions of Peru. For that reason it is envisaged that teachers will separate a class into groups of 4, each group looking at a specific region (and with more than one group for each of the 3 regions concerned).

At the point where pupils have examined the impacts, and looked at the adaptations in their regions, groups may be broken down and reformed, so each new group contains at least one representative from each region. In this way pupils may compare and contrast the different regional experiences.

The resources are designed to be printed off, however they may also be used electronically, with groups accessing material directly from a computer.

There are a number of activities designed to engage pupils with the issues concerned in the impact and adaptation strategies taking place in Peru. However these resources may be used flexibly. Teachers may want to ask each group looking at a region to create power points, and present these to each other, or to use the resources as starting points for researching in greater depth into adaptation strategies elsewhere.

### ***Time***

The resources are designed to be used sequentially, to cover a series of lessons, and it is envisaged that the activities will take 2 to 4 lessons to complete. However activities may be adapted and modified to suit the nature of the group concerned and the time available. Some activities may be condensed or left out dependant upon specific objectives and time.

## List of Resources

### Introductory Resources: 1 hour approx

- **Climate change starter**
- **Real and Current Climate Change in Peru** (intro with task)
- **Power point** (introduces climate change in Peru and 3 areas to look at, and gives overview of activities, plus last slide explains plenary video)

### Impacts resources: 1-1.5 hours approx

Designed to look at each of the 3 regions (Utatampa, Arequipa and Piura) in regionally specific groups. Each region has the following resources and activities for pupils:

- **Introduction** to the region (starter activity and intro to climate change there)
- **Meet the family** – the human impact of climate change (4 family members and descriptions of the impact of climate change on the area, plus short task)
- **What is the Impact:** the impacts compass rose (after reading the meet the family sheets, in groups pupils summarise the impacts using the compass rose)
- **Responding to climate change:** Adaptation in Peru – your ideas (pupils in groups think up how they *could* adapt, before reading the adaptation strategies in their region)

### Adaptations Resources: 1.5-2 hrs approx

Designed to first be looked at in regionally specific groups, and then cross-regional groups to allow comparing and contrasting. The resources and activities available are:

- **Adaptations** to climate change (4 different ways the community in the area has adapted)
- **Evaluating adaptation strategies** (to be used after reading the 4 adaptation strategies in a group, evaluating what was done and comparing it to their previous ideas)
- **Comparing different regions** (pupils now break away from their regional groups, and form new groups with a representative from each region in it – they identify similarities and differences between regions)  
*Pupils to stay in new groups for next tasks*

- **The barriers to adaptation** (pupils use the compass rose to list things they think may prevent further adaptations)
- **Why does this matter** (a task to discuss the links between climate change in Peru and their lives, and responsibilities as global citizens)
- **What else could be done** (pupils are to think about what other actions could now be taken to both adapt and mitigate climate change)

**Plenary Resource:** 30mins approx

There is a **video** on the efforts of people in the Puno region of Peru to cope with the risk of flooding and landslides

As the last slide in the power point suggests, this could be used as a plenary activity to draw out from pupils their understanding of why that is an issue there (link to climate change human impact), how it makes people feel (empathy) and act. Also they can consider what factors influence the response (human and community resources, government and international support), and give a sense of solidarity encouraging active global citizenship from our pupils.

**The vulnerability line** - This is to be used to draw out the idea of the most vulnerable people globally are those least responsible for the problems, and that they need support to adapt. This can also bring in the idea of wider actions to allow mitigation measures, to ensure adaptation in the future is not required as extensively.

## Teacher notes for starter activities

Time: 30 – 45mins approx

### *Structure:*

This contains the following:

- a starter activity on climate change
- a general introduction to climate change in Peru with summary task

They are designed to be used in pairs/small groups, and fed back through the class

This could then be followed by using the power point with pupils

### *Pupil learning*

The idea is to make pupils understand that many of the impacts of climate change are unknown and unpredictable, and that local differences mean that some areas may warm whilst others cool etc (i.e. all could really be ticked)

However certain trends are identifiable, to draw out in class discussion

- greater warming at the poles than in equatorial areas
- higher frequency of more intense weather events (i.e. droughts, floods, forest fires, hurricanes etc)
- general global warming trend
- general sea level rise

Within Peru, pupils need to understand the general trends, and know some specific facts such as the loss of glaciers.

This should move onto considering who is responsible for climate change, and who is suffering, to draw out the moral injustice inherent within the problem.

This can be followed by the power point, which introduces the other resources.

## Pupil task 1

First look at the list of *possible impacts of climate change*

**Tick** the ones you think are true, and **cross** the ones you think are false

When you have finished, **circle** the ones you think are the most important

Then **pick one**, and write why you think it is the most important. Then **explain** to the person sitting next to you why you picked it.

### *Possible Impacts of Climate Change*

Drought

Increase in temperature

Drier weather

More snowfall

Ice caps melting

Sea Level rise

Colder weather

Less clouds

Stronger hurricanes

Flooding

Wetter weather

More clouds

The most important is...

This is because...

## Pupil Task 2

Read through the introduction

Write one sentence to explain **what climate change in Peru means**

Then write one more sentence to explain **why climate change in Peru is important**

## Introduction to Climate Change in Peru



Peru is considered to be the South American country most vulnerable to water shortages. Large parts of its population live in river basins dependent on glacial melt from the Andes for their water supplies.

Temperatures in Peru have already increased by nearly 1 degree C. It will be 3 to 3.5 degrees warmer than 1980-99 temperatures by the end of the century.

There has been a 22 per cent reduction in the total area of Peru's glaciers in the last 35 years; and an 80 per cent reduction in small glacier ranges in the last 50 years. Most glaciers will disappear in the next 15 years.

Furthermore, Peru's contribution to the problem of climate change is minimal, with per capita (per person) contributions of CO<sub>2</sub> at less than 2 tonnes, compared to the US which is 19 tonnes, or the UK which is over 9 tonnes.<sup>1</sup>

Peru's experience of real and current climate change shows the pressing need for urgent and drastic *mitigation* action (reducing CO<sub>2</sub> emissions to limit the damage) globally. It also demonstrates that the most vulnerable members of the global community, with the least responsibility for the damage, are experiencing the human impact of climate change first, and worst.

### Further information

Reports from other parts of Peru on the human impacts climate change  
<http://www.oxfamamerica.org/articles/climate-change-affecting-peru-right-now>

How the loss of crops such as the potato is affecting cultural identity  
<http://www.npr.org/templates/story/story.php?storyId=87811933>

Plans by the Peruvian government to plant 40 million trees to *mitigate* against climate change  
<http://www.peruviantimes.com/planting-trees-to-mitigate-climate-change-peru-to-plant-more-than-40-million-in-2009/>

Andean community environmental website – contains further information and links regarding the impact of climate change in the region  
<http://www.comunidadandina.org/ingles/biodiversity.htm>

1 – <http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=752&crd=>