

**Tuesday 18 June 2013 – Afternoon**

**GCSE GEOGRAPHY A**

**A674/01/02/RB** Issues in our Fast Changing World (Foundation and Higher Tier)

**RESOURCE BOOKLET**

This Resource Booklet can be opened from Monday 1st April 2013.

This Resource Booklet is to be taken into the examination and must **not** be annotated in any way.



**INFORMATION FOR CANDIDATES**

- Use this Resource Booklet as part of your preparation for the examination. You may be asked to use some of the resources in the examination.
- You must **not** annotate the Resource Booklet with your own comments or notes in any way.
- These abbreviations are used throughout the Resource Booklet:  
LEDC – Less Economically Developed Country  
MEDC – More Economically Developed Country
- This document consists of **16** pages. Any blank pages are indicated.

**INSTRUCTION TO EXAMS OFFICER / INVIGILATOR**

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## **A guide to using the Resource Booklet during the Study Period**

You should study these materials in preparation for the examination. You may also undertake some relevant work in class. You may spend some of the study time working on your own, but it would be best if some activities listed below could be carried out as part of a group. There is no reason why the group should not share the research into other materials. In total, around six hours of study time is suggested to explore these materials.

Remember as you use these resources, that some of them are taken from the internet. They come from many different sources and may have been written for a specific purpose or represent the views of individuals and organisations. You should:

- begin by reading through all the materials so that you have a good idea of what each is about
- list all the geographical terms used – make sure you understand their meaning.

Your teacher is allowed to help you should you have any difficulty understanding these resources.

### **Key questions to consider when using this Resource Booklet.**

- How and why is the global climate changing? You should consider both human and natural causes.
- Who is responsible for climate change?
- What different types of impacts is climate change causing (on the natural environment and for people)?
- How are the impacts of climate change being managed?
- How are people in MEDCs and LEDCs coping with the impacts of climate change?
- What challenges are there in managing future climate change and its impacts?

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**Resource 1 – What is the issue?****The issue**

Scientists believe that the Earth's climate is getting warmer. This is called global warming.

**The evidence**

- 2001 – 2010 was the warmest decade on record
- the amount of polar ice is decreasing
- glaciers are melting

**A possible cause**

One of the causes of global warming could be the increase in greenhouse gas emissions as a result of human activity. Some greenhouse gases are carbon dioxide, methane and nitrous oxides. These greenhouse gases are produced by cars, factories and power stations. As countries such as India and China continue to develop, emissions of these gases will increase. Scientists predict this will lead to further global warming.

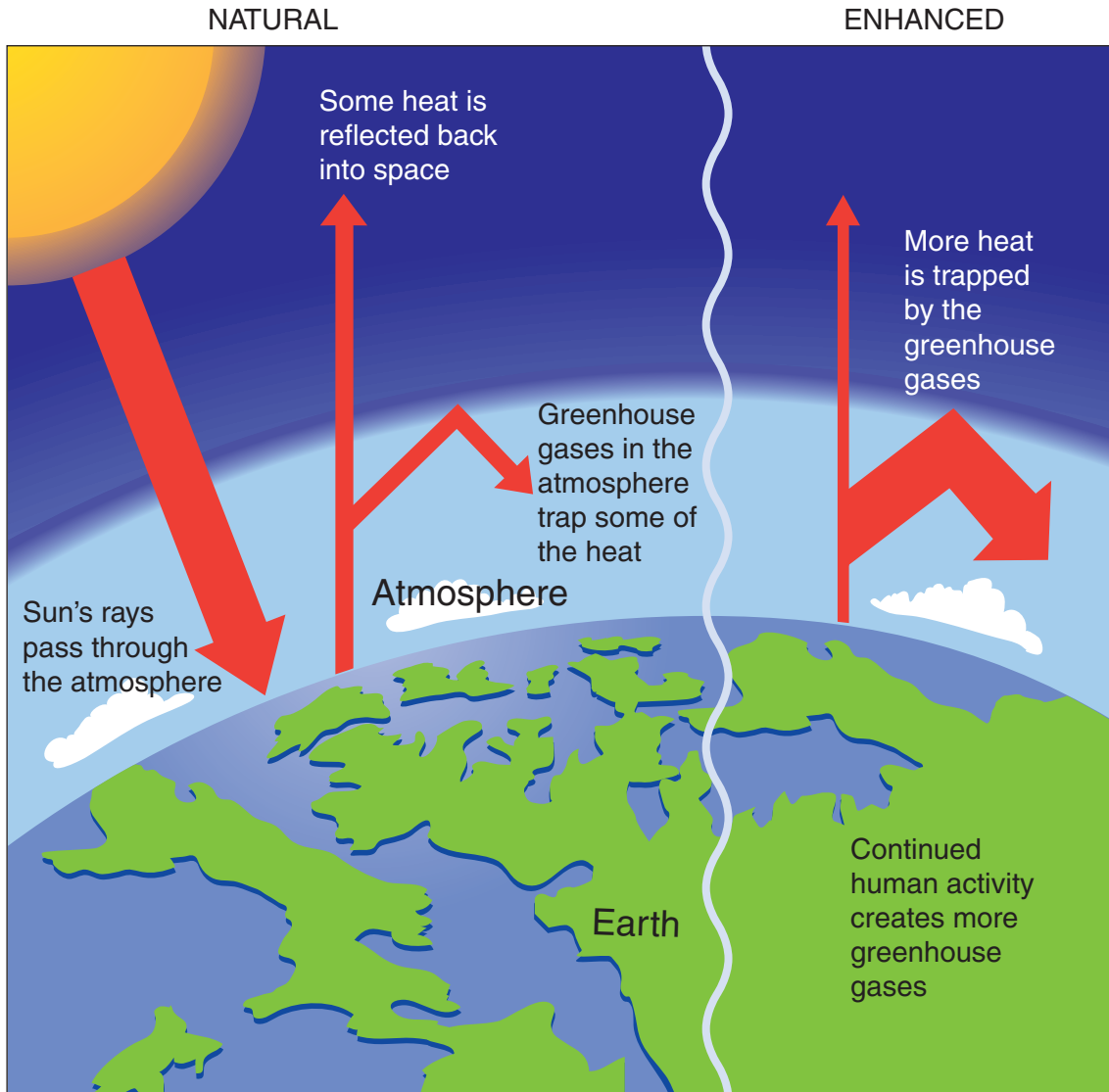


Traffic in Delhi, India

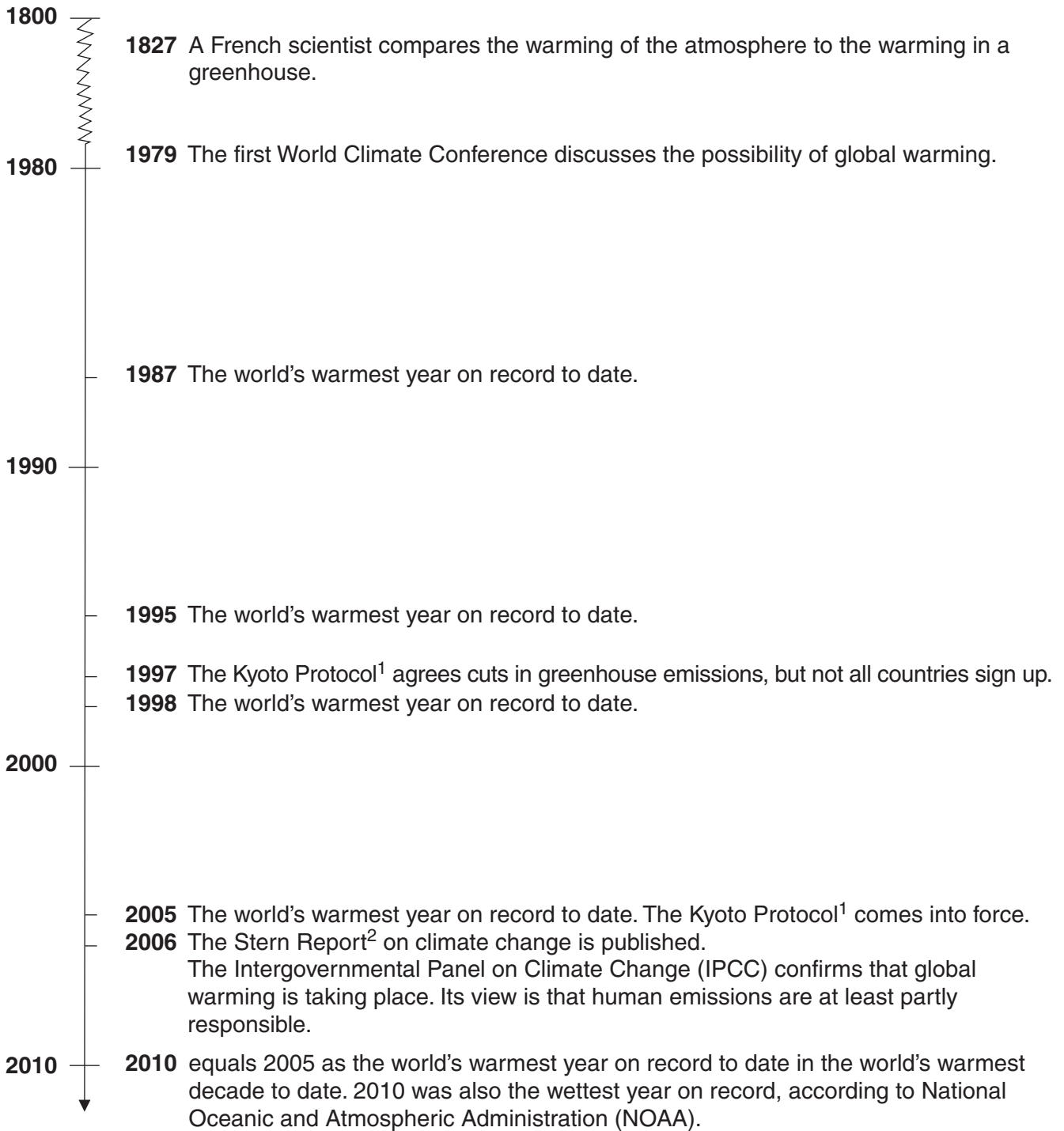


Factories in Shanghai, China

Resource 2 – The natural greenhouse effect and the enhanced greenhouse effect



### Resource 3 – Global warming timeline



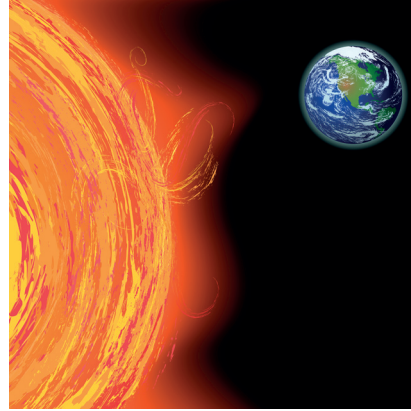
<sup>1</sup> The Kyoto Protocol was an international agreement signed by 55 countries, under which industrialised countries would reduce their collective emissions of greenhouse gases to 5.2% below 1990 levels by 2012. The USA was one of the countries that did not sign it.

<sup>2</sup> The Stern Report concluded that climate change presents serious global risks and demands an urgent global response.

## Resource 4 – Some natural causes of climate change

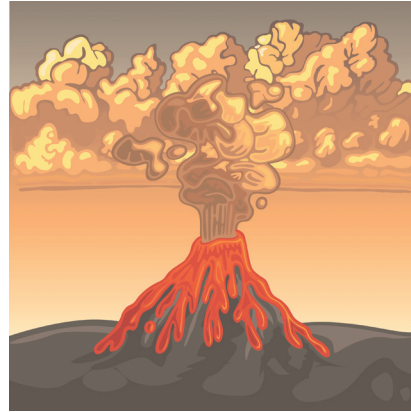
### Sunspot activity

Sunspot activity such as solar flares leads to the development of uneven temperatures on the surface of the sun. Solar flares can intensify the sun's heat and occur approximately every 11 years.



### Volcanic eruptions

Major volcanic eruptions eject a lot of gases, including carbon dioxide, which are released into the atmosphere. Ash is also ejected, which blocks the sun's energy and heat.



### Changes in the Earth's orbit

Changes in the Earth's orbit occur in three ways:

- the shape of the orbit changes from almost circular to oval
- the Earth wobbles as it spins
- the tilt of the Earth's axis changes.

These changes occur over thousands of years and cause changes in the amount of energy the Earth receives, leading to cycles of warming and cooling. According to some scientists, these changes are linked to previous Ice Ages.

**Resource 5 – Carbon dioxide emissions of selected countries**

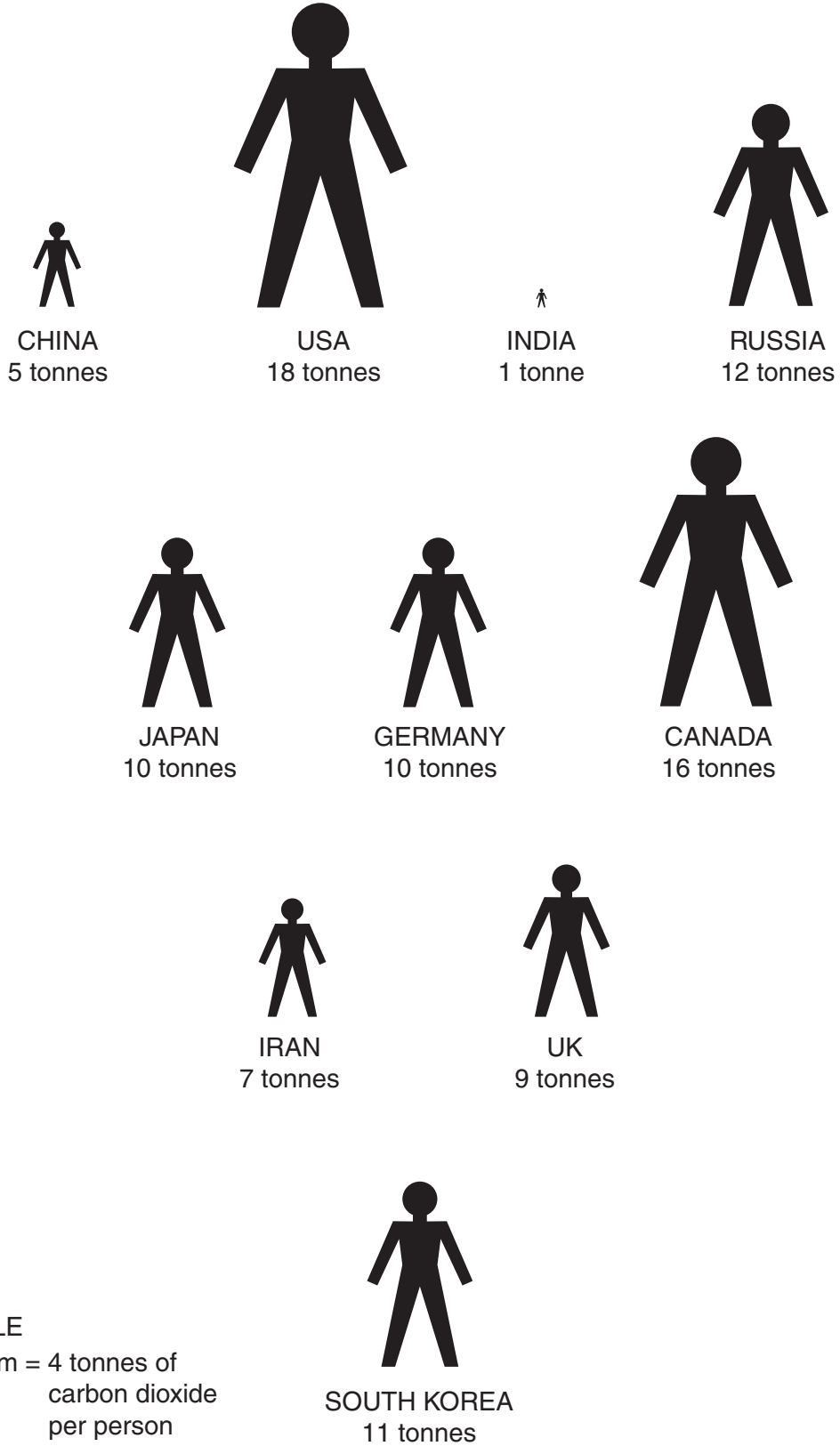
<b>Country</b>	<b>% of global CO<sub>2</sub> (2008)</b>	<b>Population in millions (2008)</b>
China	23	1 325
USA	18	305
India	6	1 149
Russia	6	142
Japan	4	128
Germany	3	82
Canada	2	33
Iran	2	72
UK	2	61
South Korea	2	49

Source: Data on emissions collected by CDIAC (Carbon Dioxide Information Analysis Centre) for the United Nations.

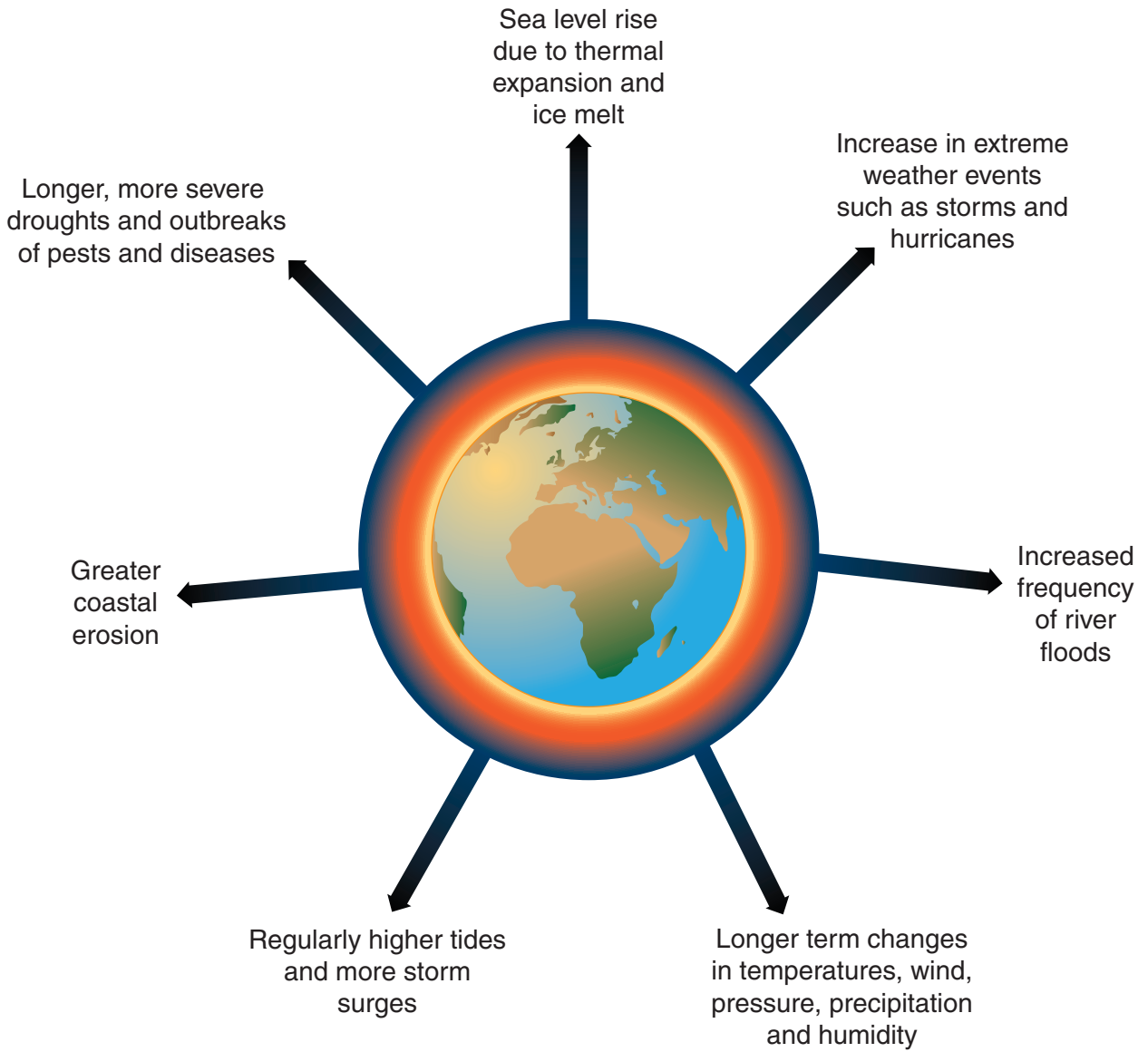
Population figures from '2008 World Population Data Sheet' produced by the Population Reference Bureau, Washington DC, USA, 2008.



Resource 6 – Carbon dioxide emissions per person

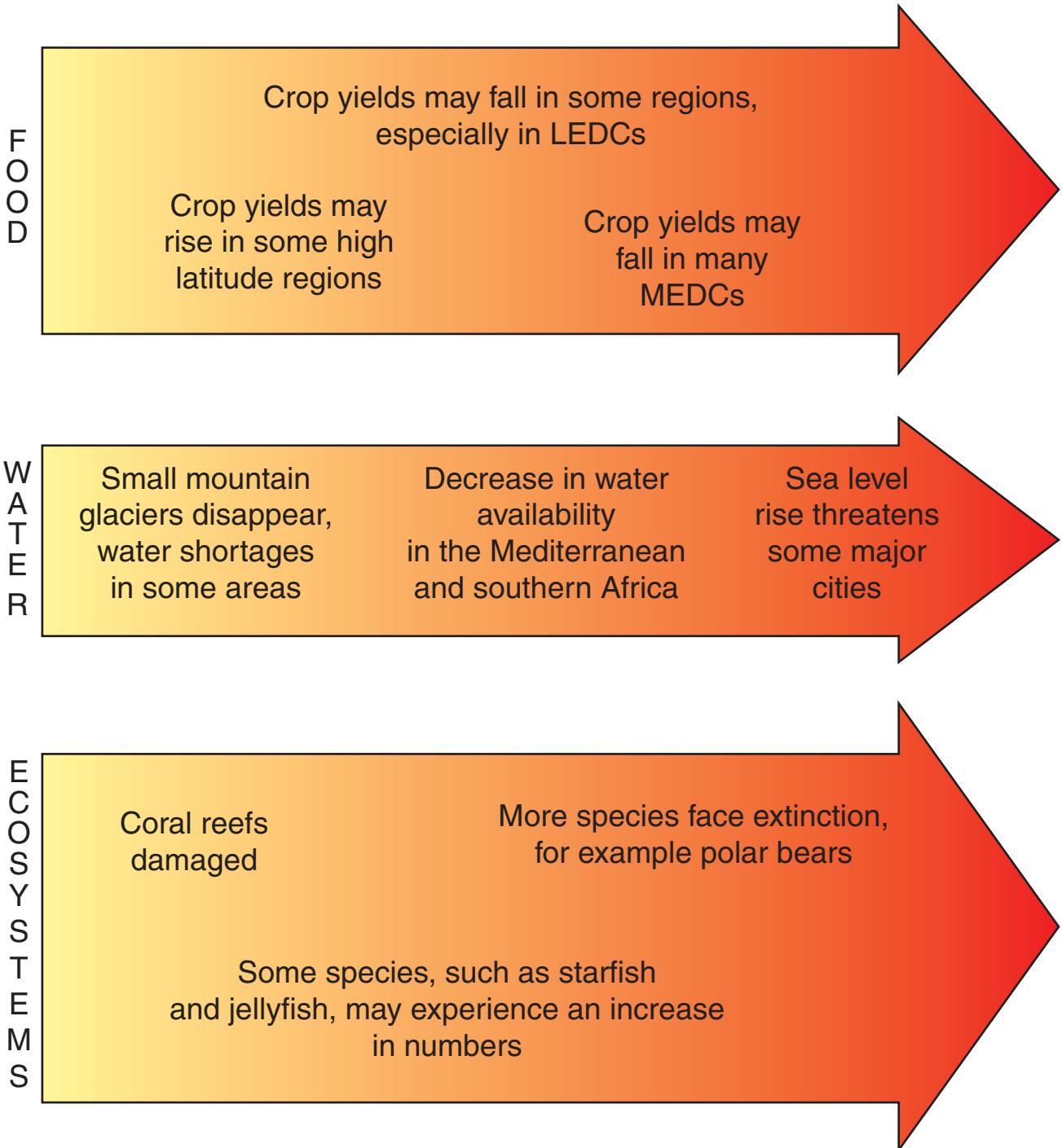
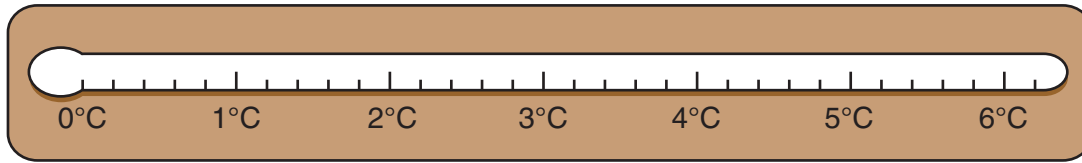


Resource 7 – Impacts of global warming



Resource 8 – Impacts of temperature increase

Global increase compared to pre-industrial temperatures



**Resource 9 – Adapt or mitigate?**

Adapt – helping people live with the impacts of climate change.  
Mitigate – slowing down the rate of climate change.



Insulating buildings



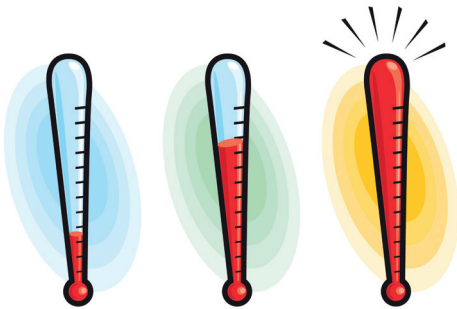
Grain storage



Farmers planting different crops



Flood defences



Weather advice services



Afforestation



Increased use of public transport



Greater use of solar panels

**Resource 10 – The world’s worst weed?**

Recent changes in the climate, combined with other factors such as water pollution, have caused a massive growth of water hyacinth on Lake Victoria. This has caused problems for fishermen and local people who live around the lake, especially in western Kenya.

**One of the world’s worst weeds**

*The water hyacinth, an extremely invasive aquatic plant, can drastically alter ecosystems and cause economic hardship.*



- Height** About 1.5 ft. (0.5 m)
- Flowers** 8–15 purple blossoms on stalks 20 in. (50 cm) high
- How it grows** Free-floating, forms dense mats
- Growth** Doubles in about two weeks
- Problem** Depletes oxygen, sunlight in water; kills off other plants, fish

Source: Global Invasive Species Database, National Geographic, NASA Earth Observatory, ESRI  
 Graphic: Melina Yingling, Angela Smith, Judy Treible

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**Lake Victoria**

- 1988** Water hyacinth first seen
- Late 1990s** Plant covers 260 sq. mi. (673 sq. km)
- 1998** Weevil introduced; kills off much of infestation
- 2007** Pollution revitalises plant; covers 15 sq. mi. (39 sq. km)
- **About 30 million** people earn their living from Lake Victoria



**Resource 11 – Furniture from water hyacinths**

**t e a m k e n y a**

*Training, empowerment and much more*

The change in climate recently has contributed to a massive growth in water hyacinth on Lake Victoria. This has caused big problems for fishermen but, with the help of UK charity Team Kenya, local women have been making furniture from water hyacinth collected from the lake. The furniture is being used by tourists in local eco-cottages – one of Team Kenya's many projects in the region of Ndhiwa. It is also sold locally, together with smaller items such as magazine racks and mats.



Water hyacinth furniture



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