



EXTRACT FROM THE

**PUBLIC QUESTIONS REPORT**

TO THE GENERAL ASSEMBLY 2008

ON

**CLIMATE CHANGE**

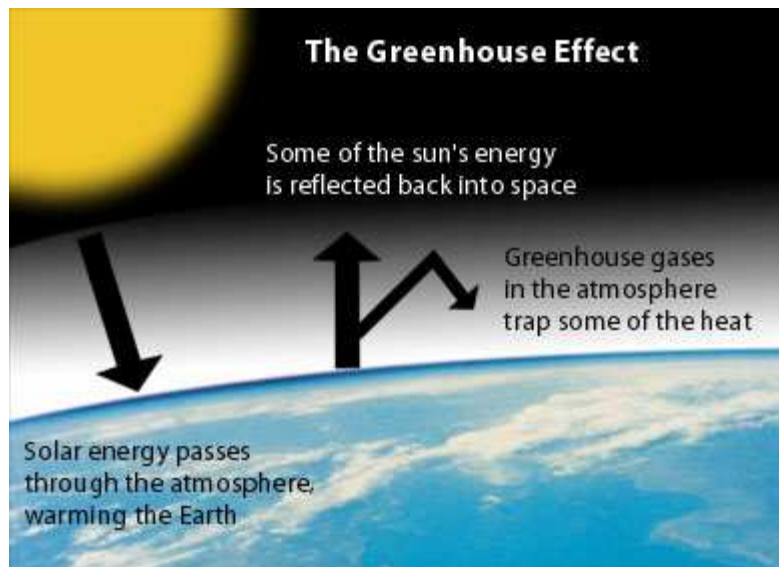
## CLIMATE CHANGE

Reading the daily newspapers and watching television makes us very aware of the warming of the climate, not only in the UK, but in virtually all parts of the world. Global warming is not a new phenomenon: global temperatures over the millennia have experienced cyclical variations. In recent times, many scientists have become convinced that the increase in the concentration of carbon dioxide, CO<sub>2</sub>, along with other gases, is responsible for this effect. These gases are referred to as *Greenhouse Gases* because of the way they are believed to increase the temperature of the world. Kofi Annan, the past Secretary General of the United Nations, endorsed this view and stated that climate change is not just an environmental issue, as too many people still believe. It presents an all-encompassing threat. It could be a threat to health, since a warmer world is one in which infectious diseases, such as malaria and yellow fever, will spread further and faster. It could imperil the world's food supply, as rising temperatures and prolonged drought render fertile areas unfit for grazing or crops. It could endanger the very ground on which nearly half the world's population live - coastal cities, such as Lagos or Cape Town, face inundation from rising sea levels as a result of melting of the icecaps and glaciers. Climate change is also a threat to peace and security due to changing patterns of rainfall. This could heighten competition for resources, setting in motion potentially destabilizing tensions and migrations, especially in fragile states or volatile regions. There is evidence that some of this is already occurring; more could well be in the offing.

### **The Greenhouse Effect and Climate Change**

The origin of Climate Change, and thus warming of the planet, is the consequence of what is known as the Greenhouse Effect. Radiation from the sun passes through the Earth's atmosphere, which is largely composed of nitrogen and oxygen. This energy passes through the atmosphere and heats the surface of the Earth. Some of that energy returns to the atmosphere, but not all of it makes it through a layer of gases that covers the earth like the glass of a greenhouse. This layer of gases causes the surface of the earth to be warmer than it would be in their absence. If it were not for these gases, known as greenhouse gases, the average temperature would be -18°C and not 15°C, and life would be barely sustainable. The best known of the greenhouse gases is carbon dioxide, CO<sub>2</sub>, but methane and nitrous oxide are also important. On average, about one third of the solar radiation that hits the Earth's atmosphere is reflected back into space. Of the remainder, some is absorbed by the atmosphere, but most is absorbed by the land and the oceans leading to the warming of both land and sea.

The major greenhouse gases (GHG) are water vapour, carbon dioxide, methane and nitrous oxide. Over the last 250 years or so since the industrial revolution, the concentration of carbon dioxide in the atmosphere, as a result of burning of fossil fuels (gas, oil and coal), has steadily increased from 280 to 370 ppm. The increase in the concentration of carbon dioxide has been exacerbated by the burning of forests which results in the formation of more carbon dioxide. Records of the earth's previous climates reconstructed from ice cores confirm that the carbon dioxide and methane concentrations are higher than at any time for at least 650,000 years. This warming trend will increase the likelihood of more frequent and intense heat waves, droughts and rainstorms as has been experienced recently in many parts of the world.



Other possible sources of global warming are the effect of volcanic eruptions and the variation in solar output of the sun. These are insufficient to explain the degree of warming. Some of the world's leading climate scientists recently tried to sweep away the last doubts surrounding global warming, saying they were certain human activities were altering the climate and warning severe effects were inevitable unless greenhouse gas emissions were curbed. The evidence for climate change caused by fossil fuel combustion was "unequivocal", said IPCC experts convened by the UN. Their report predicted severe heat waves, droughts, storms and flood would increase with increasing temperature.

## **Key Impacts of Climate Change**

### ***1. Rising sea levels***

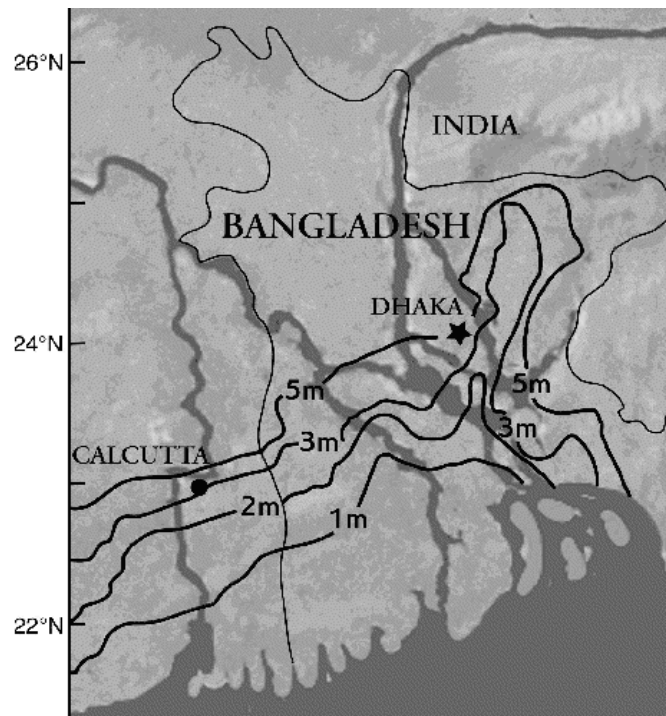
Some claim that sea levels are expected to rise by over 40 centimetres by 2080 because of thermal expansion of the oceans as the temperatures rises and because of melting of land ice. Melting of the Greenland ice cap could raise the sea level by as much as 7 m. Roughly 1 million people live on coral islands worldwide, and many more millions live on low-lying real estate vulnerable to the rising waves. 100 million people live less than 1 m above sea level making them very vulnerable to rising sea levels. This includes populations of major cities both in the developed world, e.g. London and New York and the developing world, e.g. Mumbai, Shanghai and Lagos. Perhaps the country most at risk is Bangladesh which is threatened frequently by enormous storm surges when typhoons sweep into the Bay of Bengal. Bangladesh is also threatened with the melting of Himalayan glaciers leading to extensive flooding of the two huge rivers, the Ganges and the Brahmaputra, which flow into the Bay of Bengal.

### ***2. Melting Glaciers***

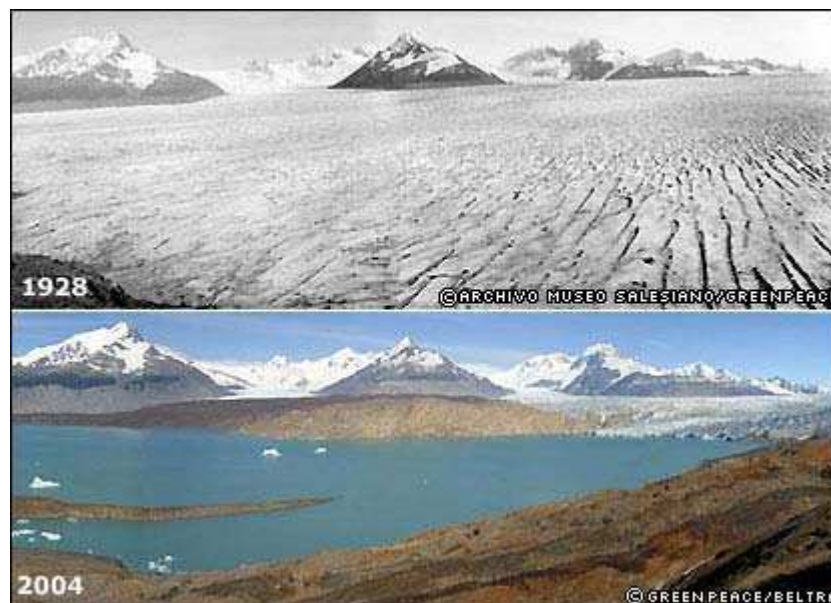
The Himalayan glaciers, which regulate the water supply to the Ganges, Indus, Brahmaputra, Mekong, Thanlwin, Yangtze and Yellow rivers are believed to be retreating at a rate of about 10-15 m each year. In a few decades this situation will change and the water level in rivers will decline, meaning massive eco and environmental problems for people in western China, Nepal and northern India. Glaciers are retreating in every part of the planet.

### 3. Rising Arctic and Antarctic Temperatures

The Arctic could lose virtually all its summer sea ice by the year 2013, many years earlier than was previously thought. The permafrost is thawing, trees are moving north and some species, such as polar bears, are in danger of becoming extinct as the ice is becoming so thin that they can no longer catch seals because the ice will not support them. The average Arctic temperatures have risen at twice the rate seen elsewhere on the planet. There is a similar problem in the Antarctic where it has been claimed the catastrophic collapse of the Larsen B shelf, an Antarctic ice shelf larger than Luxembourg, four and a half years ago, was man-made, and not an "act of God".



*The impact of sea level rise in Bangladesh*



*Argentina's Upsala Glacier was once the biggest in South America, but it is now disappearing at a rate of 200 metres per year.*

#### ***4. Increasing food shortages***

Africa is expected to experience significant reductions in cereal yields, as are the Middle East and India. An additional 290 million people could be exposed to malaria and yellow fever by the 2080s, with China and Central Asia likely to see the largest increase in risk. One of the big problems is that the weather in many parts of the world is very erratic.

In the next 15 years, displacement of people, disruption to agriculture and food supplies, and damage and destruction to the infrastructure would likely lead to economic and political instability, both within countries and across international borders, and even to wars as environmental refugees seek new homes and countries clash over scarce water and food supplies. The industrial countries also could find themselves under immense pressure from huge numbers of environmental refugees from the developing world. [Christian Aid]

One region of Mozambique used to be 'normal' with two seasons – hot and cool. Recently temperatures have risen from 30°C up to 49°C in the hot season and are less cold in the cool season, changing the timing of the rains. The majority of communities are afraid to plant, thinking that it is not the right time, thus affecting the food security of the region. [Tearfund]

#### ***5. Severe water shortages***

In some areas, water resources for drinking and irrigation will be affected by reduced rainfall or as ground water in coastal zones suffers from salination as sea levels rise. An additional three billion people could suffer increased water stress by 2080. Northern Africa, the Middle East and the Indian sub-continent will be the worst affected. The Indian monsoon is likely to become more variable: this may lead to severe water shortages which will be exacerbated as a result of melting of the Himalayan glaciers. The steadily increasing population results in ever increasing demands of water. The population has increased more than three times in the last 70 years!

#### ***6. Loss of tropical forests***

By the 2070s, large parts of northern Brazil and central southern Africa could lose their tropical forests because of reduced rainfall and increased temperatures, in addition to the wanton deforestation. This will make climate change even more severe. As trees grow, they take in CO<sub>2</sub> from the air. When the wood dies the CO<sub>2</sub> is returned to the air. Forest clearance and wood burning (such as happens in tropical rain forests) is increasing the latter half of the process, adding to the CO<sub>2</sub> in the atmosphere. Deforestation is now out of control. For example in 1987 an area of the Amazon rain forest the size of Britain was burned, adding 500 million tonnes of CO<sub>2</sub> to the atmosphere. The loss of the forests also means that there are fewer trees to absorb CO<sub>2</sub>.

#### ***7. Increase in environmental refugees***

A report from Tearfund raises the spectre of hundreds of millions of environmental refugees and says the main reason will be the effects of climate - from droughts and water shortages, from flooding and storm surges and from sea-level rise. Already, there are an estimated 25 million environmental refugees - more than half the number of political refugees. Experts such as the ecologist Norman Myers suggest this figure could soar to 200 million in less than 50 years. Even in the UK, 5 million people are at risk from increased flood and storm damage. [Operation Noah] One in five born in

Brazil are forced to move because of drought. In the next 15 years, displacement, disruption to agriculture and food supplies, as well as damage and destruction to infrastructure, would be likely to lead to economic and political instability, both within countries and across international borders, and even to wars as environmental refugees seek new homes and countries clash over scarce water and food supplies. Industrial countries also could find themselves under immense pressure from huge numbers of environmental refugees from the developing world. [Christian Aid]

### ***8. Greater incidence of disease***

During the next 50 years, Africa is expected to experience significant reductions in cereal yields, as are the Middle East and India. An additional 290 million people could be exposed to malaria and yellow fever by the 2080s, with China and Central Asia likely to see the largest increase in risk.

### ***9. Effect on wildlife***

The impact of climate change on some wildlife will be catastrophic even with little further change in the climate. Up to a third of land-based species could face extinction by the middle of the century. [RSPB] It is surely a sin not to care for the creation that God has given us to enjoy.

Global biodiversity is under particular risk. Already hemmed in by habitat loss, pollution and over-exploitation, species and natural systems are now faced with the need to adapt to new regimes of temperature, precipitation and other climatic extremes. Nature conservation in the new millennium has increasingly difficult challenges to face. Polar bears could become extinct by the end of this century. They are very unlikely to survive as a species if there is an almost complete loss of summer sea ice cover, which is projected to occur within the next ten years. [WWF-UK]

### ***10. The threat to coral reefs***

Coral reefs are threatened by global warming. They can only live in waters between 18°C and 30°C. Therefore, with the increase in temperature of the surrounding water, there has been an unprecedented increase in the number of coral bleaching events during the past two decades (which have had some of the warmest years in history). When ocean temperatures get too high, coral polyps lose the symbiotic algae inside them, causing them to turn white, or "bleach," and eventually die.

### ***11. Rising ocean acidity***

The UK's Royal Society has launched an investigation into the rising acidity of the world's oceans due to absorption of carbon dioxide. Oceans mop up carbon dioxide from the atmosphere, lowering the water's pH value - an effect that may be increasing. Increasing use of fossil fuels means more carbon dioxide is going into the air. Most of it will eventually be absorbed by sea water, where it reacts to form carbonic acid. Experts currently predict that if this trend continues, ocean pH could fall by as much as 0.4 units by the year 2100.

Scientists fear increasing acidification could have a particularly detrimental effect on corals and sea creatures with hard shells leading to accelerated disappearance of coral reefs. Increasing acidity reduces the availability of calcium carbonate from the water - which the creatures rely on to produce their hard skeletons. Juvenile organisms could be most susceptible to these changes.

Acidification may also directly affect the growth and reproduction rates of fish, as well as affecting the plankton populations which they rely on for food, with potentially disastrous consequences for marine food webs.

In addition, nutrient concentrations in surface waters of high-latitude regions are likely to fall, subsurface waters become less oxygenated, and phytoplankton will experience increased exposure to sunlight. This could affect multiple marine species and change the composition of biological communities in ways that are not yet understood.

### **Disaster Risk Reduction**

98% of those killed and affected by natural disasters come from developing countries, underlining the link between poverty and vulnerability to disaster. In 2002 alone, 618 million people, over ten times the population of the UK, were affected by disasters. Drought in India affected 300 million. Based upon current trends, by 2025 over half of all people living in developing countries will be highly vulnerable to floods and storms.

People in low-income countries are four times more likely to die in natural disasters than people in high income countries. Globally, disaster losses increased from \$71 billion in the 1960s to \$608 billion in 1990s. Poverty and lagging development exacerbates people's vulnerability to extreme weather. [Oxfam] Four out of forty-nine least developed countries face a high risk of disaster. Protection from storms can reduce the loss of life. Thus cyclone shelters in Bangladesh have helped to reduce the loss of life from major cyclones. In La Masica, Honduras, early warning flood systems and training of the local community ensured that not a life was lost when a hurricane Mitch struck in 1998.

Disasters are increasing, partly because of climate change, partly because of increased population in vulnerable and dangerous areas. There was a time when we did not know where disasters would occur. But today we know which countries are most disaster-prone, and which communities are most vulnerable and so the effect of disasters can be more readily predicted.

In the next 15 years, displacement, disruption to agriculture and food supplies, and damage and destruction to infrastructure would be likely to lead to economic and political instability, both within countries and across international borders, and even to wars as environmental refugees seek new homes and countries clash over scarce water and food supplies. This has happened in Niger [Tearfund]. The industrial countries also could find themselves under immense pressure from huge numbers of environmental refugees from the developing world [Christian Aid].

The financial costs of flooding could rise in both the UK and the rest of Europe, increasing the annual flood bill by up to £82 billion across Europe [Association of British Insurers].

### **Facing the challenge of climate change**

According to a report compiled by Sir Nicholas Stern for the UK government, the world has to act now on climate change or face devastating economic consequences. Sir Nicholas was formerly chief economist of the World Bank. The 700-page report was initiated by the Prime Minister, Gordon Brown.

Sir Nicholas suggested that global warming could shrink the global economy by 20% if serious action is not taken soon. He argues that taking action now would cost just 1% of global gross domestic product. Stern made the following key points:

### **The dangers of climate change**

- All countries will be affected by climate change, but the poorest countries will suffer earliest and most.
- Average temperatures could rise by 5°C from pre-industrial levels if climate change goes unchecked.
- Warming of 3° or 4°C will result in many millions more people being flooded. By the middle of the century 200 million may be permanently displaced due to rising sea levels, heavier floods and drought.
- Warming of 4°C or more is likely to affect global food production seriously.
- Warming of 2°C could leave 15-40% species facing extinction.
- Before the industrial revolution, the level of greenhouse gases in the atmosphere was 280 parts per million (ppm) CO<sub>2</sub> equivalents (CO<sub>2</sub>e); the current level is 430ppm CO<sub>2</sub>e. The level should be limited to 450-550ppm CO<sub>2</sub>.
- Anything higher would substantially increase risks of very harmful impacts. Anything lower would impose very high adjustment costs in the near term and might not even be feasible.
- Deforestation is responsible for more emissions than the transport sector.

### **Recommended actions**

- Three elements of policy are required for an effective response: carbon pricing, technology policy and energy efficiency.
- Carbon pricing, through taxation, emissions trading or regulation will show people the full social costs of their actions. The aim should be a global carbon price across countries and sectors.
- Emissions trading schemes, like that operating across the EU, should be expanded and linked.
- Technology policy should drive the large-scale development and use of a range of low-carbon and high-efficiency products.
- Globally, support for energy research and development should at least double; support for the deployment of low-carbon technologies should be increased up to five times.
- International product standards could be introduced.
- Large-scale international pilot programmes to explore the best ways to curb deforestation should be started very quickly.
- Climate change should be fully integrated into development policy, and rich countries should honour pledges to increase support through overseas development assistance.
- International funding should support improved regional information on climate change impacts.
- International funding should go into researching new crop varieties that will be more resilient to drought and flood.

### **Economic impacts**

- The benefits of strong, early action considerably outweigh the costs.
- Unabated climate change could cost the world at least 5% of GDP each year; if more dramatic predictions come to pass, the cost could be more than 20% of GDP.

- The cost of reducing emissions could be limited to around 1% of global GDP; people could be charged more for carbon-intensive goods.
- Each ton of CO<sub>2</sub> emitted causes damage worth of at least \$85, but emissions can be cut at a cost of less than \$25 a ton.
- Shifting the world on to a low-carbon path could eventually benefit the economy by \$2.5 trillion a year.
- By 2050, markets for low-carbon technologies could be worth at least \$500bn.

If the adverse effects of climate change are to be avoided, emissions of greenhouse gases will need to be reduced to keep the average global temperature increase to less than 2°C. Capping the rise in average global temperatures doesn't mean that there will be no harmful impacts, but a 2°C limit will keep them to a minimum. To stay within this limit, global greenhouse gas emissions must peak and be falling irreversibly by 2015. Therefore the choices made now and in the next five to ten years, by politicians and decision makers, will determine the extent of the devastation faced by future generations.

The Kyoto Treaty commits industrialised nations to reducing emissions of greenhouse gases, principally carbon dioxide, by around 5.2% below their 1990 levels over the next decade. The US government is still opposed to making a firm commitment to the demands of the Treaty. The industrialized countries have the lion's share of the responsibility for creating the problem and for finding the solutions. They have developed their industrial base, and consequently, their higher standards of living, through the use of vast amounts of fossil fuels. This has resulted in high concentrations of CO<sub>2</sub> in the atmosphere. Furthermore, their *per capita* emissions of CO<sub>2</sub> continue to be tens of times larger than all of the developing countries.

So far, politicians have failed to take sufficient action to avoid exceeding the 2°C limit. Legally binding national targets for reducing greenhouse gas emissions are the only way of meeting the global 2015 target, as well as holding world leaders to account over taking the necessary action. The alternative to legally binding targets is voluntary schemes. A growing number of large multinational corporations have recognized it is important to their success as businesses to combat climate change by the way they make, use and dispose of their products. For example, Johnson & Johnson, IBM, Polaroid, Royal Dutch/Shell and DuPont have all undertaken to reduce average annual CO<sub>2</sub> emissions. However, it is widely accepted that voluntary schemes cannot achieve the same level of environmental protection as mandatory ones; they are usually adopted when political resistance blocks the implementation of more powerful mandatory controls [Stop Climate Chaos].

High emitting countries, with their prime historic responsibility for the emissions that have contributed to this crisis, must lead in reducing their emissions to make certain that this goal is achieved. Developing countries must also ensure that their own emissions are ultimately reduced within a global framework, but by an amount and timing that accounts for their pressing developmental needs and lack of resources.

No one disputes that Earth's climate is changing or that atmospheric concentrations of greenhouse gases have increased as a result of human activities. The concentrations of carbon dioxide, methane and nitrous oxide are higher now than at any time during the last 420,000 years.

Overwhelming scientific evidence supports the conclusion that observed changes in the global climate are, in large part, due to human activities and primarily related to

fossil fuel consumption patterns. Without urgent action to curb greenhouse gas emissions, the Earth will become warmer by 2050 than at anytime in the last 10,000 years.

### **Generation of electricity from renewable sources**

A major problem facing the world is how to generate electricity cleanly. Historically it has been generated in coal-fired power stations. This is a 'dirty' process not just because of the enormous amount of CO<sub>2</sub> which is produced but also because sulphur dioxide is produced, which is responsible for acid rain, as well as the fact it produces a lot of particulates. CO<sub>2</sub> has been injected into declining oil fields for more than 30 years to increase oil recovery. An alternative is to find ways of generating electricity which do not require the generation of carbon dioxide using sources which do not involve the formation of carbon dioxide. Such sources are referred to as renewables. Nuclear power can also be used but this is not popular with the public though it does not produce CO<sub>2</sub>. Whether individuals like or dislike nuclear power is very much a personal political decision.

Renewable energy is defined as "energy derived from resources that are regenerative or for all practical purposes cannot be depleted." Renewable energy sources contribute approximately 29.3% of human energy use worldwide but very much less in the UK. Once the generating devices have been manufactured, the generation of renewable energy involves minimal emission levels of carbon dioxide. Hence use of renewable energy sources will mitigate against the relentless increase in the concentration of carbon dioxide.

There are a number of different types of renewable energy: wind power, wave and tidal power, hydroelectricity, geothermal energy, solar energy, biomass and use of biofuels.

### ***Wind and tidal power***

Scotland is well placed to be a leader in the generation of electricity involving renewable technology. Scotland has the most favourable wind regime in Europe for the generation of wind power. This extends to the offshore construction of wind farms, which could possibly generate twice as much as their onshore counterparts. It remains a conundrum then why this resource should be so spectacularly underexploited in Scotland. To this we should compare, though comparison proves odious, the 1700 MW installed in Denmark and the 100 MW capacity installed *per month* last year in Germany. Tidal power has great potential in Scotland. It is more dependable than wind due to its predictable nature, thus making it a better source of electrical energy for feeding the baseload of the national grid. The tides run almost six hours in one direction and then reverse and run for six hours in the opposite direction, thus giving a power source that is available 24 hours a day unlike wind and solar. At the turn of the tide power levels would fall but since the tide does not turn at the same instant up and down the coast there would always be power production if a number of tidal generators at differing locations were hooked into the grid. The siting of wind farms frequently arouses hostile local opposition. Another problem with the generation of electricity using wind and wave power in Scotland is that generation takes place in remote areas which means that the electricity has to be transported to the areas of high demand, i.e. the central belt. This has raised controversy about having large pylons in the Highlands.

## ***Biofuels***

A few years ago biofuels were favoured, but a serious negative aspect of biofuels is that they are based on agricultural crops, e.g. maize and sugar cane. This may be a problem in an increasingly hungry world. Biofuels are any kind of fuel made from living things, or from the waste they produce. This is a very long and diverse list, including: wood, wood chippings and straw; pellets or liquids made from wood; biogas (methane) from animals' excrement; ethanol, diesel or other liquid fuels made from processing plant material or waste oil. In recent years, the term "biofuel" has come to mean the last category - ethanol and diesel, made from crops including corn, sugarcane and rapeseed.

The grain required to fill the petrol tank of a Range Rover with ethanol is sufficient to feed one person per year. Assuming the petrol tank is refilled every two weeks, the amount of grain required would feed a hungry African village for a year! Food prices are already increasing. With just 10% of the world's sugar harvest being converted to ethanol, the price of sugar has doubled; the price of palm oil has increased 15% over the past year, with a further 25% gain expected next year. Little wonder that many are calling biofuels "deforestation diesel", the opposite of the environmentally friendly fuel that all are seeking. Since the beginning of last year, the price of maize has doubled. The price of wheat has also reached 10-year high, while global stockpiles of both grains have reached 25-year lows. Already there have been food riots in Mexico and reports that the poor are feeling the strain all over the world. In Scotland, there are plans based on biomass as a fuel based on softwood saw mills using a mixture of sawdust, bark and wood chips. Systems like this can be located in rural areas thus eliminating transmission costs.

## ***Solar Energy***

Almost two billion people in developing countries – one third of the world's population – have no access to electricity. Fuel wood, agricultural residues, human power and draught animals continue to be the primary energy resources for millions of rural families. Solar energy systems have been installed in rural areas in the developing world – 70,000 in Mexico, and 50,000 in Kenya.

## **Reducing the Carbon Footprint**

There is much that the individual can do to reduce their 'Carbon Footprint' – a measure of the impact human activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide.

The following gives an indication of how we can reduce the size of our carbon footprint:

- Sign up to a [green energy](#) supplier, who will supply electricity from renewable sources (e.g. wind and hydroelectric power) - this will reduce your carbon footprint contribution from electricity to zero
- Turn power off when not in use (lights, television, DVD player, Hi Fi, computer etc.)
- Turn down the central heating slightly (try just 1 to 2°C)
- Turn down the water heating setting (just 2°C will make a significant saving)
- Have a shower rather than a bath
- Check the central heating timer setting - remember there is no point heating the house after you have left for work

- Fill your dish washer and washing machine with a full load - this will save you water, electricity, and washing powder
- Fill the kettle with only as much water as you need
- Unplug your mobile phone as soon as it has finished charging
- Defrost your fridge/freezer regularly
- Do your weekly shopping in a single trip
- Hang out the washing to dry rather than tumble drying it
- Go for a run rather than drive to the gym
- Don't leave the TV, computers on stand-by
- Buy local foods

The following is a list of items that may take an initial investment, but should pay for themselves over the course of 1-4 years through savings on one's energy bills:

- Fit energy saving [light bulbs](#)
- Instal thermostatic valves on your radiators
- Insulate your hot water tank, your [loft](#) and your [walls](#)
- Recycle your [grey water](#)
- Replace your old fridge/freezer (if it is over 15 years old), with a new one with energy efficiency rating of "A"
- Replace your old boiler with a new energy efficient condensing boiler
- Instal solar heating
- Instal double glazing

Travel less and travel more carbon footprint friendly:

- Car share to work, or for the childrens' school run
- Walk or cycle
- Use the bus or a train rather than your car
- Don't use domestic flights (e.g. from London to Edinburgh), use a train or a coach.
- Take the ferry or Channel Tunnel instead of flying to France
- See if your employer will allow you to work from home one day a week
- Next time you replace your car - check out diesel engines. When on holiday - hire a bicycle to explore locally rather than a car
- When staying in a hotel turn the lights and air-conditioning off when you leave your hotel room
- Note the CO<sub>2</sub> emissions when you change your car. Low emissions also mean you pay less car tax!

Estimated annual CO<sub>2</sub> emissions from devices left on standby in the UK:

Stereos - 1,600,000 tonnes  
 Videos - 960,000 tonnes  
 TVs - 480,000 tonnes  
 Consoles - 390,000 tonnes  
 DVD players - 100,000 tonnes  
 Set-top boxes - 60,000 tonnes

The average household has up to 12 gadgets left on standby or charging at any one time. More than £740m of electricity was wasted by things being left ticking over. Britons waste the equivalent of around two power stations' worth of electricity each year by leaving TV sets and other gadgets on standby. The entire population of

Glasgow could fly to New York and back again and the resulting emissions would still be less than that from devices left in sleep mode.

A “green lifestyle” will help reduce the carbon footprint:

- Buy local
- Buy fresh food rather than frozen
- Buy less meat
- Recycle to reduce waste
- Compost waste food
- Avoid products with a lot of packaging
- Plant a tree (one tree absorbs one ton of CO<sub>2</sub> over its lifetime)
- Use a clothes line instead of a tumble-dryer

## Conclusion

The topic of Climate Change has provoked much discussion in the media and continues to be hotly debated. This paper has taken the view that it must be taken seriously by the Christian church. We have been given the mandate to subdue the earth. We must exercise our stewardship of the environment wisely. This issue provides Christians with an unprecedented opportunity to take a lead and demonstrate love for the world’s Creator and Redeemer, and love for our neighbours wherever they may be – remembering the words of our Lord, “From everyone who has been given much, much will be demanded; and from the one who has been entrusted with much, much more will be asked.” (Luke 12:48).

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