

energy poverty



energy wealth



C. Santos/UNEP/Topham



suffering people

D.A. Frans/UNEP/Topham



endangered

UNEP/Topham

Energy use, which is doubling with every generation, affects the planet – and society – more than any other human activity. It has the greatest impact of all on the environment, is one of the main causes of ill health worldwide, and provides one of the clearest indications of the gap between rich and poor.

Two out of every five people on Earth – some 2.5 billion – have to live without modern forms of energy, resorting instead to firewood, charcoal, animal dung and other forms of 'traditional biomass' to cook their food and heat their homes. They usually have to burn it on open stoves and fires, and the smoke – a cocktail of poisonous chemicals – swirls around their homes, bringing disease with it.

Every year a million children under five die from breathing it in, and so do many older children and adults. Young Tanzanian children who die as a result of respiratory infection have been found to be three times more likely than healthy children to have slept in a room with an open cooking stove. And the use of wood and dung helps cause deforestation and takes nutrients from the earth, leading to soil erosion, falling harvests and rising hunger. Yet the poorer a country is, the more its people have to rely on these fuels, and so the more they have to denude their land, and the more they sicken and die.

At the other side of the world's vast income gap, a fifth of its people are using energy so wastefully that they are not only

damaging their health through pollution that causes respiratory disease, but are even changing the climate that has enabled humanity to flourish as a species. Burning oil, gas and coal – which provides four fifths of the energy used each year – emits carbon dioxide, the main cause of global warming. There is now more of it in the atmosphere than at any time in the last 650,000 years.

Sure enough, the Earth is heating up. The hottest 10 years ever recorded have occurred since 1990, and 2005 was the warmest ever. In recent decades, the Arctic ice cap has shrunk by more than a quarter and lost half its thickness, while vast Antarctic ice shelves have disintegrated, changing the outline of the frozen continent. And there are worrying signs that both the Greenland and West Antarctic ice sheets are beginning to melt, a process that could eventually raise sea levels by nearly 12 metres worldwide, flooding coastal land and cities around the globe.

Already the seas are rising twice as fast as ever before in human history, mainly because their water is expanding in the heat, as railway tracks do in summer. As waves break ever higher onto the shore, the people of low-lying Pacific atolls are preparing to leave their islands forever, before they become inundated and uninhabitable.

As temperatures rise, so does the amount of energy in the world's weather system, spawning increasingly violent storms. The 2005 hurricane season in the Atlantic was a



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planet



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record – and it sent three of the six most violent storms ever slamming into the United States of America, including Hurricane Katrina, which flooded New Orleans. And as the Earth warms up, there is also an increasing danger of sudden, catastrophic change – such as a disturbance of the Gulf Stream, which could plunge much of Europe into a subarctic climate even as the rest of the world warms up.

As if all this were not enough, the rising levels of carbon dioxide emitted by burning fossil fuels are also poisoning the seas, through an entirely separate process. The oceans are absorbing much of the carbon dioxide, and as they do – incredible as it may seem – they are turning into very dilute carbonic acid. Their chemistry is changing in ways not seen for 20 million years, and this is killing plankton, on which all marine life depends.

It is the worst of both energy worlds. Energy poverty and energy wealth – two sides of the same coin – are wreaking immense damage on people and the planet.

The rich urgently need to reduce the burning of fossil fuels and cut back on waste by saving energy; many experts call for a rapid, fourfold increase in efficiency. And the poor need to increase their energy use, unwastefully, so as to develop their way out of poverty. A new, equitable energy revolution is long overdue: modern accessible energy for the poor, clean alternatives to fossil fuels for the rich, and the fight against global warming for everyone.

And what do YOU know about it?

1. Burning which fossil fuel emits the least carbon dioxide (CO₂)?

- a. Natural gas
- b. Oil
- c. Coal

2. How much oil does it take to produce the 100,000,000,000 plastic bags used in the United States of America every year?

- a. 190,000 litres
- b. 19,000,000 litres
- c. 190,000,000 litres
- d. 1,900,000,000 litres

3. Which uses the most energy each year worldwide?

- a. Motor vehicle transport
- b. Air travel
- c. Home heating
- d. Home air-conditioning

4. Which country developed the first windmills?

- a. The Netherlands
- b. Egypt
- c. Iran
- d. India

5. What percentage of energy used around the world comes from fossil fuels?

- a. 10 per cent
- b. 25 per cent
- c. 50 per cent
- d. 90 per cent

6. Where does geothermal heat come from?

- a. Earth's core
- b. Sun
- c. Wind
- d. Ocean

7. How much has global energy use grown in the last 30 years?

- a. 55 per cent
- b. 70 per cent
- c. 85 per cent
- d. 100 per cent

8. How much of the energy used by the world's people currently comes from renewable sources?

- a. 33 per cent
- b. 20 per cent
- c. 10 per cent
- d. 5 per cent

ANSWERS: 1a, 2d, 3a, 4c, 5d, 6a, 7b, 8c