

# Strategies to Manage Climate Change

## Afforestation:

By planting more trees they take in carbon dioxide that is released when fossil fuels are burnt, therefore acting as a carbon sink.

### Pros:

- After 10 years they start taking in more carbon dioxide in the atmosphere than they give out, therefore 'locking up' carbon and reducing the effects of it in atmosphere.

### Cons:

- In the first 10 years new trees release more carbon dioxide than they give out, meaning that only mature trees help
- Land that has been cleared in order to plant trees mean that the process of afforestation is not as effective.

## Renewable Energies:

Wind power involves using power from the wind to drive turbine and generate electricity. Solar panels are used because they use energy from the sun to generate energy. Hydroelectric power is generated when large dams are built across river e.g. Yangtze River, China. As water flows through it turns turbines generating electricity. Finally biomass energy can be obtained when organic material is burnt or fermented, which is used to generate electricity and heat.

<p><u><i>The Solar Island:</i></u> Sagan island has been developed by the West Bengal Renewable Energy Development Association to become a medium scale solar power development. Grid quality electricity is provided to homes, businesses, shops and schools. This scheme has helped to replace diesel powered generators.</p>	<p><u><i>Community Hydropower, Kenya:</i></u> Two community hydroelectric schemes in Kathama and Thima produce electricity to a remote area of Kenya to power radios, lighting and telecommunications to over 200 households. For chicken farmers it provides warmth and therefore increases productivity. Overall it saves 42 tonnes of carbon being released, as no kerosene is used.</p>
<p><u><i>Biomass Cooking:</i></u> More than 2.5 million people burn biomes (wood, charcoal, etc) for cooking and heating. It accounts for around 80% of the worlds renewable energy supply. NGOs are working in Sudan and Kenya to provide people with better fuels sources for cooking with. In Sudan they pride liquified petroleum gas, which is cheaper and cleaner than charcoal.</p>	<p><u><i>Jepirachi Wind Power Plant:</i></u> The Jepirachi Wind Power Project is in northeastern Columbia and aims to to build 15 windmills on land belonging to the Wayun, one of Columbia poorest people. The energy that is generated will be used to power a desalination plant to provide clean water to homes, schools and hospitals.</p>

## Community Based Solutions:

BedZed (Beddington Zero Energy Development) is an environmentally friending housing development which is situated in Hackbridge, London. The community is a settlement of houses and offices which aims to create no carbon emissions and have an extremely low eco-footprint. They have done this by adopting these methods:

- Everything that was used to built them except the windows was sourced within a 35 mile radius of the site. Much of the materials that have been used are either being recycled or reused.
- Offices and houses are available on the same site, so that people are within walking distance, and therefore don't have to use a car or public transport.
- The scheme has set up a 'car club' in which there are a fleet of cars that can be rented minutes before use. Furthermore each home has a electric car charging point, and areas to store bicycles.
- A green filter system is used in which water from the sewers is filtered using reeds. The water isn't clean enough to drink, however it is clean enough to flush toilets with.
- The building of BedZed on a brownfield site has educated people to walk to the shops, and understand their carbon footprint e.g. electricity meters are at eye level so the occupant can monitor their usage.
- Each home has a green roof which contains water and is home to 17 species of spider. Homes are insulated with 300mm of insulation to make they energy efficient, as well as triple glazing. Finally wind cows can be opened to naturally ventilate homes in the summer without the need of air conditioning.

BedZed did have a few problems though. The homes and whole development cost a lot of money. The green filter system using reeds failed and therefore was out of action of seven months. Finally been carbon neutral is very difficult because despite the fact that there are car sharing schemes, many people still drive their own cars.



### Carbon Offsetting:

Carbon offsetting is the process by which large companies buy allowances or credits in order to pollute. For each credit that they buy they are entitled to emit one ton of carbon dioxide. If they go over the number of credit that they have they face fines and have to purchase/trade for more.

#### Pros:

- The funds that are raised from using carbon credits means that research can be done in order to continue working an alternative methods of fuels which are better for the environment.
- They can help companies in developing countries to generate extra income.

#### Cons:

- At this point in time there is not enough evidence to be sure that buying carbon credits will offset enough of the carbon emission to make a difference to global temperatures.
- It gives people the idea that by buying enough credits they can continue to pollute, and therefore doesn't help people to see what they are doing wrong and the necessity to reduce their emissions.

### Energy Efficiency:

By being energy efficient not only does it reduce emissions, but reduces costs and local pollution. The solution is very popular however developing countries believe that the cost of developing energy-saving technology should be shared or borne by the more economically developed countries. Various methods can be adopted in order to increase energy efficiency:

- remodelled factories with cleaner industrial processes and optimum energy use
- If everyone in the UK with gas or oil central heating installed a high-efficiency condensing boiler with full sets of heating controls, we would save enough energy to heat nearly 1.9 million homes for a whole year and save around 6.7 million tonnes of CO<sub>2</sub>, according to the Energy Saving Trust.
- green transport using new or greener fuels e.g hydrogen or hybrid technology
- greener power stations with lower emissions

This has benefited many companies including General Electric and 3M, who have found that growth based on green principals is profitable.

### Nuclear Technology:

The cheap domestic gas supplies from the North Sea that have fuelled the UK for years are running low and new ways to generate the increasing demand of electricity need to be found and be invested in. In 2006 nuclear genregy accounted for only 20% of the UKs energy. Investment is needed to build new nuclear power plants, due to the fact that old ones are unsafe and not efficient. However the use of nuclear energy is highly controversial with people being worried about the radiation given off as well as nuclear accidents.

#### Pros:

- If well constructed they are very clean and safe
- Nuclear fuel produces vastly more energy than equivalent amounts of fossil fuels. One 2cm nuclear pellet of uranium or plutonium produces the same amount of electricity as 1.5 tonnes of coal.

#### Cons:

- Mining uranium is dirty, with added danger of it being radioactive
- Nuclear waste is difficult to get rid of because it is radioactive for thousands of years
- At present there is no know safe way to store of dispose of nuclear waste safely
- Transporting nuclear fuel can be risky , especially today when terrorism is a huge threat to many countries
- The cost of decommissioning the nuclear power stations is huge, for example the Uk government admits that it may cost up to £30 billion.

