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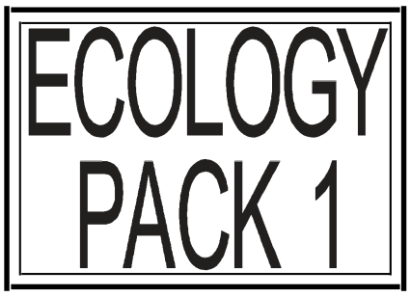


By Harry Jivenmukta

DEFINITION

1

Ecology is a study which overlaps with other areas of study; Biology, Sociology, Economics, Geography and others. It is an all enveloping study because it is concerned with the relationship between nature and its resources, and the way in which people utilise and exploit them. It is also concerned with the effects of human activities today and how that will affect future generations.

Since it is a huge area of study, people usually concentrate on only part of it which interests them most. This may be wildlife, endangered species, nuclear power, etc. Ecology is a very immediate subject in many cases because so much change and new information is becoming available all the time. Every day there is new data and calculations being made on the effects of things like the ozone layer, depleting natural resources, new chemicals, and endangered species of plants, organisms, and animals.

Below are some definitions of ecology:

- **A branch of science concerned with the interrelationship of organisms and their environments.**

- **A branch of sociology dealing especially with the relationships between humans and their economic, social, and political organization.**

- **Ecology in the social sciences is the study of the ways in which the social structure adapts to the quality of natural resources and to the existence of other human groups. When this study is limited to the development and variation of cultural properties, it is called cultural ecology.**

- **Human ecology views the biological, environmental, demographic, and technical conditions of the life of any people as an interrelated series of determinants of form and function in human cultures and social systems. It recognizes that group behaviour is dependent upon resources and associated skills and upon a body of emotionally charged beliefs; these together give rise to a system of social structures.**

Questions...

1. What is ecology?
2. Is ecology a separate science or just a mishmash of lots of other sciences? Why?
3. Trace the history of how ecology developed and the reason for the great interest in ecology today.

IGNORANCE

2

Despite years of debate on environmental issues, people are still largely ignorant of their environment, and this lack of understanding could greatly hamper their ability to continue advances in addressing environmental issues and eventually stifle business, growth and adversely affect their health.

A recent survey conducted in America showed that only one in four American adults had 'passing' knowledge of frequently discussed environmental issues, (Americans cause about 25% of all the pollution in the world.)

Some of the examples of American misconceptions of environmental issues: 77% of those surveyed could not answer what was the most common source of water pollution, (surface water runoff- this is water which polluted with chemicals runs off the land into rivers), and 67% of Americans did not know that most electricity in the United States is generated through the burning of coal.

Even in major universities, most students graduate with only a limited knowledge of environmental issues. It is estimated that fewer than 10% of students graduating from business schools have received any environmental training, and the figures are even lower for graduating medical students. This is despite the fact that a large percentage of doctor and hospital visits can be traced back to environmental problems, and almost every business is impacted by and has an impact on the environment.

While people lack knowledge of basic environmental issues, their support for environmental regulation remains high, with only 17% of those surveyed feeling that environmental laws and regulations have gone too far.

'What we see are people saying they want a clean environment, not realizing that it is individual actions such as driving a car, or lawn chemicals that are now the greatest sources of environmental pollution.'

This could lead to real challenges for policy leaders in government and industry. As peoples concern for the environment continues, so does their support and call for greater regulation of what they perceive to be the sources of pollution. Since people are largely ignorant of their role in the health of the environment, they push for solutions from others when they themselves are the cause of the problems.

'Without a greater emphasis on environmental education not only will the environment not improve, but our health and the world economy may suffer.'

Questions...

1. Are people really ignorant of environmental issues?
2. How do people find out about the environment? Find resources yourself which are easily available.
3. Design an advertising campaign to encourage people to find out more about the environment.
4. Make a list of the five most important environmental issues which concern you.

RENEWABLE RESOURCES

3

The most clearly recognizable renewable resources are those consisting of, or produced by, living things:

- agricultural crops,
- animal forage,
- forest crops,
- wild and domestic animals.

All of these can continue to reproduce and regenerate their populations as long as environmental conditions remain favourable and an adequate seed source or breeding stock is maintained. All can be cropped or harvested without diminishing their supply, provided that the cropping does not exceed the reproduction or growth rate. If it does, the resources will be depleted; and, if the rate of cropping continuously exceeds the rate of replacement or re-growth, the resource ceases to be renewable, and the species involved are reduced to the point of extinction.

A renewable resource can be removed at a rate that does not permit renewal. The renewability of a living resource is further endangered if the environment required by that resource is allowed to deteriorate or disappear. Sheep in a mountain pasture are a renewable resource only as long as the pasture produces vegetation that will nourish and support the sheep. If the pasture is overgrazed, the vegetation destroyed, and the soil eroded, sheep cease to be a renewable resource in that locality.

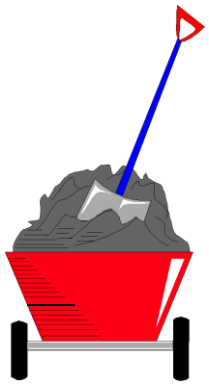
Questions...

1. What are renewable resources?
2. Are renewable resources always available or can they run out?
3. Add to the list of renewable resources above.

NON RENEWABLE RESOURCES

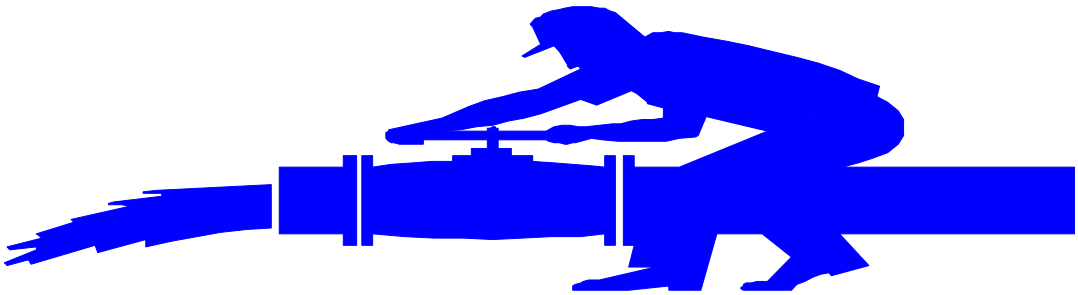
4

Some renewable resources include reserves with widely different renewal times, some so long as to make the resources essentially nonrenewable.



Fossil and nuclear fuels and minerals also exhibit a wide range of properties that affect their management. Fossil fuels, such as coal and petroleum, are the least renewable of such resources because they are effectively exhausted by use and because their rate of formation is exceedingly slow.

Most minerals are not destroyed by use. In a sense, they are renewable and inexhaustible because they can be recycled for further use. But useful supplies of these minerals in accessible locations are exhaustible, and in this sense they are nonrenewable for human purposes.



Questions...

1. What does nonrenewable mean?
2. Which resources are most at threat and may run out soon?
3. How can nonrenewable resources be managed to make sure they last longer?
4. Think of some nonrenewable resources and what other resources could be used in their place.

ECO SYSTEMS

5

The principles underlying the study of ecosystems are based on the view that all the elements of a life-supporting environment of any size, whether natural or man-made, are parts of an integral network in which each element interacts directly or indirectly with all others and affects the function of the whole.

All ecosystems are contained within the largest of them, the ecosphere, which encompasses the entire physical Earth (geosphere) and all of its biological components (biosphere).

Human interference in the development of ecosystems is widespread. Farming, for example, is the man made maintenance of an immature ecosystem, one that is highly productive but relatively unstable. Good management of ecosystems for optimal food production should seek a compromise between the characteristics of young and mature ecosystems, and should consider factors that affect the interaction of natural cycles. Short-term production can be maximized by adding energy to the ecosystem in the form of cultivation and fertilization. Such efforts, however, can hinder efficient energy use in the long run by producing an imbalance of nutrients, an increase in pollutants, or a heightened susceptibility to plant diseases as a consequence of intensive inbreeding of crops.

During the second half of the 20th century, the study of ecosystems has become increasingly sophisticated and is now instrumental in the assessment and control of the effects of agricultural development and industrialization on the environment. On farms, for instance, it has shown that long-term production of pasturage requires a moderate grazing schedule in order to ensure a steady renewal of the moisture and nutrient content of the soil and has emphasized the need for multiple-use strategies in the cultivation of arable lands.

Systems ecology has been concerned with the consequences of accumulated insecticides and has provided a way of monitoring the climatic effects of atmospheric dust and carbon dioxide released by the burning of fossil fuels (e.g., coal, oil, and natural gas). It has helped to further the development of recycling techniques that may become essential in humanity's future interaction with the environment.

Questions...

1. What is an ecosystem?
2. How do humans interact with ecosystems?
3. How can people use the ecosystem without damaging it?
4. Is it inevitable that if you use something it will eventually run out or be changed beyond recognition?

HOW WE ARRIVED AT THIS POINT

6

The development of agriculture enabled people to produce greater amounts of food on a more reliable basis and from smaller areas of land than previously had been possible. The direct dependence on the availability of wild food materials was lost.

Greater supplies of food made it possible to provide for greater numbers of people in the agricultural regions, and these numbers soon exceeded the capacity of the original or still-existing natural environment to supply their primary needs.

The secondary needs developed, farming tools and, later, domestic animals and the food supplies necessary to keep them alive.

In time, to keep the agricultural soils productive the need for fertilizers of various kinds

developed.

Increasing dependence upon foods that could not be eaten raw generated the need for materials from which cooking and eating utensils could be fashioned. In this way requirements for a wide variety of non-living natural resources developed along with the rise of agricultural lands and settled villages.

With the growth of civilization and the concentration of people into cities, natural-resource requirements increased as secondary needs expanded. It became essential to organize and direct agriculture over large areas in order to provide for urban inhabitants.

Effective transportation from farmlands to cities became essential, as did metals and all kinds of other minerals, stones, and timber suitable for the construction of buildings, ships, and vehicles; in addition, greater numbers of domestic animals (cows, pigs, sheep, etc.) were required.

Human wants were further increased as the greater leisure of civilized life enabled part of the population to look beyond the problem of mere survival.

A desire for contact with wild nature developed as the urban population became increasingly separated from it through city life.

Questions...

1. Trace the history of agriculture.
2. What are **primary resources** and **secondary resources**?
2. How has agriculture changed in the twentieth century? Make a list.
3. How do people who live in cities or towns rely on agriculture?
4. In what way is agriculture a global industry? Look for examples of foods from other countries.

THE GREEN REVOLUTION

7

The Green Revolution was an effort by agricultural scientists to boost world food production, especially in developing countries. The Green Revolution promoted high yielding grains, irrigation, and the application of fertilizers, herbicides, and pesticides. The Green Revolution increased crop yields in many developing countries. However, it also focused attention on important obstacles, such as:

- limited water and fertile soils,
- many farmers in poorer countries cannot afford extra costs of seeds and fertilisers,
- food storage and distribution systems are inadequate,
- high yielding varieties displaced native crops and led to less genetic diversity,
- population may out-pace food production increase anyway.

Major efforts to increase production involve four major inputs:

- the use of chemical fertilizers and pesticides,
- irrigation,
- the introduction of high-yielding hybrid seed strains,
- mechanization.

These efforts have had a significant positive impact in many areas but a negative impact in others. Too often, wealthier farmers have had access to such inputs while poorer farmers have not. There has been much debate on the continuing impact of the green revolution, but efforts also have continued in these programmes.

Questions...

1. What is the green revolution?
2. How do people adapt plants to make them easier to grow or to get better yields?
3. What are the disadvantages of adapting plants or changing their properties?
4. How has farming changed due to the green revolution?

CASH CROPS

8

Cash crops are crops which farmers plant in order to sell. They are crops which grow quickly, and are in demand by buyers who usually export them. Some traditional crops might be the type which are used by the community itself but these sometimes take longer to grow, and because they are to be used by the community these cannot be sold.

In the past, farmers grew crops which remained local, both in their ownership and use. There was no pressure to force growth because they were seasonal; by the time the last harvested crops were used up the next ones would be ready. In one harvest it might be corn which was harvested, and in the next wheat. During the time the wheat was growing the local staple diet would be corn based and after harvesting the diet would be mainly wheat based. Surplus would be sold and other essentials bought with this money. Life was simplistic.

With the growth of urban populations there arose a need for a large regular supply of crops. Some cash crops do not have much nutritional value because they are meant for the leisure or luxury markets which arose with urbanisation. These include; tobacco for smokers, cotton for jeans, cut flowers for display, and peanuts for sandwiches and snacks. Large companies encouraged farmers to plant more of the types of crops they wanted to buy, and farmers were given guarantees that everything they could produce would be bought. This was initially good news for the farmers because they could make more money.

There are a lot of problems associated with cash crops. In order to maintain the goodness in the soil it needs to be planted with different crops and also rested sometimes, when nothing at all is planted. The farmers now have to spend large amounts of money to fertilise their soil because it no longer naturally recovers from the constant planting and harvesting cycle. The fertiliser may contain chemicals which affect people's health. The need for perfect crops also means that farmers spray their crops with insecticides. This can also lead to chemical residue in the food itself which then is eaten by humans and may infect them. The water which runs off the land into rivers may also be chemically charged and kill fish and other river life.

Of course, the traditional life of the farmer has also been changed. Some farmers have a better standard of life, but for others it means they can no longer compete. Increasingly, farms are becoming bigger and more cost efficient which means that individual farmers are being driven out.

Questions...

1. What are cash crops?
2. Why do farmers find it increasingly difficult to ignore planting cash crops?
3. What are the disadvantages of planting cash crops?
4. Can we survive without cash crops? Why?

FACTORY FARMING

9

Almost all meat available in the shops today is factory farmed. This means that the animals are reared as if they were units rather than living things. The important thing in this type of industry is how many units can be produced at least cost and highest profit.

Livestock farming and dairying associated with pigs and poultry is characteristic of many European farms. Europe produces more than a third of the world's meat, chiefly beef, pork, and bacon, but this is insufficient to meet rising living standards. Despite intensive farming methods Europe is still not producing sufficient meat to meet its own demands. Domestic production of wool, hides, and leather also is insufficient. Special features of western European farming include market gardens and the greenhouse production of tomatoes, cucumbers, green vegetables, and flowers. Still another feature is the production of table fruit, new potatoes, vegetables and salad crops.

In all types of intensive farming there are dangers because sometimes corners are cut to keep prices down. One classic example of this is the Mad Cow scare in the UK when cattle fed on unsuitable feed developed the disease BSE.

Environmental campaigners believe that people should pay more attention to what they eat and how it is produced. But the biggest problems associated with eating only naturally reared animals and organically grown fruit and vegetables is that they are significantly more expensive. People on a limited budget often cannot afford to eat these products. Supermarkets have, however, started to stock organic foods because of increasing demand. Even so, it is not always easy to get hold of naturally produced foods.

Questions...

1. What are the implications of viewing animals as units of production?
2. What is the difference between factory produced food and organically produced food?

DOMESTIC PESTICIDES - OPINION

As the use of lawn chemicals and pesticides has grown, questions have arisen regarding safety hazards and environmental consequences. The chemical pesticide industry has made every effort to keep information from the public.

Contrary to what lawn 'care' companies would like people to believe, herbicides (weed killers) and other pesticides are not 'magic bullets'. They are broad spectrum biocides, and by their very nature can harm organisms other than targeted species. This includes homeowners and their families, neighbours, pets, and all other forms of life. The pesticide industry downplays this by claiming their chemicals are heavily diluted, but doesn't mention the toxins are still extremely dangerous in small amounts. They also are unwilling to mention all of what is in their mixtures. Many components are classified as 'inert', which allows them to be kept hidden from the public and not listed on product labels. These are more than just fillers or solvents. **Inert does not mean inactive**, some, such as benzene and xylene, are more toxic than listed chemicals.

Listed chemicals can be just as dangerous. They include components of war-time defoliants like Agent Orange, nerve-gas type insecticides, and artificial hormones. Many pesticides are not safe when dry. Water evaporates, but most pesticides remain and continue to release often odourless and invisible toxic vapours. In areas where lawn spraying is common, they accumulate in a toxic smog throughout the entire season. Some pesticides remain active for years after application. DDT is still showing up in higher rates in women's breast milk than the government permits in cow's milk. Fat soluble pesticides accumulate over time in our bodies, then are released at potentially toxic levels when illness or stress results in our fat reserves being metabolised. A large portion of a woman's lifetime exposure to such pesticides is released in the breast milk for her first-born child.

Questions...

1. What does pesticide mean?
2. Make a list of pesticides you have at home. What purposes do they have?
3. Could you look after your garden without using pesticides?
4. How did people manage before pesticides were developed?

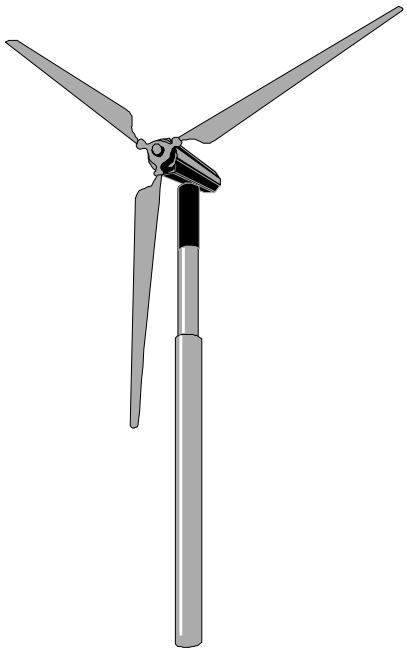
ENERGY SOURCES

There are many sources of energy which are used today, some of which are under used, and some which are becoming more popular. Energy sources include:

- fossil fuels,
- solar energy,
- water energy, hydroelectric power generation, wave power etc.,
- nuclear energy,
- electricity,
- natural gas.

Below is a short description of wind energy and its uses. Select one of the above, or think of an energy source yourself and write a paragraph about it. Include its history, viability, uses, and advantages and disadvantages.

Modern wind turbines extract energy from the wind, mostly for electricity generation, by rotation of a propeller-like set of blades that drive a generator through appropriate shafts and gears. The older term 'windmill' is often still used to describe this type of device, although electric power generation rather than milling has become the primary application. Windmills, together with waterwheels, were widely used from the Middle Ages to the 19th century during the course of which they were supplanted by steam engines. Though they continued to be used for pumping water in rural areas, wind turbines practically disappeared in the 20th century as the internal-combustion engine and electricity provided more reliable and usually less expen- sive power. Interest in wind turbines for electricity gener- ation was rekindled by the oil crisis of the mid-1970s. High initial costs, intermittent operation, and maintenance costs, however, have prevented wind turbines from becoming a significant factor in commercial power production



NUCLEAR ENERGY - OPINION

Nuclear Energy is not clean - All parts of the nuclear fuel cycle, from uranium mining to reprocessing, contribute to the creation of long-lived radioactive wastes.

Nuclear energy is not cheap - In many places renewable energy sources are as cheap or significantly cheaper than nuclear energy. When the electricity utilities were privatised in the United Kingdom the market refused to purchase or support nuclear utilities.

Nuclear power is not safe - Nuclear reactors routinely release radiation into the surrounding environment. Incidents, accidents, releases and leaks plague the industry in every country where it operates.

Uranium mining is not safe - According to the International Physicians for the Prevention of Nuclear War, uranium mining has been responsible for the largest collective exposure of workers to radiation. One estimate puts the number of workers who have died of lung cancer and silicosis due to mining and milling alone at 20,000. It is widely agreed that there is no safe level of radiation exposure.

The threat posed by nuclear weapons is not over - More than 40,000 nuclear warheads still exist. Nuclear proliferation continues and there is a growing global trade in nuclear smuggling. The number of nuclear powers has increased with the addition of India and Pakistan. Soon, no doubt, other nations will 'come out' and declare their nuclear intentions.

The problems of nuclear waste have not been solved - Despite industry assurances, nuclear waste remains a very real and very potent danger. They need to be isolated from people and the wider environment for up to tens or even hundred of thousands of years.

Questions...

1. How is nuclear energy made?
2. What are the advantages of using nuclear energy?
3. Is it inevitable that with increasing energy demands that more nations will turn to nuclear energy?

CASE STUDY - INDIA'S NUCLEAR FUTURE

India aims to generate 20,000 MWe by the year 2020. The Russians announced the sale of two 1,000 MW light water reactors, to be set up at the Koodankulam plant in the southern tip of the country. But environmentalists in the country say India's nuclear energy programme is too unsafe for this leap in nuclear power development.

"In India an estimated 300 incidents of a serious nature have occurred causing radiation leaks and physical damage to workers. These have mainly remained official secrets."

India's Nuclear Power Corporation is now operating ten reactors at five locations. Its newly announced goal nearly doubles India's earlier plan. Nuclear power still supplies only an estimated 2.5 percent of India's power needs. Currently, 1,840 MWe of India's total installed capacity of 84,625 MWe comes from nuclear power.

India started its atomic energy programme with American and Canadian help. But it had to rely on indigenously developed expertise after the country's first nuclear test explosion in 1974. There have been leaks at the Bhabha Atomic Research Centre in Bombay (Mumbai), and accidents at reactors at Rajasthan in north-western India. In Kaiga, a lush rainforest where the new nuclear power plant is being built, Indian engineers are fighting time and cost over-runs. Completion of this project has been delayed. April 1999 is the new date now for the first reactor to begin operation.

In 1998, India exploded 5 nuclear bombs, in an underground test in the deserts of Rajasthan. In reply, Pakistan exploded six. The Indian sub continent is now in a full blown nuclear missile race and the whole area is threatened especially because both countries have much to fight about; the claims over the Kashmir area presently in India but with a majority Muslim population. Will one or both be able to resist pressing the button especially since neither country has a stable government?

Questions...

1. Is it inevitable that poor countries like India have to develop nuclear powered electricity generation capabilities to survive?
2. What is the difference between nuclear energy and nuclear bombs?
3. Will more nations capable of nuclear warfare lead to a greater chance of war?

POPULATION

14

Few aspects of human societies are as fundamental as the size, composition, and rate of change of their populations. Such factors affect:

- economic prosperity,
- health,
- education,
- family structure,
- crime patterns,
- culture.

Virtually every aspect of human society is touched upon by population trends. The one definite aspect of human population studies is that the population is increasing at a very fast rate and that impacts on all other aspects of world resources. The greatest threat to the world is probably human beings themselves because the rate at which resources are being used up means that things cannot continue without severe consequences. Even in very rich countries, like the USA, regular water rationing is commonplace in states like California!

It has taken 100,000 years for the population to reach about 4 billion, (statistics for about ten years ago), but it will take only 20 years for it to increase by 2 billion more. The United Nations has concluded that the maximum number of people who can survive on the planet is about 36 Billion. This is one of the highest estimates. Most other studies have decided on a much lower number.

Population growth is fastest in the poorest countries and happens because of a lack of birth control advice, high infant mortality, and cultures which still believe that large families mean better prospects. Population growth in many European states is almost zero, and there is good control in China which has a one child per couple policy, and Japan and Indonesia.

Questions...

1. How has the population of the world changed in the last century?
2. What effect does a large population have on the prosperity of a country?
3. Will overpopulation eventually spell the end for the Earth? How can it be avoided?

Assuming that the use of nuclear weapons can be averted, world civilization will have to come to grips with the population problem in the next few decades if life is to be tolerable on planet Earth in the 21st century. The problem can be tackled in two ways, both drawing on the resources of modern technology. In the first place, efforts may be made to limit the rate of population increase. Medical technology, which, through new drugs and other techniques, has provided a powerful impulse to the increase of population, also offers means of controlling this increase through contraceptive devices and through painless sterilization procedures. Technology is a tool that is neutral in respect to moral issues about its own use, but it would be futile to deny that artificial population control is inhibited by powerful moral constraints and taboos. Some reconciliation of these conflicts is essential, however, if stability in world population is to be satisfactorily achieved. Perhaps the experience of China, already responsible for one-quarter of the world's population, is instructive here: in an attempt to prevent the population growth from exceeding the ability of the country to sustain the existing standards of living, the government imposed a 'one-child family' campaign in the 1970s, which is maintained by draconian social controls.

There are only two possible ways in which a world of 10 billion people can be averted. Either the current birth rates must come down more quickly, or the current death rates must go up... There is no other way... There are, of course, many ways in which the death rates can go up. In a thermonuclear age, war can accomplish it very quickly and decisively. Famine and disease are nature's ancient checks on population growth, and neither one has disappeared from the scene... To put it simply: Excessive population growth is the greatest single obstacle to the economic and social advancement of most of the societies in the developing world.

Robert McNamara, Oct. 2, 1979

Even the most optimistic programme of population control can hope to achieve only a slight reduction in the rate of increase by the end of the 20th century, so that an alternative approach must be made simultaneously in the shape of an effort to increase the world's production of food. Technology has much to contribute at this point, both in raising the productivity of existing sources of food supply by improved techniques of agriculture and better types of grain and animal stock, and in creating new sources of food by making the deserts fertile and by systematically farming the riches of the oceans. There is enough work here to keep engineers and food technologists busy for many generations.

Questions...

1. How can technology cope with the demands of a growing world population?
2. What effects does a bigger population have on world ecology?
3. How would you control the world's population growth? Draw up a plan to make sure that the population explosion could be kept under control.

NEEDS AND GREED

16

Many people argue that there are enough resources for everyone but the problem is discerning the difference between need and greed. Especially in the West we are seen by many other nations as very greedy. Why do people want to have several televisions in their home, or why should families have several cars? It is not just a question of whether someone can afford to buy something; it should also be a question of whether it is needed. For every extra item we have in our possession, someone somewhere has been involved in its manufacture, it has used up resources to make it, caused pollution in transportation, used up packaging material, and if it is electrical it uses power. There is no point calling for restraint if we are more guilty than everyone else.

The amount of wastage in the West is incredible, and can be seen by looking at the huge dustbins of rubbish that we all create everyday. People in developing countries also want the consumables which they see Westerners enjoying, but the West seems to be eager to advise them to be environmentally friendly. This is illustrated when Western nations encouraged India and China to reduce the manufacture of fridges because the CFCs gases used in fridges were thinning the ozone layer. Both countries refused to cooperate and said, quite correctly, that the ozone depletion had been caused by the fridges of Western people and not by the fridges which were still to be built in their countries. It is difficult to tell others when the behaviour of your own people is so poor.

Questions...

1. look in your own house and see which things are;
   - vital,
   - necessary,
   - just taking up space,
   - not needed at all.
2. What sort of consumer goods do people in the developing nations not have which we in the West do?
3. How do you think people in developing nations manage with so many fewer things than we in the West have?
4. Can you persuade members of your family, or your friends to think about whether they need the things they buy, or is their consumerism out of control?

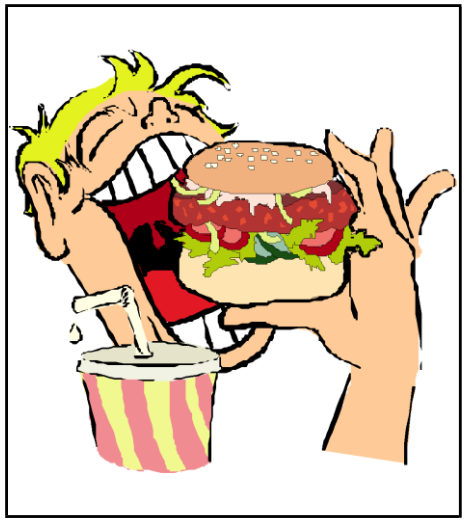
EAT, DRINK, AND BE MERRY

In the USA one third of people are considered obese. This means that they weigh one third or more than the maximum recommended weight for their height. Over consumption is also beginning to be a problem in the UK with 25% of people very overweight and some of these obese. Seeing people who are fat or obese is a very obvious way of witnessing over consumption, (although some people are overweight because of medical conditions), but another way to see this is by looking at the mountains of rubbish which we dispose of every day. The disposable income of people in the West means that they can afford to buy most things which they want.

There is a direct link between greater consumption and pollution. More products means more factory work, more transport, more heat and light expenditure, and more use of resources.

The increased food consumption in some countries has led directly to increased health problems including:

- increased tooth decay,
- diabetes, (caused by intake of huge amounts of sugar based foods among others),
- bone wearing, (people put an increased burden on their skeletal structure if they are overweight),
- stomach and digestive disorders, (the organs often have to work overtime to deal with the excessive intake of food),
- psychological problems, (of people who feel that they are discriminated against because of their weight or shape).



Questions...

1. How does food consumption affect health?
2. How do people in the West need to alter their lifestyles in order to have healthier lives?
3. How do people in developing countries manage with so much less food than we have?

CARS AND TRAVEL

Approximately seven million cars are made in Europe each year and the number is set to grow. In every nation in the world cars and other motorised vehicles are in great demand because they are very good at getting people around.

The problem is that petrol and diesel powered vehicles give out poisonous fumes. There are many types of chemicals in every spurt of exhaust fume and these fumes taken together are responsible for 60-90% of all air pollution in industrialized countries. These chemicals are directly responsible for many of the pollution problems we all face, from a huge leap in the number of people who are suffering from asthma, to global warming.

Many people think that cars are a good way to get around but the problem is that often they are not used efficiently. On average each car has only 1.3 occupants and yet would use almost the same amount of fuel if it carried four or five people. In some countries governments are thinking of ways of encouraging more people to share cars because it means that there would be fewer cars on the road and so less pollution.

There are many more efficient ways to travel than using cars. Buses and trains can carry many more people for the amount of fuel used, and the amount of congestion which causes increased pollution can also be reduced in this way.

In conclusion, there are 400 million cars in the world today all pumping out pollution which is warming the Earth, and threatening the future health of the planet. This pollution is also the main cause for acid rain, and cars cause road related deaths of 250,000 people a year.

Questions...

1. Can the world survive without cars?
2. What alternative power sources could be developed to power cars?
3. How can car use be reduced? Draw up a strategy.

In the poorest regions of the world today, an estimated one in five children will not live to see their fifth birthday, primarily because of environmentally-related diseases. This tragedy translates into 11 million childhood deaths globally (equal to the combined populations of Australia and New Zealand), mostly due to malaria, acute respiratory infections and diarrhoea; illnesses that are largely preventable.

These are among the many sobering findings of a new report on health and the environment worldwide, released jointly by the World Resources Institute, a Washington, DC-based interna- tional environmental think tank, the United Nations Environment Programme, the United Nations Development Programme, and the World Bank. The World Resources Report is a comprehensive report on a range of global environmental trends.

In a special section on "Environmental Change and Human Health," World Resources 1998-99, describes how, despite vast improvements in human health globally over the past several decades, with millions of people living longer, healthier lives, preventable illnesses and premature deaths are still occurring in shockingly large numbers in many regions of the world. Consider the following:

- Almost 4 million children die each year of acute respiratory infections, linked with indoor air pollution (especially smoky cooking fuels) and outdoor air pollution (especially from industrialization).
- Malaria, a mosquito-borne disease closely tied to environmental conditions, alone claims 1 to 3 million lives a year, most of them children.
- Another 2.5 million children die each year of diarrhoea linked diseases, related to environmental conditions.
- Cholera, long vanquished from Latin America, resurged in 1991 due to a combination of environmental and social factors, claiming some 11,000 lives and causing an economic impact of an estimated $200 million in Peru alone.
- In developing nations, there may be as many as 3.5 million to 5 million acute pesticide poisonings per year due to lack of protection during application, with millions more exposed to lower but still dangerous levels.

Questions...

1. Pick one developing country and find out about its:
   - mortality rate,
   - rate of economic development,
   - concern for environmental issues.

WORLD REPORT - INDUSTRIALISED COUNTRIES

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Whilst most of the statistics assess conditions in the developing world, environmental threats in industrialized countries are also significant and stem from industrial pollution and food related diseases among others.

- More than 100 million people in Europe and North America are still exposed to unsafe air, and some air pollutants are proving more recalcitrant to control than expected.
- Asthma is rising dramatically throughout the developed countries, and environmental factors such as air pollution, allergens found in homes, and overcrowding, appear to be at least partly to blame.
- Excessive use of fertilizers is disrupting coastal ecosystems, leading to harmful algal blooms and fish kills.
- Biological contamination is by no means a thing of the past, as shown by the 1993 outbreak of Crytosporidium in the United States city of Milwaukee.
- The extension of travel and trade is providing new opportunities for the spread or re-emergence of infectious diseases globally. In the past two decades, some 30 'new' infectious diseases have emerged, such as Lyme disease, and fevers such as Ebola, while other previously controlled diseases have returned with a vengeance.

Questions...

1. What are the main ecological threats to industrialized nations?
2. How are developing countries trying to emulate industrialized ones?
3. How can developing countries avoid the same mistakes that the industrialized ones are making?
4. Is it possible for industrialized countries to become Green? What must they do?