

UNIT 6

HUMAN IMPACT ON THE ENVIROMENT



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1. THE MODIFICATION OF THE NATURAL ENVIRONMENT

Humans carry out many different activities to adapt to the physical environment that they live in and to obtain resources from it. These activities alter the natural environment and introduce human elements into the landscape. These alterations cause impacts of different levels of intensity on the physical environment, as the transformation can be sustainable (ensuring that the natural resources remain), or unsustainable (meaning the irreversible degradation of the physical environment).

Continuous population growth over recent centuries has caused an increase in demand for resources obtained from nature. This increase has been linked to the prevalence of certain forms of economic production that are not concerned with ensuring the sustainability of resources. Both factors have led to significant alterations in the natural conditions of the Earth.

The most obvious evidence of these alterations is climate change, caused by the global warming of the planet. The current rise in the Earth's temperature seems to have been largely caused by the aggressive exploitation of natural resources and problems of environmental pollution and contamination.

2. CONSEQUENCES OF THE OVEREXPLOITATION OF NATURAL RESOURCES

2.1. DISAPPEARANCE OF FORESTS

Cutting down trees in large numbers, or mass logging, causes the deterioration of woods and forests. Forest fires also contribute to reducing their surface area. The reduction of vegetation cover can lead to increased desertification. This is related to soil erosion and the depletion of nutrients.

2.2. EXTINCTION OF ANIMALS

Some animal species are at risk of extinction or have already become extinct. This phenomenon is related to the alteration of their habitat due to deforestation and the pollution of natural areas or is directly caused by indiscriminate hunting and fishing.

2.3. THE HUMANISED LANDSCAPE

The landscape of a place is determined by the natural features that make it up (relief, climate, soil, water, vegetation, fauna, etc), which favour the development of a particular type of vegetation. However, human settlement and the resultant consumption of natural resources transform these natural conditions, changing the landscape.

Therefore, we can define the humanised landscape as the aspect of the territory that is the result of the impact of human activities on the natural features.

3. ENVIRONMENTAL POLLUTION

3.1. ATMOSPHERIC POLLUTION

The emission of polluting gases into the atmosphere brings about natural hazards

A high concentration of gases prevents heat from escaping the Earth's surface. This causes a gradual increase in the planet's temperature.

3.2. ACID RAIN

Some toxic gases form dangerous acids when they mix with water vapour in the atmosphere. These acids can then fall onto the Earth's surface in precipitation (rain, snow, etc.).

3.3. THE DESTRUCTION OF THE OZONE LAYER

Some gases, destroy the atmosphere's layer of ozone gas and reduce its effectiveness at absorbing harmful ultraviolet radiation from the Sun's rays.

3.4. WATER POLLUTION

WASTEWATER AND TOXIC WASTE

Lakes, rivers and seas become polluted with toxic substances that make the water undrinkable.

OIL SPILLS

The release of oil in spills often causes most harm to the environment. Such spills produce oil slicks.

3.5. SOIL POLLUTION

RUBBISH

The uncontrolled dumping of large amounts of rubbish and waste pollutes the soil.

INSECTICIDES AND CHEMICAL FERTILISERS

Industrial waste from agriculture can pollute the soil and groundwater aquifers.

4. THE IMPACT OF URBANISATION

Humans transform natural landscapes by building homes and infrastructures. In some cases, these constructions have led to the modification of the natural landscape, through actions like changing the course of rivers, deforestation, and drying up lakes and lagoons.

The natural landscape has been transformed the most in urban areas (over 50% of the world's population lives in cities).

4.1. POLLUTION IN CITIES

Cities suffer from different types of pollution: noise, light, etc. One of the most serious problems is the accumulation of large amounts of dust and suspended particles from industry and traffic in the air. This cloud of pollution is known as smog. It causes severe breathing problems and contributes to the greenhouse effect.

Large amounts of waste are produced in cities. If this rubbish is placed in uncontrolled landfills instead of being properly treated and processed, it causes serious pollution; for example, products like bleach, detergents, plastic and batteries pollute the soil.

5. GEOGRAPHICAL SPACES BY ECONOMIC ACTIVITY

The different economic activities carried out by the population to obtain resources from the environment, as well as trade and service sector activities, generate transformation of the environment. There are many different types of transformation, which vary according to the type of economic activity concerned.

5.1. THE IMPACTS OF THE PRIMARY SECTOR

Traditional farming practices, known as extensive farming, modify the natural environment. However, these practices are sustainable as they ensure the permanence of the resources that support them.

Intensive farming practices are characterised by the mechanisation of farms and the use of chemical products to increase the productivity of the land and animals. They are becoming more common and modify the environment even more. When they are not controlled, they represent a hazard to the environment.

AGRICULTURE AND LIVESTOCK FARMING

An increasing population means that more land must be dedicated to crops and to pasture, leading to a significant loss of natural vegetation.

- Intensive agriculture.
 - Irrigation techniques: they can lead to the depletion of aquifers and the salinisation of the soil.
 - Chemical fertilisers: if used in excess they can cause the pollution of soil and water.
 - Greenhouses: they transform the natural landscape.

- Intensive livestock farming.

The main transformations are the construction of large mechanized farms that may pose a hazard to the environment if the waste generated is not managed properly.

MINING

Destruction of the soil. Mining mineral deposits causes the destruction of the soil and significant changes to the natural landscape, above all in the case of open-cast mines.

Depletion of mineral resources. The overexploitation of mines has led to the depletion of many mineral deposits. Minerals are non-renewable resources, therefore mining is an unsustainable activity.

FISHING

Overexploitation of fish stocks. This is caused in some regions of the planet by uncontrolled fishing practices.

Non-selective fishing techniques. Industrial fishing with large nets, endangers many marine species.

Fish farms. The widespread use of fish farms causes a significant change in marine and river landscapes.

FORESTRY

Mass logging. It causes the loss of large forested areas.

Non-regulated logging. In some areas of the Earth, non-regulated logging to support the trade in exotic wood leads to the destruction of the habitat of certain species.

Planting of non-native species. The planting of non-native species in some areas to create more productive forests leads to the transformation of the natural landscape.

5.2. THE IMPACTS OF THE SECONDARY SECTOR

The transformation of resources obtained from nature requires the installation of new infrastructures, such as factories, which modify the environment where they are constructed. This activity transforms the landscape, and if it is not managed correctly, can be hazardous to the environment.

ENERGY PRODUCTION

INDUSTRY

Gases. A lot of air pollution is related to the emission of gases from industrial activity, which should be controlled. There are numerous serious environmental implications and health risks associated with industrial air pollution.

Waste. Activities associated with the secondary sector include metal working, automobile production, textile production, chemical and engineering industries, construction, shipbuilding, etc. Along with the gases mentioned above, factories generate other types of waste, which can contaminate the water and the soil if not disposed of carefully.

5.3. THE IMPACTS OF THE TERTIARY SECTOR

The main impacts of this sector are related to the construction of infrastructure that is required for tourism and leisure activities. Much of this activity takes place in areas of natural beauty and environmental significance, thereby endangering such areas.

TOURIST ACTIVITIES

Sun, sea and sand tourism. Infrastructure for tourism degrades the landscape. This type of tourism can produce large concentrations of hotels in natural areas, or the construction of high-rise buildings on the coast.

Winter sports tourism. The construction of ski slopes, which destroy vegetation on the mountain slopes, as well as hotel and transport infrastructure, transforms the landscape.

TRANSPORT

Transport routes. The construction of transport routes (roads, motorways, railway lines, ports and airports, etc.) degrades landscapes and affects different species of plants and animals.

Tunnels and cuttings. In some cases, building railway lines and roads involves the construction of tunnels and cuttings.

Ports and airports. The building of sea ports, with the hazards of waste generation, and of airports, also has a major environmental impact.

6. ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

The current model of economic and population growth endangers the Earth's natural environment, but also threatens our way of life as we know it. In addition, there are significant disparities in the distribution and exploitation of the Earth's resources, causing serious social injustices.

This situation has led countries, social groups, environmental organisations and people around the world to look for ways to promote sustainable development, or, in other words, to try to balance economic growth with the protection and conservation of our natural heritage. Their cause also involves fighting against inequalities, as it seeks to promote the comprehensive development of all inhabitants of the planet through solidarity.

6.1. GLOBAL MEASURES

Thanks to the UN and the agencies that comprise it, there have been conferences between states where a number of agreements have been reached to attempt to prevent or limit the impact of environmental problems.

Climate Change Conference (Kyoto, 1997)

The Kyoto Protocol, to reduce greenhouse gas emissions, was signed at this conference. This protocol has been revised in subsequent years.

6.2. THE NATURA 2000 NETWORK

The European Union has also developed policies that promote respect for ecosystems and the environment. Its key instrument is the Natura 2000 network, which covers European territories that contain precious species and habitats, seeking to guarantee their long-term survival. This network defines the legislation and processes used to manage and maintain these areas.

PROTECTION MEASURES IN SPAIN

Spain has developed its own measures for the protection of natural areas. These protected natural areas include representative or threatened natural features, of special ecological, scientific or geological interest. These areas need special protection to maintain their biodiversity and associated natural resources.

Some of the main forms of protection established by Spanish law are:

NATIONAL PARKS

These are natural areas of high ecological and cultural value, in which the state aims to minimise the impact caused by human activity.

NATURAL MONUMENTS

These natural areas or features are formations that need protecting due to their uniqueness or the importance of their scientific or cultural value.

PROTECTED LANDSCAPES

These are natural or cultural landscapes that require special protection, according to a European agreement on landscapes.

NATURAL PARKS

The conservation and management of these natural areas is the responsibility of autonomous governments.