Syllabus

Cambridge O Level Environmental Management
Syllabus code 5014
For examination in June and November 2011

UNIVERSITY *of* CAMBRIDGE
International Examinations

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Note for Exams Officers: Before making Final Entries, please check availability of the codes for the components and options in the E3 booklet (titled "Procedures for the Submission of Entries") relevant to the exam session. Please note that component and option codes are subject to change.

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1. Introduction

1.1 Why choose Cambridge?

University of Cambridge International Examinations (CIE) is the world's largest provider of international qualifications. Around 1.5 million students from 150 countries enter Cambridge examinations every year. What makes educators around the world choose Cambridge?

Developed for an international audience

International O Levels have been designed specially for an international audience and are sensitive to the needs of different countries. These qualifications are designed for students whose first language may not be English and this is acknowledged throughout the examination process. The curriculum also allows teaching to be placed in a localised context, making it relevant in varying regions.

Recognition

Cambridge O Levels are internationally recognised by schools, universities and employers as equivalent to UK GCSE. They are excellent preparation for A/AS Level, the Advanced International Certificate of Education (AICE), US Advanced Placement Programme and the International Baccalaureate (IB) Diploma. CIE is accredited by the UK Government regulator, the Qualifications and Curriculum Authority (QCA). Learn more at **www.cie.org.uk/recognition**.

Support

CIE provides a world-class support service for teachers and exams officers. We offer a wide range of teacher materials to Centres, plus teacher training (online and face-to-face) and student support materials. Exams officers can trust in reliable, efficient administration of exams entry and excellent, personal support from CIE Customer Services. Learn more at **www.cie.org.uk/teachers**.

Excellence in education

Cambridge qualifications develop successful students. They not only build understanding and knowledge required for progression, but also learning and thinking skills that help students become independent learners and equip them for life.

Not-for-profit, part of the University of Cambridge

CIE is part of Cambridge Assessment, a not-for-profit organisation and part of the University of Cambridge. The needs of teachers and learners are at the core of what we do. CIE invests constantly in improving its qualifications and services. We draw upon education research in developing our qualifications.

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1. Introduction

1.2 Why choose Cambridge O Level Environmental Management?

International O Levels are established qualifications that keep pace with educational developments and trends. The International O Level curriculum places emphasis on broad and balanced study across a wide range of subject areas. The curriculum is structured so that students attain both practical skills and theoretical knowledge.

Cambridge O Level Environmental Management is accepted by universities and employers as proof of knowledge and understanding. Successful O Level Environmental Management candidates gain lifelong skills, including:

- an ability to draw upon disciplines such as biology, earth science, geography, economics and anthropology;
- an understanding of the interdependence of the earth's natural systems, and how people use natural resources;
- an understanding of how development impacts on the environment consideration of issues such as environmental pollution and resource depletion
- the ability to explore ways in which we may change the nature of future development to make it more sustainable.

Cambridge O Level Environmental Management is an ideal foundation for further study at A Level, and the skills learnt can also be used in other areas of study and in everyday life.

Students may also study for a Cambridge O Level in other subjects such as Agriculture, Food and Nutrition, Human and Social Biology. In addition to Cambridge O Levels, CIE also offers Cambridge IGCSE and International A & AS Levels for further study in Environmental Management as well as other related subjects. See **www.cie.org.uk** for a full list of the qualifications you can take.

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1. Introduction

1.3 How can I find out more?

If you are already a Cambridge Centre

You can make entries for this qualification through your usual channels, e.g. your regional representative, the British Council or CIE Direct. If you have any queries, please contact us at **international@cie.org.uk**.

If you are not a Cambridge Centre

You can find out how your organisation can become a Cambridge Centre. Email either your local British Council representative or CIE at **international@cie.org.uk**. Learn more about the benefits of becoming a Cambridge Centre at **www.cie.org.uk**.

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2. Assessment at a glance

Cambridge O Level Environmental Management Syllabus code 5014

This syllabus is available for examination in both the June and November sessions
All candidates take Papers 1 and 2.

Paper 1 — 2 hour 15 minutes	Paper 2 — 1 hour 30 minutes
This will consist of two sections. Section A will consist of four compulsory structured short-answer questions, each based on one of the four spheres (lithosphere, hydrosphere, atmosphere, biosphere). (40 marks) Section B will consist of a number of compulsory structured questions, involving short-answer and free response, based upon several pieces of related source material concerning environmental issues of global impact. Candidates will be expected to use case studies to illustrate issues of environmental management. (80 marks) **120 marks: 60% of total assessment**	This paper primarily tests skills in Assessment Objectives B and C. Candidates are given data about an environmental problem which could provide the basis for a project. They will be required to identify issues raised by the data, and to indicate ways in which a project could be organised to identify a possible management strategy. **60 marks: 40% of total assessment**

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3. Syllabus aims and assessment

3.1 Aims

The aims are not listed in order of priority. Aims 7, 8 and 11 are intended as general course outcomes, but are not directly assessed in the examination.

The aims are to enable candidates to acquire:

1. knowledge of the functioning of the natural system which makes life possible on Earth;
2. an understanding that humankind is part of this system and depends on it;
3. an appreciation of the diverse influences of human activity on the natural system;
4. an awareness of the need for management and human responsibility to keep the system in a healthy condition if life as we know it is to continue;
5. an understanding of sustainable development and management to meet the needs of the present without compromising the ability of future generations to meet their own needs;
6. an understanding of how local environments contribute to the global environment;
7. a sensitivity to, and a sense of responsibility and concern for, the welfare of the environment and all other life forms which share this planet;
8. an awareness of their own values concerning environmental issues;
9. an awareness of the values of others;
10. a willingness to review their own attitudes in the light of new knowledge and experiences;
11. a sound basis for further study, personal development and participation in local and global environmental concerns.

3.2 Assessment objectives

Assessment objectives are relatively independent sets of skills and activities. In O Level Environmental Management, the three Assessment Objectives are skills-oriented rather than content-oriented.

A Knowledge with understanding

Candidates are expected to demonstrate knowledge and understanding of:

1. the wide range of processes contributing to
   (a) the functioning of the Earth's natural, geophysical and ecological systems;
   (b) human development within the natural system and the impact of human activity on the total environment;
2. the concept of environmental interdependence, and should be able to place local environmental questions in an international or global setting;

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3. the implications of the unequal distribution of resources and of the unequal patterns of human development;
4. the concept and practice of sustainable development;
5. ways of reducing and repairing environmental damage.

These assessment objectives will mainly be covered in the **Resources and Development** elements of the syllabus.

B Enquiry, presentation and analysis

Candidates are expected to demonstrate the ability to:

6. select and use suitable basic techniques to
   (a) observe, record and classify relevant primary data;
   (b) extract and classify relevant secondary data from appropriate sources;
7. organise and present their findings
   (a) in a logical and concise manner;
   (b) in a clear and coherent form, using appropriate techniques including graphs, diagrams, maps and tables;
8. analyse data to
   (a) recognise patterns and deduce relationships;
   (b) draw reasoned conclusions;

These assessment objectives will be covered throughout the syllabus.

C Evaluation, judgement and decision making

Candidates should be able to:

9. recognise that cultural, economic, social, and political factors influence the different ways in which people perceive, value, use and make decisions about the environment;
10. discuss and evaluate choices available to decision makers and the influences and constraints in which they operate;
11. recognise, analyse, discuss and evaluate strategies for sustainable development;
12. make reasoned judgements about environmental issues.

These assessment objectives will mainly be covered in the Impact and Management elements of the syllabus.

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3. Syllabus aims and assessment

Assessment specification grid

Paper	Assessment Objective					
	A Marks	%	B Marks	%	C Marks	%
1	40	23	44	24	36	20
2	12	7	24	13	24	13
Total	52	30	68	37	60	33

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4. Curriculum content

4.1 Themes

This syllabus is centred around the concept of: **sustainable development**. This may be defined as

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'

Two concerns are fundamentally tied to the process of sustainable development of the Earth's resources:

(i) The basic needs of humanity – for food, clothing, shelter and jobs – must be met.

(ii) The limits to development are not absolute but are imposed by present states of technology and social organisation and by their impacts upon environmental resources and upon the biosphere's ability to absorb the effect of human activities. But technology and social organisation can be both managed and improved to make way for a new era of economic growth.

Underlying questions

Whatever particular issue is being studied, candidates should consider the following central questions:

- Can the resources involved – whether they are non-living, living or human – be defined as renewable or non-renewable in relation to the pace, scale and character of development?
- To what extent, and why, do people use and value the same natural resource in different ways?
- What dilemmas face individuals, communities and countries in their use and management of natural resources?
- How compatible and how viable are different economic approaches in tackling an environmental issue?
- What are the relative costs, advantages and disadvantages of different strategies for managing the environment?
- What are the factors influencing dispute and co-operation over the use of natural resources?
- What are the current and potential roles of the following:
  - international organisations,
  - national and local governments,
  - environmental organisations,
  - aid agencies,
  - industry and commerce,
  - community groups,
  - individuals?

These questions should be presented in an open-ended way. This syllabus does not prescribe solutions as to how environments should be managed. The relationship between environment and development is dynamic. Strategies have to be altered, adjusted and changed as new problems arise. The same solutions

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may not be applicable in all regions or cases. Candidates should be encouraged to look for and evaluate alternative solutions, rather than to expect or reproduce the 'right answer'. Candidates need to understand the role played by value judgements and be able to accept that other people in their own society and elsewhere may hold values different from their own.

Candidates should be able to show a basic knowledge and understanding of the processes listed under Resources and Development and give examples to illustrate their understanding. In discussing Impact and Management, they should be able to analyse, discuss and draw conclusions based on reasoned evidence. Teaching methods should encourage enquiry and discussion as much as possible and this should be based as far as possible on case studies, at an appropriate level. The emphasis should be on applying knowledge and understanding to international, national and local environmental problems to enable candidates to become involved in both current and future environmental management issues.

The syllabus matrix
The Environmental Management syllabus is organised as a matrix (see the diagram on the following page).

The syllabus is designed to emphasise that

(a) life on Earth as we know it is an integrated and interdependent whole;

(b) its future is endangered by the impact of human development on natural resources;

(c) its survival for future generations will depend on concerted action to conserve and manage the environment as a self-sustaining resource base.

For each of the four spheres of the Earth's environment (lithosphere, hydrosphere, atmosphere and biosphere), the following aspects are considered.

1. **Resources:** How does the natural system work?
2. **Development:** How do people use natural resources?
3. **Impact:** How does development change the environment?
4. **Management:** How can the environment be developed sustainably?

The divisions between the four spheres should not be seen as rigid or exclusive. Many environmental issues, e.g. water pollution, soils/agriculture, etc., involve more than one sphere. Teachers should be aware of the links between different parts of the matrix and by using suitable cross references they should emphasise environmental interdependence. The syllabus does not prescribe a particular sequence of study.

About 35% of the teaching time should be devoted to the curriculum objectives on resources and development. These can be dealt with in a largely descriptive way to give students a basic knowledge and understanding of processes. This will provide the foundation for the analysis and discussion of impact and management, to which the remaining 65% of teaching time should be allocated.

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4. Curriculum content

In this syllabus we give examples (in *italics*) to illustrate many of the objectives. These are not intended to be definitive or prescriptive; a range of factors influence any topic and we encourage teachers to adopt a similar range of teaching strategies.

The curriculum objectives should be covered by investigating specific examples and case studies from both the 'Developed' and the 'Developing World'.

The syllabus matrix

	Resources	Development	Impact	Management
Lithosphere	The lithosphere: structure and processes Elements of soil	Human activity and the lithosphere	Lithosphere in crisis	Action on the lithosphere
Hydrosphere	The water cycle The oceans	Human intervention in the water cycle Exploitation of the oceans	Water hazards The oceans at risk	Clean, safe, water strategies Managing the oceans
Atmosphere	The atmospheric system	Human activity and the atmosphere	Atmosphere in crisis Agriculture development consequences	Action on the atmosphere Managing agriculture
Biosphere	Biomes Types of vegetation	The changing role of people in the environment Human population Modification of vegetation and soils	Ecosystems at risk People in crisis Land at risk	Conservation of the ecosystem Population management Managing the land

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4. Curriculum content

RESOURCES → DEVELOPMENT

Lithosphere

HOW DOES THE NATURAL SYSTEM WORK?	HOW DO PEOPLE USE NATURAL RESOURCES?
All candidates should have knowledge and understanding of: **1. Lithosphere: structure and processes** 1.1 the structure of the Earth *core, mantle, crust* 1.2 the types of rock *igneous, sedimentary, metamorphic* 1.3 the distribution, types and reserves of major minerals *metal ores and fossil fuels (oil, gas, coal)* 1.4 the formation of fossil fuels 1.5 the crust/tectonic cycle *plate tectonics, earth movements (folding, faulting, mountain building), earthquake zones, vulcanicity* **2. Elements of soil** 2.1 the formation and composition of soils *mineral and organic content, air, water, role of soil organisms, particle size (clay, silt, sand), soil texture* 2.2 soil as a medium for growth and land use potential *nutrients, pH, pore space, aeration, drainage*	*All candidates should have knowledge and understanding of:* **3. Human activity and the lithosphere** 3.1 the methods of search and extraction of rocks, minerals and fossil fuels 3.2 the uses of rocks and minerals in industrial processes 3.3 types of energy production from fossil and nuclear fuels 3.4 the location of the main centres of mining and energy production in relation to major centres of population and industry 3.5 main supply and demand constraints in exploiting mineral resources *geological factors, depletion rates, climatic factors, transport, fluctuations of prices* 3.6 the economic aspects and limitations of earthquake and volcanic zones 3.7 the implications of the patterns of global trade in minerals and energy 3.8 how industrial development is used to achieve social and economic goals

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4. Curriculum content

IMPACT → MANAGEMENT

HOW DOES DEVELOPMENT CHANGE THE ENVIRONMENT?	HOW CAN THE ENVIRONMENT BE DEVELOPED SUSTAINABLY?
All candidates should be able to analyse and discuss:	*All candidates should be able to analyse and discuss:*
4. Lithosphere in crisis	**5. Action on the lithosphere**
4.1 the impact of mineral exploitation on the environment and on human activity and health	5.1 conservation schemes for damaged environments *landscaping, restoration, reclamation, filtration, waste management*
4.2 the global economic consequences of the over-exploitation and depletion of mineral and fossil fuel reserves	5.2 technologies and viability of alternative energy sources *solar, wind, wave, geothermal, hydro-electric, biomass*
4.3 the implications in social, economic and environmental terms of different types of energy production *fossil fuels compared with nuclear*	5.3 strategies for conservation and management of mineral and fossil fuel resources *increased efficiency in use, insulation, recycling, power from waste, new technology*
4.4 the impact of earthquakes, volcanic eruptions on human communities *damage, loss of life, danger to health in aftermath, economic dislocation*	5.4 strategies for managing the impacts of earthquakes and volcanic activity *planning site of settlement (land use zoning) and structure of buildings, disaster relief*
4.5 the impact of industrial development on the environment and on human activity and health	5.5 industrial materials, technologies, and approaches which can contribute to solving environmental problems *monitoring, remedial action, recycling (processing wastes and industrial products at end of life), low waste technology (developing cleaner processes and products, conservation and efficiency)*
4.6 causes and consequences of land pollution *salination, toxic waste, nuclear waste, domestic waste, harmful effects of pesticides and fertilisers; groundwater contamination, health risks.*	

Lithosphere

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4. Curriculum content

RESOURCES → DEVELOPMENT

Hydrosphere

HOW DOES THE NATURAL SYSTEM WORK?	HOW DO PEOPLE USE NATURAL RESOURCES?
All candidates should have knowledge and understanding of:	*All candidates should have knowledge and understanding of:*
6. The water cycle	**8. Human intervention in the water cycle**
6.1 how the water cycle operates	8.1 collection and control of water for a variety of uses *water supply (storage, transfer, dams, reservoirs); industry and domestic use; waste disposal; power; agriculture (irrigation)*
6.2 how the natural availability of water varies from place to place	8.2 competing demands for water
6.3 the role of the water cycle within ecosystems *links between rainfall, vegetation and soils (interception, infiltration, surface run-off)*	8.3 mismatch between water supply and demand 8.4 the ways in which processes operating within the water cycle affect development *causes and effects of flooding and drought*
7. The oceans	**9. Exploitation of the oceans**
7.1 the role of the ocean as an environment for interdependent ecosystems	9.1 the environmental and human factors in the distribution and exploitation of the world's ocean fisheries
7.2 the resource potential of the oceans	9.2 factors that limit full exploitation of the ocean's potential resources
7.3 the distribution of ocean currents and their effects *on climate and on fisheries*	
7.4 reversal of ocean currents, e.g. el Nino and its effects	

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4. Curriculum content

IMPACT → MANAGEMENT

HOW DOES DEVELOPMENT CHANGE THE ENVIRONMENT?	HOW CAN THE ENVIRONMENT BE DEVELOPED SUSTAINABLY?
All candidates should be able to analyse and discuss:	*All candidates should be able to analyse and discuss:*
10. Water hazards	**12. Clean, safe water strategies**
10.1 the causes and consequences of water pollution *impact on natural ecosystems, the physical environment, human activity and health*	12.1 ways of improving water quantity, quality and access *pollution control, improved sanitation, distribution for more efficient water use, desalination*
10.2 contrasts in availability of water in terms of quality, quantity and access *between urban and rural communities; between countries*	12.2 strategies to control and eradicate water-related diseases *drugs, vector control and eradication, improved sanitation, clean water supply, chlorination*
10.3 the cycle of water-related diseases, and their impact on human activities and development *water-based (bilharzia); water-borne (typhoid, cholera); water-bred (malaria)*	
11. The oceans at risk	**13. Managing the oceans**
11.1 the implications of uncontrolled exploitation of marine resources *fishing, continental shelf and deep-sea mineral resources*	13.1 strategies for the sustainable harvesting of ocean fisheries *net types and sizes, quotas, conservation laws, territoriality*
11.2 causes of marine pollution and its impact on the marine ecosystem and on coastal zones *raw sewage, heavy metals, oil and plastics*	13.2 marine pollution controls and remedial action *international co-operation and legislation, dealing with oil spills, managing raw sewage*

Hydrosphere

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4. Curriculum content

RESOURCES → DEVELOPMENT →

Atmosphere

HOW DOES THE NATURAL SYSTEM WORK?	HOW DO PEOPLE USE NATURAL RESOURCES?
All candidates should have knowledge and understanding of:	*All candidates should have knowledge and understanding of:*
14. The atmospheric system	**15. Human activity and the atmosphere**
14.1 the sun as an energy source; varying rates of surface insolation	15.1 water, solar and wind as power resources
14.2 the factors which contribute to solar heat balance of earth and atmosphere *radiation, absorption, reflection*	15.2 use of the atmosphere as a dispersal medium for waste gases *smoke particles and exhaust fumes*
14.3 the structure and composition of the atmosphere *importance of the ozone layer, oxygen, carbon dioxide and water vapour in the air*	15.3 the interaction between climate and human activity *shelter; farming affected by climate*
14.4 the balances which maintain the Earth's atmosphere as a mixture of gases *oxygen, carbon dioxide and nitrogen*	15.4 the different types and systems of farming *croplands/grazing lands, intensive/extensive, subsistence/commercial*
14.5 how the elements of weather are measured, recorded, and interpreted *temperature, precipitation, atmospheric pressure, wind, sun*	15.5 the environmental, technological, economic and social factors which influence the distribution of different types and systems of farming
14.6 location of major climatic types and their main characteristics through interpretation of climatic graphs and maps *Tropical - equatorial, savanna* *Dry - desert* *Temperate - cool interior* *Cold - tundra*	15.6 new agricultural techniques which increase yields *irrigation, biological controls, the benefits of chemicals (fertilisers and pesticides), mechanisation, capital subsidies*
14.7 'climatic hazards' (extremes of weather): causes and occurrence *cyclone, flood, drought*	15.7 the factors which influence the patterns of agricultural output and trade *North-South trade in commodities, cash crops vs food crops*

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4. Curriculum content

→ IMPACT → MANAGEMENT

HOW DOES DEVELOPMENT CHANGE THE ENVIRONMENT?	HOW CAN THE ENVIRONMENT BE DEVELOPED SUSTAINABLY?
All candidates should be able to analyse and discuss:	*All candidates should be able to analyse and discuss:*
16. Atmosphere in crisis	**18. Action on the atmosphere**
16.1 human activities which alter the composition of the atmosphere and climate *deforestation, burning of fossil fuels, industrial and vehicle emissions, use of CFCs*	18.1 strategies to reduce atmospheric pollution and climatic change *CFC replacement, reduction of pollutant emissions, reforestation*
16.2 causes of atmospheric pollution *carbon dioxide, CFCs, methane, sulphur and nitrogen oxides, lead*	18.2 the need for international action and changing attitudes to deal with the causes and consequences of the damage to the atmosphere
16.3 damage to the ozone layer and links to atmospheric pollution	18.3 strategies to reduce the negative impact of climatic hazards *improved forecasting, appropriate settlement patterns and buildings, disaster relief*
16.4 the effects of pollution on atmospheric conditions *acid rain, the greenhouse effect, temperature inversion*	**19 Managing agriculture**
16.5 the implications of changes in the atmosphere and climate *effects on health, food production, water supply, ecosystems*	19.1 strategies for sustainable agriculture *plant breeding, integrated pest control, mixed cropping, gene banks, new crop strains, trickle drip irrigation, organic alternatives to inorganic fertilisers*
16.6 the impact of climatic hazards on human communities *damage, loss of life, danger to health in aftermath, loss of production*	19.2 harvesting energy from living resources to provide power *biomass, biogas (methane), fuel from organic waste*
17. Agriculture: consequences of development	
17.1 the impact of indiscriminate agricultural practices *overuse of pesticides and inorganic fertilisers, crops requiring irrigation, traditional crop varieties disappearing, overproduction and waste in developed countries, concentration of land in hands of fewer owners, environmental damage (pollution, soil erosion)*	
17.2 the advantages and disadvantages of the 'green revolution'	

Atmosphere

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4. Curriculum content

RESOURCES → DEVELOPMENT →

Biosphere

HOW DOES THE NATURAL SYSTEM WORK?	HOW DO PEOPLE USE NATURAL RESOURCES?
All candidates should have knowledge and understanding of: **20. Biomes** 20.1 the concept of an ecosystem 20.2 organisation within an ecosystem *population, community, habitat, niche* 20.3 physical factors *temperature, humidity, water, salinity, light, pH, soils, nutrients, wind* 20.4 relationships of living organisms *producers, consumers, food chains and webs, competition, predation, pollination, dispersal, vegetational succession* 20.5 energy flow *photosynthesis, respiration, food chains, food webs* 20.6 nutrient cycling *carbon and nitrogen cycle* 20.7 resource potential *biodiversity as a genetic resource, and as a food base* **21. Types of vegetation** 21.1 the distribution and main characteristics of natural vegetation zones (biomes) and relationship to climatic zones *Forest* - *tropical rainforest, monsoon forest, taiga* *Grassland* - *savanna* *Desert* - *desert, tundra*	*All candidates should have knowledge and understanding of:* **22. The changing role of people in the environment** 22.1 how different types of human society use and value their natural environment *hunter-gatherer, nomadic pastoralist, farming, industrial, tourism* 22.2 the increasing ability of humankind to create artificial environments as a result of economic and technological development and social and cultural change *e.g. in agriculture: domestication of plants and animals, modern agricultural methods, genetic engineering* **23. Human population** 23.1 population growth *rates of birth, death and fertility, life expectancy, infant mortality* 23.2 population structure *population pyramids, young and ageing populations* 23.3 migration *push/pull, urban/rural* 23.4 the model of demographic transition and its limitations **24. Modification of vegetation and soils** 24.1 factors influencing the clearance of natural vegetation over time *farming (crops, grazing), timber (fuel, building, furniture), paper (pulp), chemicals (gums, resins), settlement (towns, cities)*

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IMPACT → MANAGEMENT

HOW DOES DEVELOPMENT CHANGE THE ENVIRONMENT?	HOW CAN THE ENVIRONMENT BE DEVELOPED SUSTAINABLY?
All candidates should be able to analyse and discuss:	*All candidates should be able to analyse and discuss:*
25. Ecosystems at risk	**28. Conservation of the ecosystem**
25.1 habitat destruction, loss of biodiversity, genetic depletion	28.1 strategies for conservation of biodiversity and the genetic resource
25.2 the effect of loss of habitat on wildlife and on the food chain	*sustainable harvesting of wild plant and animal species, national parks, wildlife reserves, world biosphere reserves, gene banks*
draining of wetlands, impounding water, deforestation, intensive agricultural practices	28.2 world conservation strategies and legislation
25.3 the impact of tourism	*the work of organisations such as UNEP, IUCN, WWF, CITES*
26. People in crisis	**29. Population management**
26.1 social, economic and environmental implications of population growth rates and structures	29.1 strategies for managing population growth
26.2 measures of world poverty and the North-South divide	*family planning, improved health and education, national policies*
per capita incomes, inadequacy of housing, levels of disease and nutrition	29.2 strategies for managing the urban and rural environments
26.3 the implications of the cycle of *poverty, as it effects individuals and communities, for the environment*	*planning, environmental improvement, community participation*
26.4 urbanisation	29.3 strategies for overcoming world inequalities
causes (push/pull factors), problems (housing, congestion, pollution, loss of agricultural land, provision of services)	*improved trade and aid conditions, governmental and non-governmental aid, food aid*
27. Land at risk	29.4 managing tourism
27.1 causes and consequences of rapid and progressive deforestation	*National Parks, ecotourism*
clearance for fuelwood, subsistence and cash crop farming, settlement, timber extraction and grazing; links with soil erosion and desertification, climate changes, effect on people (displacement, lack of fuel)	**30. Managing the land**
27.2 causes and consequences of soil erosion and desertification	30.1 strategies for soil conservation
removal of vegetation, overgrazing, overcultivation, clearance of slopes, poor irrigation; food shortage and water shortage, displacement of people	*tree planting, terracing, contour ploughing, dry land farming, wind breaks, integrated rural development programmes, land reform, community participation*
	30.2 sustainable forest management techniques
	agro-forestry, community forestry, reforestation, sustainable harvesting of hardwoods, fuelwood planting, genetic engineering
	30.3 alternatives to deforestation
	more efficient use of timber, recycling (paper/timber), alternative materials to timber

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