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IN TERMS OF ECOLOGY

Учебно-методическое пособие по экологии

2014

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In Terms of Ecology: Учебно-методическое пособие по проблемам защиты окружающей среды и ее эволюции для студентов неязыковых вузов разных специальностей /Сост. С.К. Соловьева, Е.В. Тиден. — Саратов, 2014. — 119 с.

Предлагаемое учебное пособие представляет собой тексты по данной специальности с системой упражнений, направленных на развитие навыков устной и письменной речи. Аутентичный учебный материал позволяет решать учебно-методические проблемы на современном уровне.

Для студентов всех специальностей как источник фоновых знаний и средство формирования экологического мышления.

Сод ние

ВВЕДЕНИЕ

Настоящее пособие включает тексты по актуальной на сегодняшний день проблемам экологии.

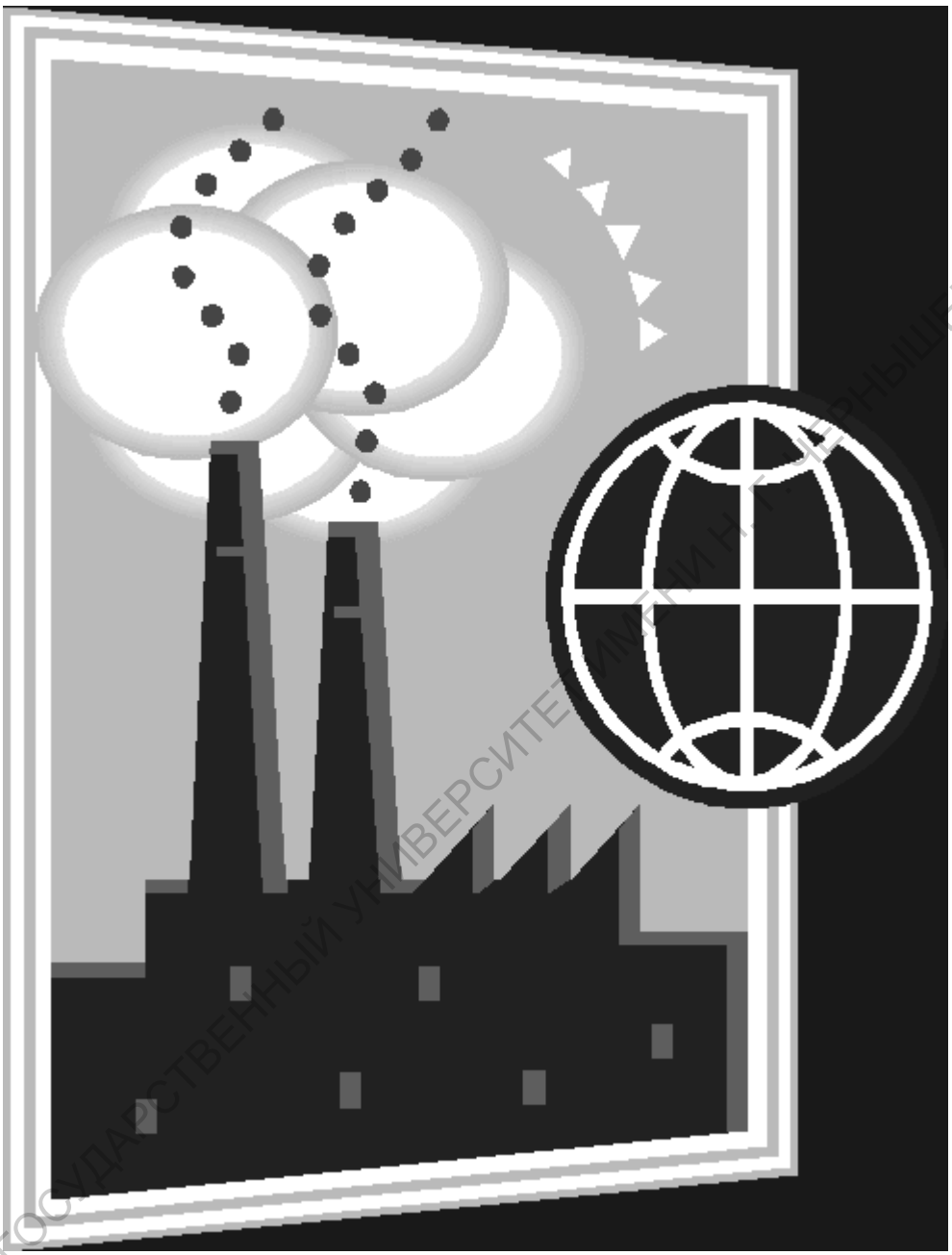
Уроки состоят из 2-х частей: каждый текст 1-й части сопровождается заданиями по изучению различных аспектов языка (лексического, грамматического), а во 2-й части представлены тексты для домашнего чтения. Пособие предназначено для студентов естественных факультетов, а также в качестве дополнительного сборника текстов и упражнений для всех, кто изучает английский язык и хочет познакомиться с текстами по экологической тематике о современном состоянии окружающей среды и ее проблемах и расширить свой словарный запас соответствующей лексикой.

Целью данного пособия является формирование навыка чтения и перевода научной литературы по экологии, а также развитие устной речи.

Данное пособие помогает подготовить студентов к самостоятельной работе со специальной литературой, обучить устным формам общения по научной тематике на материале предложенных текстов.

Пособие состоит из 6 уроков, каждый из которых содержит тексты и упражнения. Раздел “Supplementary reading“ служит материалом для расширения словарного запаса и дальнейшего закрепления навыков работы с текстами по специальности.

Пособие предназначено как для аудиторных занятий, так и для внеаудиторной практики, а также в качестве сборника контрольных работ для студентов естественных факультетов и широкого круга читателей, изучающих английский язык.



Lesson 1

Part 1

Exercise 1.

Say what Russian words help to guess the meaning of the following words:

scenario, infrastructure, relative, calculate, equivalent, simulate, population, transport, economy, energy

Exercise 2.

Read the following words and give Russian equivalents:

estimate, assumption, relative, reference, assume, observation

Text

Future concentrations of greenhouse gases.

The prediction of climate change depends upon estimates, or scenarios, of how greenhouse gas emissions will change in the future and how these scenarios could effect atmospheric concentrations. (1)

An emission scenario is constructed by making assumptions about the impact of emissions on future population growth, transport infrastructure, the world economy, energy demand, industrial and technological development and world agricultural practice. (2)

Different scenarios are then constructed by changing the relative importance of these assumptions and by applying different levels of controls to greenhouse gas emissions. These are compared to reference scenarios which assume today's level of emission control. (3)

From the emissions scenarios, the future concentrations of greenhouse gases can be calculated using models of the chemistry of the atmosphere and the carbon cycle. For example, the IPCC reference

scenario results in an increase in greenhouse gas concentrations equivalent in their greenhouse effect to a doubling of CO_2 concentrations from pre-industrial times by the year 2050. (4)

Climate prediction models. The predicted greenhouse gas concentrations are used by general circulation models (GCMs) to predict future climate. GCMs are complex computer programmes run on supercomputers to simulate the main components of the climate system. One of the most advanced GCMs in the world is operated for the UK. Government at the Meteorological Office's Hadley Centre for Climate Prediction and Research. (5)

The atmospheric part of a GCM is very similar to the computer model that generates our daily weather forecasts. By simulating weather patterns over the globe for many years, GCMs build up a picture of the evolution of climate to a reasonable degree of realism. The models can also be used to simulate the climate earlier this century so that the results can be checked against actual observations. (6)

Exercise 3.

Use context clues to get the meaning of the words and choose the correct variant :

scenario (1) – сценарий, либретто, программа действий

assumption (2) – предположение, присвоение, притворство

pre-industrial times (4) - доисторический, допризывный, доиндустриальный, преждевременный

to run on (5) - руководить, управлять, работать, двигаться, натолкнуться

to simulate (5) – воспроизводить, подражать, прикидываться

to operate (5) – разрабатывать, оперировать, работать, управлять

to generate (6) – родить, порождать, вызывать

actual observation (6) – подлинное наблюдение, современное наблюдение, фактическое наблюдение

Exercise 4.

Find English equivalents for the following Russian words and word combinations:

подсчитывать (4) – to calculate, to count, to add up

круговорот углекислого газа (4) - the carbon flow, the carbon cycle, the carbon round

эквивалент (4) – equivalent, similarity, resemblance

удвоить (4) – to double, to reduplicate

прогноз погоды (6) – weather prognosis, weather forecasts, weather prediction

инфраструктура (2) – infrastructure, scale, system

изменение климата (1) - climate change, climate modification, climate declination, climate umlaut, climate mutation

рост населения (2) – population height, population growth, population advance

Exercise 5.

Translate into Russian paying attention to

a) the connective adverbs :

The prediction of climate change depends upon estimates, or scenarios, of **how** greenhouse gas emissions will change in the future. (1)

1. The prediction of climate change depends upon how these scenarios could effect atmospheric concentrations. (1)

2. I'll show you when it works.

3. Indeed, it seems that most of us have a very simple idea of where categorization works.

4. I can tell you why scientific discoveries are made.

5. It was good advice, but I was very **aware of** how wrong my guesses could be sometimes.

b) Gerund construction as the Adverbial Modifier:

An emission scenarios is constructed by **making** assumptions about the impact on emissions of future population growth. (2)

1. Different scenarios are then constructed by changing the relative importance of these assumptions.

2. Different scenarios are then constructed by applying different levels of controls to greenhouse gas emissions.

3. By simulating weather patterns over the globe for many years, GCMs build up a picture of the evolution of climate to a reasonable degree of realism.

4. We can evaluate gas by using the equation for the total weight of gas present in the sample, expressed as a function of X and the molecular weight of the two kinds of molecules.

5. It is not possible to obtain a sound knowledge of chemistry simply by learning theoretical chemistry without making a lot of experimental work.

c) Temporal Genitive Case of a noun:

These are compared to reference scenarios which assume **today's level** of emission control. (3)

1. Yesterday's news of the murderer of a priest in Kent shocked the community.
2. The 1960's witnessed remarkable progress nearly in every field of physics and biology and this process seems to be accelerating.
3. The first genetic experiments were done as early as the 1880's.
4. The first successful experiments on nuclear fission were done as fare back as the 1930's.
5. Maxwell advanced the idea of the electromagnetic nature of light as early as the 1880's.

d) Functions of the Participle I constructions:

From the emissions scenarios, the future concentrations of greenhouse gases can be calculated **using** models of the chemistry of the atmosphere and the carbon cycle. (4)

1. Plants trap sunlight utilizing it in biochemical reactions.
2. Human activities affect the environment radically transforming it.
3. The ozon layer absorbs ultraviolet waves protecting life on Earth.
4. Ecology is a branch of natural science dealing with interactions within the biosphere.
5. Solar spectrum includes waves of different lengths ranging from very short X- rays to very long radio waves.

e) nouns used attributively :

The predicted **greenhouse gas concentrations** are used by general **circulation models (GCMs)** to predict future climate. (5)

1. Water vapor is the most important greenhouse gas.

2. The greenhouse effect is a natural phenomenon.

3. Methane concentrations have risen since the beginning of the 19 century.

4. UV radiation can cause potentially fatal skin cancer.

5. CFCs are the most important contributors to ozon depletion.

f) Infinitive as the adverbial of purpose:

GCMs are complex computer programmes run on supercomputers **to simulate** the main components of the climate system. (5)

1. In order to prepare oxygen it is necessary to heat potassium chlorate .

2. In order to make the reaction take place quickly it is necessary to mix a small amount of manganese dioxide with the potassium chlorate.

3. To examine metals I must have all the necessary samples.

4. Tropical rain forest are often cut down to provide space to breed cattle to provide our hamburgers.

5. To get salts you have to know some methods of their preparation.

g) Attributive Clause:

The atmospheric part of a GCM is very similar to the computer model **that** generates our daily weather forecasts. (6)

1. The food that we had to eat came in plastic bags.
2. This isn't the information that I was given before.
3. All the rubbish that is floating in the sea is a real dander to health.

4. ‘I’ll discuss it with you’, she said in a voice that could have been used to defrost her refrigerator.

5. Genetic engineers, whose success stories include crops that will grow in areas where they have never grown before, have produced their first genetically engineered insect.

h) Result Clause:

The models can also be used to simulate the climate earlier this century **so that** the results can be checked against actual observations. (6)

1. We planted many shrubs, so that the garden soon looked beautiful.

2. There had been a reduction in the oil supply and increased demand, so prices have risen.

3. A tree had fallen during the storm, so that the road was blocked and we couldn’t go anywhere.

4. They said the tap water wasn’t safe to drink, so we had to drink bottled water.

5. Try to think about this problem in such a way that you don’t exaggerate their importance.

Exercise 6.

Find paragraphs, dealing with the following:

agricultural practice, relative importance, carbon cycle, doubling, complex, advanced, globe, evolution

Exercise 7.

Find answers to the following questions:

1. What does the prediction of climate change depend on?

2. What is an emission scenario constructed by?

3. What assumes today's level of emission control?

4. What models are used to predict future climate?

5. What are GCMs?

6. What is the atmospheric part of a GCM similar to?

7. Where is the most advanced GCM operated?

8. What for can the models be also used?

Exercise 8.

Fill in the gaps according to the text.

1. The prediction of climate change depends upon …… of how greenhouse gas emissions will change in the future.

2. An emission …….. is constructed by making assumptions about the impact of emissions on future population growth, transport infrastructure, the world economy, energy demand, industrial and technological development and world agricultural practice.

3. Different scenarios are then constructed by changing the relative importance of these…….. .

4. These are compared to reference scenarios which assume today's level of emission control.

5. The future concentrations of greenhouse gases can be calculated using models of the chemistry of the atmosphere and the carbon cycle.

6. The IPCC reference scenario results in an increase in greenhouse gas concentrations equivalent in their greenhouse effect to a …….. of CO_2 concentrations from pre-industrial times by the year 2050.

7. The predicted greenhouse gas concentrations are used by general ……. models (GCMs) to predict future climate.

8. One of the most advanced GCMs in the world is …….. for the UK.

9. The atmospheric part of a GCM is very similar to the computer model that generates our daily weather ……. .

10. By ……. weather patterns over the globe for many years, GCMs build up a picture of the evolution of climate to a reasonable degree of realism.

Exercise 9.

Make up sentences of your own with the following word combinations:
to depend upon, to be constructed by, to be compared to, to result in, to run on, to be operated for, to build up, to a reasonable degree, to be checked against, daily weather forecasts

Exercise 10.

Determine whether the statements are true or false. Correct the false statements:

1. The prediction of climate change doesn't depend upon estimates, or scenarios, of how greenhouse gas emissions will change in the future.

2. An emission scenario is constructed by making assumptions about the impact on emissions of future population growth, transport infrastructure, the world economy, energy demand, industrial and technological development and world agricultural practice.

3. Similar scenarios are then constructed by changing the relative importance of these assumptions and by applying different levels of controls to greenhouse gas emissions.

4. These are compared to reference scenarios which assume today's level of emission control.

5. From the emissions scenarios, the future concentrations of greenhouse gases can be calculated using models of the chemistry of the atmosphere and the methane cycle.

6. The IPCC reference scenario results in an decrease in greenhouse gas concentrations equivalent in their greenhouse effect to a doubling of CO_2 concentrations from pre-industrial times by the year 2050.

7. The predicted greenhouse gas concentrations are used by general circulation models (GCMs) to predict future climate.

8. One of the most advanced GCMs in the world is operated for the USA.

9. The atmospheric part of a GCM is very similar to the computer model that generates our daily weather forecasts.

10. By simulating weather patterns over the globe for a few years, GCMs built up a picture of the evolution of climate to a reasonable degree of realism.

Exercise 11.

Match the word with its definition:

climate - the kind of weather that is typical of a place or area

prediction	the amount by which something

	increases
climate	careful and detailed study of a subject, in order to find out new facts
impact	at a high level of development in areas like science, technology, and industry
equivalent	sensible, or acceptable
effect	the kind of weather that is typical of a place or area
increase	an increase in amount, size, importance
advanced	something that happens as a result of something else
research	a statement about what you think will happen in the future
reasonable	the power to affect what happens
growth	having the same value, importance, or purpose as something else

Exercise 12.

Summarize the article “Future concentrations of greenhouse gases”.

Part 2

Exercise 1.

Look through the text and say what it is about in Russian:

The Earth's Blanket of Air.

So far as we are concerned, the Earth's outer covering, the air is just as important as the land or the sea. We live in an ocean of water and without it we could not survive for a moment. Air like all other gases is made up of atoms and atom groups of molecules. It is made up of mixture of various gases, principally oxygen and nitrogen. Nitrogen is the most abundant constituent and accounts for 78 per cent of atmosphere, but the most important gas from our point of view is oxygen, which is necessary for breathing. There are also small amounts of other elements such as argon and there is a little carbon dioxide. (1)

As well as becoming thinner the air becomes colder with increasing height. The drop of temperature is about 3 degrees of F, for every thousand feet of ascent. Actually the Sun's rays do not warm the air directly. The solar rays pass through the air and strike the ground warming it. Since the air is warmed mainly by the ground, we shall become colder as we ascend. (2)

Quite apart from providing the oxygen that we breathe the atmosphere shields us against the various dangers of outer space. The ozone layer in the atmosphere, for instance, blocks out certain harmful radiation from the Sun which would otherwise destroy all life on the Earth and the great depth of the atmosphere prevents our being bombarded by high velocity particles known to us as cosmic rays- There are also meteors, small rocky particles revolving round the Sun, which again are screened off by the protecting blanket of air. (3)

So long as a meteor is moving in airless space there is nothing to

check its motion, but should a meteor come close to the Earth, it may be drawn downwards by the powerful gravitational pull. As soon as it enters the resisting region, below 120 miles, it rubs against the air particles and becomes first warm and then hot, finally bursting into flame. (4)

Most meteors bum out by the time they have dropped to 70 or 60 miles, but a few larger ones are found later as rocky masses or "meteorites". A particularly large one landed in Siberia in 1908 blowing trees flat for a distance of fifty miles all round the point of impact. When we talk about our planet we must never forget that the atmosphere blanket is an important part of it. Without the air life could never have remained unwritten. (5)

Exercise 2.

Form nouns from the following words:

Account (1), provide (1), destroy (1), prevents (3), bombard (3), protect (3), move (4), revolve (3), resist (4)

Exercise 3.

Find synonyms to the following words. Translate them into Russian:

Covering (1), mainly (2), element (1), blend(1), growth(2), speed(3), influence(5), outer space(3), defense(3)

Exercise 4.

Find antonyms to the following words. Translate them into Russian:

extinct (1), create(3), harmless(3), aerial 4) , decrease(2), remember(5), death(3), written(5)

Exercise 5.

Give the situations from the text in which the following words are used: atom, molecule, outer covering, abundant, argon, shield, meteor, cosmic rays, gravitational, meteorite

Exercise 6.

Match the words to make word combinations:

Carbon dioxide

solar	dioxide
rocky	blanket
carbon	space
atmosphere	pull
outer	layer
gravitational	rays
ozone	masses
cosmic	rays
rocky	blanket
Earth's	particles

Exercise 7.

Find in the article examples of nouns used as attribute and translate them:

atmosphere blanket

Exercise 8.

Put all possible questions to the following sentences:

1. The air is just as important as the land or the sea.
2. We live in an ocean of water and without it we could not survive for a moment.
3. Air like all other gases is made up of atoms and atom groups of molecules.
4. Nitrogen is the most abundant constituent and accounts for 78 per cent of atmosphere.
5. The most important gas is oxygen.
6. Oxygen is necessary for breathing.
7. There are also small amounts of other elements such as argon and there is a little carbon dioxide.
8. The ozone layer in the atmosphere, for instance, blocks out certain harmful radiation from the Sun which would otherwise destroy all life on the Earth.
9. The great depth of the atmosphere prevents our being bombarded by high velocity particles known to us as cosmic rays.
10. A few larger meteors are found later as rocky masses or "meteorites".

Exercise 9.

Give the explanations of the following words in English:

atom, molecule, abundant, ascent, meteor, space, radiation, gravitational pull

Exercise 10.

Speak on the following topic:

How can the problem of greenhouse gas emissions be solved in technology?

Lesson 2

Part 1

Exercise 1.

Say what Russian words help to guess the meaning of the following words:

protection , act , nature , conservancy , identify , geological , special , interest , hectare , territorial , agency

Exercise 2.

Read the following words and give Russian equivalents:

wildlife, statutory, succeed, designation, access, alternative, persuade, exceptional, negotiation, voluntary, ownership, safeguard, amenity, wildfowl, crossbill, anxious, heather, moorland, shrub

Text

Protection of habitat.

If our wildlife is to survive, its habitats must be protected. The Wildlife and Countryside Act 1981 reinforced the statutory duty of the Nature Conservancy Council to identify the country's most important wildlife and geological areas as Sites of Special Scientific Interest (SSSIs). Over 5.700 have been notified, covering about 1.8 million hectares – 8% of the land of Great Britain. The Nature Conservancy Council has now been succeeded by three territorial conservation agencies; the Nature Conservancy Councils for England (English Nature) and for Scotland, and the Countryside for Wales. (1)

Most SSSIs are in private ownership and SSSIs designation does not give right of access over and above existing right of way. Nor does it mean that all farming or other land uses are prohibited. It requires

farmers and other users to inform the relevant conservation agency if they intend to carry out operations that might damage the special interest of the sites; the agency may then suggest an alternative approach or persuade farmers to desist and pay them compensation under a management agreement. In 1990 – 91 the cost the NCC of management agreements for SSSIs was about 7.2million. (2)

In exceptional cases, where agreement cannot be reached, the Government may protect a particularly important site by means of a Nature Conservation Order. (3)

In 1980, the years before the Wildlife and Countryside Act, there were reports of damage to 6% of SSSIs. By 1986 this figure had fallen to 4%, and currently only 1% a year are suffering any serious damage. (4)

The UK wildlife legislation also provides for the establishment of Nature Reserves. There are over 240 National Nature Reserves in Britain, covering more than 170.000 hectares. (5)

The Wildlife and Countryside Act also established a new designation to protect important marine sites – that of Marine Nature Reserves. The first two have been Designated at Lundy Island in the Bristol Channel and at Skomer is South – Wales. Consultation is under way on proposals for two further MNRs. The Nature Conservancy Council for Scotland has identified a series of Marine Consultation areas around the coast of Scotland to safeguard conservation at sea. (6)

In Northern Ireland, 26 Areas of Special Scientific Interest (ASSIs) covering 6,890 hectares have been declared under the Nature Conservation and Amenity Lands (NI) Order of 1985. The Government

has designated as an ASSI the inter – tidal zone at Strangford Lough, recognized internationally for its wintering wildfowl and waders. Consultation is under way for the proposed Marine Nature Reserve at Strangford Lough. There are also 44 National Nature Reserves in Northern Ireland, covering an area of 4,345 hectares.(7)

The Governments main tool in protecting the best of our existing wildlife habitat is the designation of important sites. It has also given voluntary bodies considerable financial assistance to help them acquire areas of particular interest. For example, in 1988 the Government helped the Royal Society for the Protection of Birds to buy Abernethy Forest, which is one of the largest remaining areas of Caledonian pine forest and home to about 30% of the population of the Scottish crossbill – the only bird that is found in Britain alone.(8)

The Government is anxious to stop the decline of heather moorland in the uplands of England, Wales and Scotland – 20% of the upland heath was lost between 1947 and 1980. The semi – natural habitat provided by the dwarf shrub heath is of international significance and supports a unique mixture of breeding birds. Many originations and individuals are already working on the regeneration of heather moorland. The Government has introduced a grant for farmers to restore heather moorland and is considering further action. (9)

Exercise 3.

Use context clues to get the meaning of the words and choose the correct variant:

to reinforce (1) – усилить , армировать . поощрять

statutory duty (1) – установленный законом налог , установленная законом обязанность

designation (2) – назначение на должность , называние , указание профессии

to carry out (2) – проводить , завершать , выносить

to persuade (2) – убеждать , вдавливать , забить

desist (2) – воздержаться , промолчать

agreement (2) – согласование , договор , единогласие

order (3) – порядок , закон , подкласс

ownership(2) – собственность , принадлежности , классовая принадлежность

safeguard (6) – охранять , предохранять , прикрывать

amenity (7) – комфорт , обслуживание , красоты

inter-tidal zone (7) – прибрежная зона, промежуточная зона, приливно-отливный

wildfowl (7) – птица , пернатая дичь , добыча

wader (7) – болотная птица , болотные сапоги

crossbill (8) – объяснение на исковое заявление , клест

moorland (9) – мавританский, вересковая пустошь, место для стоянки

semi-natural (9) – искусственный , естественный

dwarf shrub (9) – кустарничек , кустарник

heath (9) – пустошь , вереск , родина

to restore (9) – восстанавливать , вернуть , реставрировать

Exercise 4.

Find English equivalents for the following Russian words and word combinations:

живая природа (1) – wildfowl, wildlife, wild nature

гектар (1) – hector , Hector , hectare

сменять (1) – change , succeed , follow

информировать (2) – in-form , infirm , inform

альтернативный (2) – alternate , alternative , alternating

в исключительных случаях (3) – in certain cases , in a special emergency , in exceptional cases

цифра (4) – number , figure , cipher

провозглашать (7) – propose , claim , declare

инструмент (8) – tool , instrument , implement

сосна (8) – pinery, pine forest

вереск (9) – heath , heather moorland , heather

быть обеспокоенным (9) – restless , troublesome , anxious

восстановление (9) – regeneration , reduction , reconstruction

поддерживать (9) – support , keep up , back up

Exercise 5.

Translate into Russian paying attention to

a) Inversion in the Negative Sentences. (If the subject in the second sentence is stated it can begin with **neither** or **nor** with inversion of subject)

1) He didn't like the way we spoke. Neither/nor did he approve of the way we dressed.

2) The sister couldn't explain what the letter signified. Neither/nor could I.

3) They haven't heard of the definition. Neither/nor has it been discussed at the lecture.

4) Most SSSIs are in private ownership and SSSIs designation does not give right of access over and above existing right of way. Nor does it mean that all farming or other land uses are prohibited.

b) The meaning of the adverb and the adjective **only- the only**

For example, in 1988 the Government helped the Royal Society for the Protection of Birds to buy Abernethy Forest, which is one of the largest remaining areas of Caledonian pine forest and home to about 30% of the population of the Scottish crossbill – **the only** bird that is found in Britain alone.(8)

1) I only liked the first part of the concert.
2) They have only lived here for a few weeks.
3) They have lived here only for a few weeks.
4) Only you could do a thing like that.

c) Set – expression

to be under way

1) Consultation is under way for the proposed Marine Nature Reserve at Strangford Lough.

2) Consultation is under way on proposals for two further MNRs.

3) The rich Mediterranean environment is under threat from natural hazards.

4) It is not only the rare plants that are under attack.

Exercise 6.

Find paragraphs, dealing with the following:

statutory duty, alternative, figure , marine , amenity, acquire, crossbill , moorland

Exercise 7.

Find answers to the following questions:

1. What are 3 territorial conservation agencies?
2. What was the cost to the NCC of management agreements for SSSIs in 1990 -91?
3. When may the government protect an important site by means of a Nature Conservation Order?
4. What kinds of reports were there in 1980?
5. What did the Wildlife and Countryside Act establish to protect marine sites?
6. What has the Nature Conservancy Council for Scotland identified?
7. What is inter-tidal zone at Strangford Lough recognized for?
8. What is the main government tool in protecting wildlife habitat?

Exercise 8.

Fill in the gaps according to the text.

1. If our ……..is to survive, its habitats must be protected.
2. Conservancy Council to identify the country's most important wildlife and geological areas as…….

3. In exceptional cases, where agreement cannot be reached, the Government may protect a particularly important site by means of a Nature Conservation……. .

4. The Wildlife and Countryside Act also established a new ……to protect important marine sites – that of Marine Nature Reserves.

5. The Nature Conservancy Council for Scotland has identified a series of Marine Consultation areas around the coast of Scotland to…… conservation at sea.

6. The Government has designated as an ASSI the …… zone at Strangford Lough, recognized internationally for its wintering wildfowl and waders.

7. The Governments main tool in protecting the best of our existing wildlife habitat is the designation of important sites.

8. In 1988 the Government helped the Royal Society for the Protection of Birds to buy Abernethy Forest, which is one of the largest remaining areas of Caledonian …….forest.

9. The semi – natural habitat provided by the ……heath is of international significance and supports a unique mixture of breeding birds.

10. The Government has introduced a grant for farmers to …….heather moorland and is considering further action.

Exercise 9.

Make up sentences of your own with the following word combinations:

to carry out , in exceptional cases , under agreement , to be succeeded by, to be anxious , in private ownership , to be declared under, recognized for , to be under way for

Exercise 10.

Determine whether the statements are true or false. Correct the false statements:

1. Over 5.700 have been notified, covering about 1.8 million hectares – 10% of the land of Great Britain.
2. The Nature Conservancy Council has now been succeeded by two territorial conservation agencies.
3. Most SSSIs are in state ownership and SSSIs designation does not give right of access over and above existing right of way.
4. In 1991 – 92 the cost the NCC of management agreements for SSSIs was about 7.2million.
5. In 1980, the years before the Wildlife and Countryside Act, there were reports of damage to 6% of SSSIs.
6. By 1986 this figure had risen to 7%, and currently only 1% a year are suffering any serious damage.
7. The UK wildlife legislation also provides for the establishment of Nature Reserves.
8. There are over 240 National Nature Reserves in Britain, covering more than 170.000 hectares.
9. There are also 44 National Nature Reserves in Scotland, covering an area of 4,345 hectares.
10. The Government is anxious to stop the decline of pine in the uplands of England, Wales and Scotland .

Exercise 11.

Match the word with its definition:

survive - to stay alive in a dangerous situation

survive	there are several different things , ideas , or methods , and you can choose any of them
prohibited	to harm something
require	to tell people your ideas about what they should do
intend	to make someone agree to do something, by asking them to do it or explaining why they should do it
damage	to stay alive in a dangerous situation
suggest	definitely not allowed , according to official rules
alternative	part of city , country , or place
persuade	to need something
particularly	to have a definite plan in your mind to do something
area	especially , more than others

Exercise 12.

Summarize the article “Protection of Habitat”.

Part 2

Exercise 1.

Look through the text and say what it is about in Russian:

Government measures to promote conservation

Agriculture and forestry occupy around 90% of our land surface. These industries have a major influence on the appearance of the countryside and the condition of wildlife habitats and natural resources. Since 1986, Agriculture Ministers have had a legal duty to balance the interests of agriculture with rural and environmental interests, including the conservation and enhancement of the natural beauty of the countryside and its wildlife. It is now the Government's policy to integrate environmental objectives fully into agricultural support measures. The environment White Paper, *This Common Inheritance* summarized the aims of Government policies for the countryside as:

to integrate environmental and economic activity in rural areas;

to conserve and improve the landscape and encourage opportunities for recreation;

to give extra protection to areas of special value;

to conserve the diversity of Britain's wildlife, particularly by protecting habitats; and to provide scientific monitoring and research to support these aims.

The Government has recently announced proposals to designate at least a further 19 ESAs throughout the UK.

The Government assists land owners and managers to protect the countryside *through* the following Schemes :(1)

Environmentally Sensitive Areas

Farmers within the designated Areas are invited to maintain or

adopt traditional farming methods in return for annual payments. The first such area designated in 1987 and there are 19 in the UK. In the first three years of the scheme there has been a high level of interest from farmers. Some 5,200 have applied to join the scheme, and the land they are offering covers an area of 261,000 hectares. The Government has recently announced proposals to designate at least a further 19 ESAs throughout the UK. (2)

Set-Aside

Set-aside is a European Community (EC) scheme which was introduced in the United Kingdom in July 1988. It helps curb overproduction by removing land from production for five years and provides an alternative source of income for farmers. Participants receive annual payments of up to E222 a hectare to withdraw from production at least 20% of their arable land. The land may be used for permanent, grazed or rotational fallow, woodland or approved non-agricultural uses. (3)

Countryside Premium

This offers additional payments to farmers who *agree to* manage *their* set-aside land in ways that produce specified benefits for the environment. (4)

Extensification

Pilot intensification schemes for beef and sheep were introduced in selected areas in the UK in July 1990. Payments are offered to farmers undertaking to reduce their beef output or ewe numbers by 20% or more and maintaining the reduced level over a five year period. Farming less intensively should reduce the use of pesticides and fertilizers on

participating farms. Additionally, participants have to maintain environmental features on their terms. (5)

Farm and Conservation

Grant Scheme

The priorities of the Farm and Conservation Grant Scheme are to strengthen assistance to farmers for improving their handling of eff1uent on farms and to widen the support available for conservation work. Grants for the regeneration of native woodlands and heather moors, and *for* repairs to vernacular buildings, were introduced to complement existing ones for hedges, stone walls and shelter belts. Capital grants for farm diversification projects are now available under this scheme. (6)

Conservation Advice

The Government continues to support the provision of conservation advice to farmers; One major provider, MAFF's Agricultural Development and Advisory Service (ADAS), mounted an intensive campaign during 1991 to encourage greater conservation awareness among farmers. Both MAFF and DOE are also actively supporting the work of the independent Farming and Wildlife Advisory Group, which provides farm conservation advice through a network of advisers. (In Scotland, Forestry Farming and Wildlife Advisory Groups.) (7)

Exercise 2.

Form nouns from the following words:

occupy(1), major(1), natural (1), environmental(1), announce(1), invite (2) maintain(2) , assist(6), independent(7)

Exercise 3.

Find synonyms to the following words. Translate them into Russian:

Major (1), recreation(1), objectives(1), extra (1), to conserve (1), to maintain(2), to strengthen(6), continue(7), awareness(7)

Exercise 4.

Find antonyms to the following words. Translate them into Russian:
natural(1), to widen(6), to strengthen(6), balance(1), beauty(1), agree(4), recently(2), improve(6), to reduce(4), intensive (7)

Exercise 5.

Give the situations from the text in which the following words are used:
forestry, sensitive , premium , to integrate , to assist , rotational , hedges, provider , fertilizers

Exercise 6.

Match the words to make word combinations.

land surface

land	activity
wildlife	payments
natural	value
environmental	moors
economic	habitat
annual	belt
special	Community
heather	resources
shelter	interests
European	surface

Exercise 7.

Find in the article examples of verbs in Passive. .

Exercise 8.

Put all possible questions to the following sentences:

1. Agriculture and forestry occupy around 90% of our land surface.

2. Since 1986, Agriculture Ministers have had a legal duty to balance the interests of agriculture with rural and environmental interests, including the conservation and enhancement of the natural beauty of the countryside and its wildlife.

3. It is now the Government's policy to integrate environmental objectives fully into agricultural support measures.

4. The Government has recently announced proposals to designate at least a further 19 ESAs throughout the UK.

5. Set-aside is a European Community (EC) scheme which was introduced in the United Kingdom in July 1988.

6. The land may be used for permanent, grazed or rotational fallow, woodland or approved non-agricultural uses.

7. Pilot intensification schemes for beef and sheep were introduced in selected areas in the UK in July 1990.

8. The Government continues to support the provision of conservation advice to farmers .

9. One major provider, MAFF's Agricultural Development and Advisory Service (ADAS), mounted an intensive campaign during 1991 to encourage greater conservation awareness among farmers.

10. Both MAFF and DOE are also actively supporting the work of the independent Farming and Wildlife Advisory Group, which provides farm conservation advice through a network of advisers.

Exercise 9.

Give the explanations of the following words:

influence , countryside , habitat , wildlife , rural , area , environment , woodland , farm , to protect

Exercise 10.

Speak on the following topic:

Who is responsible for habitat protection? Give your opinion.

Lesson 3

Part 1

Exercise 1.

Say what Russian words help to guess the meaning of the following words:

debate, adapt , image , natural , risk , climate , subject , technical , serious , ecosystem , photographer

Exercise 2.

Read the following words and give Russian equivalents:

biodiversity, session, participant, humankind, nuance, seed, destination, rainforest, evidence, degree , species, society, mammal

Text

Biodiversity - can it adapt?

(Part 1)

Images of a natural world at risk

The earth's climate is changing and the impact on biodiversity - subtle in some cases, dramatic in others - demands far greater attention from policymakers and the public. But how to put across a subject of such technical complexity? This and the challenge of getting stakeholders to move together to safeguard the environment were at the heart of debate during Green Week's session on biodiversity. (1)

Participants agreed that the world's flora and fauna are at serious risk, unless there are major changes to the way humankind exploits the ecosystem. (2)

Swedish-born photographer Mattias Klum has spent the last 20 years travelling the world to record images of natural life on every continent. He has published eight books and contributes to the National Geographic magazine. "I have seen tremendous changes in the most subtle nuances of climate," he told Green Week's opening session. (3)

In Borneo, for example, the rainforest is severely affected. Some trees are no longer producing seeds, and animals like the bearded pig are dying. "The whole ecosystem is starting to collapse," he warned. "For many people in the world, Borneo still sounds a lush, exotic destination, but the forests are not what they used to be. If you never hear the bubbling cries of the gibbons , that is definitely because of climate change." (4)

Klum has two young sons, under the age of four, so he is profoundly aware of what the natural world may look like when they

grow up. "I am afraid they will never be able to see live coral reefs or rainforests," he explained. "What is hurting me tremendously is that it's not too late - although it's definitely 11 o'clock.

"We have to halt this right now. It's for us to change." (5)

Bird populations

"There is compelling evidence that the degree of climate change has already affected both species and ecosystems, in many cases adversely," agreed John Lanchbery, head of climate policy at the UK's Royal Society for the Protection of Birds, pointing to a disastrous 2004 nesting season on the Orkney Islands off Scotland, when entire bird populations failed to reproduce due to declining food sources in over-warming sea water.(6)

Other examples of climate change-induced risks included the threat to Portugal's cork trees from insect-borne disease, and the migration into northern regions of non-indigenous alien mammal and bird species due to longer, hotter summers. (7)

Exercise 3.

Use context clues to get the meaning of the words and choose the correct variant:

biodiversity (1) – биологическая дивергенция , биологическое разнообразие

impact (1) – оказывать воздействие , влиять , поражать цель

policymaker (1) – должностное лицо , полицейский , страховщик

to put across (1) – переправлять , успешно осуществить , сообщить

stakeholder (1) – акционер , участник(проекта) , собственник

environment (1) – окружение , конъюнктура , среда обитания

debate (1) – ссора , дебаты , официальный отчет о парламентских заседаниях

to be at risk (2) – на свой страх и риск , в опасности , рискуя жизнью

image (3) – имидж , изображение , копия

natural life (3) – земное существование , пожизненное заключение , жизнь природы

contribute (3) – делать вклад , жертвовать , сотрудничать

tremendous (3) – оглушительный , бурный , значительный

destination (4)- предназначение , место назначения

climate change (4)- критические изменения , климатические изменения ,опасные изменения

to be aware of (5) – сознавать , быть грамотным , быть отзывчивым

species (7) – объект мысли , вид , человечество

nesting (7) –разорять гнезда , гнездование , вставлять один предмет в другой

bird population (7) – население , популяция , популярность

mammal (8)- мама , млекопитающее , молочный

Exercise 4. Find English equivalents for the following Russian words and word combinations:

человечество (2)- humankind , human

участник (2)- participant , competitor , member

экосистема (2)- ecological system , ecosystem , ecological systematization

путешествовать по миру (3)- go in peace , travel the world

тропический лес (4)- rainforest , rain wood , tropical wood

семена (4)- seeds , semen

источник пищи (7) – food spring , food sources , pabulum sources

Exercise 5.

Translate into Russian paying attention to

a) negative meaning of **“ unless”**

Participants agreed that the world's flora and fauna are at serious risk, **unless** there are major changes to the way humankind exploits the ecosystem.(2)

1. I can’t see unless I wear glasses.
2. The doctor will be here unless she’s called to an emergency.
3. Unless you can pan the bill, you’ll have to leave.
4. I wouldn’t say that unless I believed it.
5. Water freezes at 0 C unless it contains salt.

b) **no longer**

Some trees are **no longer** producing seeds, and animals like the bearded pig are dying.(4)

1. It no longer works.
2. We could not stay there any longer.
3. No longer do the fishing boats come in large groups to Loch Fyne for the herring season.

c) compound attributes

change-induced

insect-borne

non-indigenous

1. Other examples of climate change-induced risks included the threat to Portugal's cork trees from insect-borne disease, and the migration into northern regions of non-indigenous alien mammal and bird species due to longer, hotter summers.

2. Swedish-born photographer Mattias Klum has spent the last 20 years travelling the world to record images of natural life on every continent.

3. Planet Earth began to strike back through drought, heat waves , soil erosion and other human-induced natural hazards.

4. Human-induced natural hazards threaten our ecosphere.

Exercise 6.

Find paragraphs, dealing with the following:

biodiversity , complexity , flora , to record , bearded pig , to collapse , gibbons , profoundly , reproduce , migration

Exercise 7.

Find answers to the following questions:

1. What topics were at the heart of debate during Green Week's session?
2. What is Mattias Klum?
3. What does he do?
4. What does Mattias Klum tell Green Week's opening session?
5. What is Mattias Klum aware of?
6. What is John Lunchbery?
7. Why did bird population on the Orkney Islands fail to reproduce?
8. What are other examples of climate changes?

Exercise 8.

Fill in the gaps according to the text.

1. Participants agreed that the world's ……..and fauna are at serious risk, unless there are major changes to the way humankind exploits the ecosystem.

2. Swedish-born photographer Mattias Klum has spent the last 20 years travelling the world to record ……..of natural life on every continent.

3. He has published eight books and ……..to the National Geographic magazine.

4. In Borneo, for example, the ……. is severely affected.

5. Some trees are no longer producing……. .

6. Animals like the bearded…… are dying.

7. The whole ecosystem is starting to……," he warned.

8. For many people in the world, Borneo still sounds a lush, exotic……, but the forests are not what they used to be.

9. If you never hear the bubbling cries of the ……, that is definitely because of climate change.

10. Other examples of climate change-induced risks included the threat to Portugal's cork trees from insect-borne disease, and the ……. into northern regions of non-indigenous alien mammal and bird species due to longer, hotter summers.

Exercise 9.

Make up sentences of your own with the following word combinations : to be at risk , to put across , to be aware of , in some cases , at the heart of , session on , contributes to , under the age of , in many cases , due to

Exercise 10.

Determine whether the statements are true or false. Correct the false statements:

1. The earth's climate is changing and the impact on biodiversity - subtle in some cases, dramatic in others - demands far greater attention from policymakers and the public.

2. Participants agreed that the world's flora and fauna are at serious risk, unless there are major changes to the way humankind exploits the ecosystem.

3. Swiss-born photographer Mattias Klum has spent the last 20 years travelling the world to record images of natural life on every continent.

4. Mattias Klum has published eight articles .

5. Mattias Klum contributes to the National Geographic magazine.

6. In Borneo, for example, the rainforest is severely affected.

7. In Borneo more trees are producing seeds, and animals like the gibbons are dying.

8. If you never hear the bubbling cries of the orangutan , that is definitely because of climate change."

9. "There is compelling evidence that the degree of climate change has already affected both species and ecosystems, in many cases adversely," agreed John Lanchbery, head of climate policy at the UK's Royal Society for the Protection of Birds, pointing to a disastrous 2000 nesting season on the Orkney Islands off Scotland, when entire bird populations failed to reproduce due to declining food sources in over-warming sea water.

Other examples of climate change-induced risks included the threat to Portugal's cork trees from insect-borne disease, and the migration into northern regions of non-indigenous alien mammal and bird species due to longer, hotter summers.

Exercise 11.

Match the word with its definition:

continent- one of the very large areas of land that the world is divided into

case	one of the very large areas of land that the world is divided into
public	to produce a book , newspaper , etc to be sold
agree	a small hard thing produced by a plant , which a new plant of the same kind can grow from
risk	ordinary people
continent	to cause a change , especially a change that makes things worse
publish	a situation in which things happen in a particular way
affect	to begin to do something
seed	exciting and unusual
start	to have the same opinion as someone else
exotic	a possibility that something bad will happen

Exercise 12.

Summarize the article “Biodiversity - can it adapt?”

Part 2

Exercise 1.

Look through the text and say what it is about in Russian:

Biodiversity - can it adapt?

(Part 2)

Overcoming the skeptics

Getting politicians and the public to wake up to these signs is not easy, however. Not only is the scientific evidence often hard to digest, but there are still some who doubt whether the climate is unequivocally destined to get worse in the long run. (1)

"There are a lot of skeptics who point to the fact that because we cannot calculate what climate and temperatures were a thousand years ago, then we cannot produce a trend or predict the future 50 years from now," said Professor Wolfgang Cramer, head of the department for Global Change and Natural Systems at Germany's Potsdam Institute for Climate Change Impact Research. (2)

For Cramer, one of the most important actions needed to preserve biodiversity is careful consultation with all stakeholders, using scientific arguments that are absolutely objective. "It would be dishonest to focus only on the most extreme modeling and scenarios. We must also look at optimistic projections that are based on more moderate climate change outcomes," he argued. (3)

Exercise 2.

Form verbs from the following words:

predict(1), calculation(2), careful(3), optimistic(3), scientific(3), production(2), objective(3), moderation(3).

Exercise 3.

Find synonyms to the following words. Translate them into Russian:

global(2) , scenario(3) , argue(3) , dishonest(3) , optimistic(3), predict(2) , head (2), change(2) , important (3), evidence (1)

Exercise 4.

Find antonyms to the following words. Translate them into Russian:

public(1) , hard(1) , wake up (1) , often(1) , worse(1) , long(1) , important(3) , action , objective(3) , optimistic(3)

Exercise 5.

Give the situations from the text in which the following words are used:

sign, to digest , unequivocally , skeptic , predict, consultation , extreme , projections

Exercise 6.

Match the words to make word combinations:

scientific evidence

Global	arguments
careful	run
scientific	Systems
long	Change
scientific	evidence
Natural	consultation
moderate	outcomes
change	change
extreme	modeling

Exercise 7.

Find in the article examples of: a) Gerund Construction, b) Inversion

Exercise 8.

Put all possible questions to the following sentences:

1. Getting politicians and the public to wake up to these signs is not easy.
2. Not only is the scientific evidence often hard to digest, but there are still some who doubt whether the climate is unequivocally destined to get worse in the long run.
3."There are a lot of skeptics who point to the fact that because we cannot calculate what climate and temperatures were a thousand years ago, then we cannot produce a trend or predict the future 50 years from now," said Professor Wolfgang Crame.

4. Professor Wolfgang Crame is the head of the department for Global Change and Natural Systems at Germany's Potsdam Institute for Climate Change Impact Research.

5. For Cramer, one of the most important actions needed to preserve biodiversity is careful consultation with all stakeholders, using scientific arguments that are absolutely objective.

6. "It would be dishonest to focus only on the most extreme modeling and scenarios."

7. "We must also look at optimistic projections that are based on more moderate climate change outcomes," he argued.

Exercise 9.

Give the explanations of the following words:

scientific, adapt , skeptic , global , outcome , argue , action , preserve

Exercise 10.

Speak on the following topic:

Imagine you are a participant of Green Week’s session. What measures should be taken to help the natural world?

Lesson 4

Part 1

Exercise 1.

Say what Russian words help to guess the meaning of the following words:

list , reptile , amphibian , regular , migrant , monitoring , programmer , mechanism , translocation, management, initiate, conservationist

Exercise 2.

Read the following words and give Russian equivalents:

specie, kestrel, peregrine, osprey, kite, otter, fritillary, organ chlorine, pesticide, chlordane, dieldrin, aldrin

Text

Protection of species

There are over 30,000 species of animals and birds and 5,000 species of plants in the UK. Many have adapted successfully to the changes that have taken place in their environment: the kestrel, for example, is often seen hunting for prey over the grass verge of motorways. Sadly, others have found it much more difficult to survive. (1)

The Wildlife and Countryside Act 1981 gave protection to a large number of threatened species. All wild plants and birds receive some protection under the Act, and the list of species given special protection includes 92 species of plant and 329 birds and animals, including all native reptiles and amphibians and many species of British butterfly. A further 92 species were added in October 1992. Heavy fines may be imposed for offences against protected species. (2)

Under the protection of the Act, there have already been a number of success stories, for example:

1) The population of peregrines continues to recover;

2) Golden eagles have maintained their foothold in England, and in Scotland the White – tailed sea eagle has been successfully reintroduces to the wild;

3) Ospreys are now regular migrants to an increasing number of nesting sites in Scotland;

4) The population of red kites in Wales continues to recover, and in England and Scotland the species is being successfully reinstated to the wild;

5) The number of otters is on the increase;

6) As many as 28,000 bats have been saved as a result of NCC guidance;

7) Conservationists are now confident that one of our most endangered butterflies, the Heath Fritillary. Will survive. (3)

There is also careful monitoring of a programmer to re – establish the Large Blue butterfly, which became extinct in Britain in 1979, using specimens from Sweden. English Nature has also initiated a pilot recovery programmer for 20 species in partnership with others such as local Trusts and landowners. This relatively modest beginning is allowing the mechanisms of partnership in translocation, research, monitoring and site management to develop. (4)

In Northern Ireland similar protection for wildlife is given by the Wildlife (NI) Order of 1985. (5)

Wildlife has also benefited from the measures that have been taken to reduce the use of persistent organ chlorine pesticides. The Government is committed to phasing out the use of these pesticides as efficient alternatives become available, and has decided that a time –

limit must be placed on the few remaining approved uses in order to give an incentive for the development of alternatives. Most recently, dates for the phasing out of chlordane, dieldrin and aldrin have been announced. (6)

Exercise 3.

Use context clues to get the meaning of the words and choose the correct variant:

kestrel (1) – степная пустельга , обыкновенная пустельга , пятнистый соколик

verge (1) – берег , порог , обочина

to impose (2) – навязывать , обманывать , налагать

offense (2) – сомнение , нарушение , атакующая сторона

peregrine (3) – пилигрим , сокол обыкновенный , чужестранец

foothold (3) – плацдарм , опора, позиция

migrant (3) – переселенец , перелетная птица, сезонный рабочий

kite (3) – бумажный змей , коршун , хищник

reinstate (3) – приводить в порядок , поправить , восстановить

guidance наведение (3) – наведение , руководство , ориентация

initiate (4) – возбудить дело , ознакомить , начинать

landowner (4) – домовладелец , землевладелец

modest (4) – застенчивый , умеренный , благопристойный

translocation (4) – перемещение , транслокация

incentive (6)- стимул , поощрительная оплата

Exercise 4.

Find English equivalents for the following Russian words and word combinations:

Choose the correct English variant:

вид (1) – appearance , species , view

приспособиться (1) – fit , adapt , accommodate

добыча (1) – mining , prey , plunder

дикий (2) – savage , native , shy

пресмыкающееся (2) – reptile , grovelling , reptiloid

бабочка (2) – moth , butterfly , bow-tie

гнездование (3)- nestle , nesting , cluster sowing

летучая мышь (3)- bat , mouse , armpit

Exercise 5.

Translate into Russian paying attention to **in order to**

1. The Government is committed to phasing out the use of these pesticides as efficient alternatives become available, and has decided that a time – limit must be placed on the few remaining approved uses in order to give an incentive for the development of alternatives.
2. In order to prepare oxygen it is necessary to heat potassium chlorate.
3. In order to make the reaction take place quickly it is necessary to mix a small amount of manganese dioxide with potassium chlorate.
4. In order to examine metals I must have all the necessary samples.

Exercise 6.

Find paragraphs, dealing with the following:

motorway, threatened , golden eagle , chlorine , otter , reinstate , conservationist ,specimens , chlorine

Exercise 7.

Find answers to the following questions:

1. How many species of animals, birds and plants are in the UK?
2. Who is often seen hunting for prey over the grass verge of motorways?
3. How many species of plants, birds and animals receive protection under the Wildlife and Countryside Act 1981?
4. What may be imposed for offences against protected species?
5. When was protection for Wildlife in Northern Ireland given?
6. What has Wildlife benefited from ?
7. What has the Government decided?
8. What have been announced recently?

Exercise 8.

Fill in the gaps according to the text.

1. The ……..is often seen hunting for prey over the grass verge of motorways.
2. The population of ……..continues to recover.
3. Golden eagles have maintained their foothold in England, and in Scotland the ……..has been successfully reintroduces to the wild.
4. Ospreys are now regular migrants to an increasing number of …… sites in Scotland.
5. The population of ……in Wales continues to recover.
6. The number of …….is on the increase.

7. As many as 28,000 …….have been saved as a result of NCC guidance.

8. Conservationists are now confident that one of our most endangered……. will survive.

9. This relatively ……..beginning is allowing the mechanisms of partnership in translocation, research, monitoring and site management to develop.

10. The Government is committed to phasing out the use of these pesticides as efficient alternatives become available, and has decided that a time – limit must be placed on the few remaining approved uses in order to give an ……..for the development of alternatives.

Exercise 9.

Make up sentences of your own with the following word combinations:

hunt for , to receive protection under , to be imposed for , to maintain foothold , to reintroduce to the wild , to be on the increase , become extinct , in partnership with , benefit from

Exercise 10.

Determine whether the statements are true or false. Correct the false statements:

1. There are over 30,000 species of plants and 5,000 species of animals and birds in the UK.

2. The Wildlife and Countryside Act 1980 gave protection to a large number of threatened species.

3. All wild plants and birds receive some protection under the Act.

4. The list of species given special protection includes 92 species of insects and 329 birds and animals.

5. A further 92 species were added in October 1982.

6. Heavy fines may be imposed for offences against protected species.

7. There is also careful monitoring of a programmer to re – establish the Large Blue butterfly, which became extinct in Britain in 1979, using specimens from England.

8. English Nature has also initiated a pilot recovery programmer for 50 species in partnership with others such as local Trusts and landowners.

9. In Scotland similar protection for wildlife is given by the Wildlife (NI) Order of 1985.

10. Wildlife has also benefited from the measures that have been taken to reduce the use of persistent organ chlorine pesticides.

Exercise 11.

Match the word with its definition:

hunting- chasing and killing animals , either to get food or as a sport

hunting	to take or get something that someone gives you
sadly	plants or animals that are no

	longer exist
receive	fairly
confident	to invent something
extinct	in a way that shows you feel sad
relatively	ready for someone to have or use
develop	to officially agree that something can happen
available	well organized and does not waste any time or energy
approve	chasing and killing animals , either to get food or as a sport
efficient	to believe in one's own ability , do not worry about failing

Exercise 12.

Summarize the article "Protection of species".

Part 2

Exercise 1.

Look through the text and say what it is about in Russian:

Natural terrestrial ecosystems

Climatic zones could migrate several hundred kilometers towards the poles in a changing climate. Plants and animals would not follow

immediately, but would remain to experience the changing climatic conditions. These conditions would benefit some species at the expense of others, and the mix of species at any one location would change as a result of changes in the distribution and abundance of species. (1)

Not all species could adapt. For some, the rate of climate change could be too fast, or the degree too severe, for survival. Most at risk are plants with narrow environmental tolerances, such as polar, alpine, island and coastal species and communities already subject to environmental stresses such as air pollution, or desiccation. (2)

Exercise 2.

Form nouns from the following words:

climatic(1), migrate(1) , mix(1) , adapt(2) , environmental(2) , alpine(2), coastal(2)

Exercise 3.

Find synonyms to the following words. Translate them into Russian:

to migrate(1), condition (1), severe(2), changing(1), location(1), mix(1), abundance (1) , distribution(1)

Exercise 4.

Find antonyms to the following words. Translate them into Russian:

changing(1),abundance(1), severe(2), survival(2), narrow(2), tolerance(2) , pollution(2) , benefit(1) , some(1)

Exercise 5.

Give the situations from the text in which the following words are used:

zone, immediately , remain , expense , distribution , adapt , rate , alpine

Exercise 6.

Match the words to make word combinations:

climatic zones

climate	zones
narrow	stresses
changing	pollution
climatic	communities
environmental	species
air	change
natural	species
polar	tolerances
coastal	ecosystems
island	climate

Exercise 7.

Find in the article examples of set – expressions.

Exercise 8.

Put all possible questions to the following sentences:

1. Climatic zones could migrate several hundred kilometers towards the poles in a changing climate.

2. Plants and animals would not follow immediately, but would remain to experience the changing climatic conditions.

3. These conditions would benefit some species at the expense of others.

4. The mix of species at any one location would change as a result of changes in the distribution and abundance of species.

5. Not all species could adapt.

6. For some, the rate of climate change could be too fast, or the degree too severe, for survival.

7. Most at risk are plants with narrow environmental tolerances, such as polar, alpine, island and coastal species.

8. Communities already subject to environmental stresses such as air pollution, or desiccation.

9. Give the explanations of the following words:

zone , mix , immediately , species , benefit , abundance , stress , polar , distribution , coastal

Exercise 9.

Speak on the following topic:

Do you know any species adapted to changes that had taken place in their environment in Russia?

Lesson 5

Part 1

Exercise 1.

Say what Russian words help to guess the meaning of the following words:

mission , polar , professor , pragmatic , decade , concentration , atmosphere , million , biologist, Antarctic, temperature, unique, isolation

Exercise 2.

Read the following words and give Russian equivalents:

extinction, impression, carbon , dioxide, glacier, human, environment, survive, specie, leisure, consequence

Text

A mission to reveal the truth

"I believe I could see the extinction of polar bears within my lifetime, and that's perhaps 35-40 years," says Professor Lloyd Peck. His pragmatic but profoundly alarming predictions of the impact of climate change within the next few decades made a strong impression on Green Week participants. (1)

According to Professor Peck, there is even some evidence to suggest that if concentrations of carbon dioxide (CO_2) in the atmosphere go above 450-600 ppm (parts per million) - which according to current patterns could happen in no more than 30 years - the world's climate could "flip" to a new, "hotter" state from which there will be no return.(2)

Peck is a marine biologist and member of the British Antarctic Survey. His ten visits to the frozen continent over the last 20 years have enabled him to track unprecedented changes. The land itself is covered by an ice sheet containing 80% of the world's fresh water and 90% of its

ice. But within the past decade, three large sections of the seaborne ice shelf - over 16,000 sq km in total - have collapsed. Ice shelves, in turn, hold glaciers in place, and without them they too can slide into the ocean at ever-increasing speed. (3)

The impact of climate change means temperatures rise more steeply at the poles than the equator, with some predictions estimating up to 5-7° over the next 100 years. The West Antarctic ice sheet may be vulnerable. If it melted, it would raise global sea levels by five to six metres, putting Calcutta and half of Bangladesh under water. "Much of the Netherlands would disappear," warns Peck(4)

Every year, 15-20 million sq km of sea ice form around Antarctica. "It is really important we understand how sea ice operates. It reflects light and can have a major impact on the globe, and human communities," explains Peck (5)

A unique environment

As a biologist, his prime concern is the life that has developed over 10 to 20 million years in the isolation of Antarctica and the Southern Ocean, where sea temperatures never vary more than 2-3°C all year round, (compared to 15°C changes around Europe's coasts, for example). The seabed is home to a unique biodiversity, including 30cm sea spiders and 15cm isopods (similar to woodlice). "Most of these species are very sensitive to temperature change," explains Peck. A 3°C rise would wipe them out. At least 8 million crab-eater seals live and raise their pups on the sea ice. If it disappears, they will not survive. (6)

Confronting reality

Peck has two teenage children, yet he has no cheerful illusions about the future of the planet or human nature. "People do not care enough to give something up. This will only happen when it affects their leisure, or health, or the money in their pockets. And by that time it will be too late." Equally, he believes industry will go on prioritising profits until such time as shareholders insist on a different approach. (7)

"When I sit and think about it dispassionately, I think we are in for a very bad time," he concludes simply, "and the consequences will be worse the longer we wait. I would like to think that we can have enough influence to bring change, but intellectually I don't believe it."(8)

Exercise 3.

Use context clues to get the meaning of the words and choose the correct variant:

lifetime (1) - время жизни , жизнь , срок эксплуатации

prediction(1) - пророчество , упреждение , предсказание , расчет

impression(1) - оттиск , впечатление , представление

to reveal (1) - показать , разоблачить , знакомить

truth(1) - искренность , правдивость , точность

mission(1) - делегация , миссия , космический полет

survey (3) – обзор , топографическая служба , инспектирование

to track changes (3) – оставлять следы , проследить , вести

fresh water(3) – свежая вода , пресная вода , чистая вода

ice shelf(3) – выступ плавающей глыбы , шельфовый лед

vulnerable(5)- уязвимый , ранимый , не защищенный от нападения

global sea level(5)- уровень глобального океана , уровень мирового океана

human community (6)- человеческое общество , светское общество , общество спасения

unique environment(7)- уникальное окружение , уникальная окружающая среда

prime concern(7)- основная доля , первостепенная важность , главная фирма

sea spider(7)- паук , морской паук , водяной паук

leisure(7)- удобный момент , досуг

to give something up(7)- вручить , уступить , отказаться

Exercise 4.

Find English equivalents for the following Russian words and word combinations:

вымирание(1)- desolation , extinction , depopulation

прогноз(1)- forecast ,oracle ,prediction

полярный (1)- opposite ,polar , contrary

по словам(мнению)- in accordance with, according to , be in agreement with

морской (7)- naval , navy , marine

давать возможность(3)- to give a chance , enable , to afford somebody an opportunity

пресная вода(3) –unflavoured water , fresh water , flat water

ледник(3) – glacier , ice sheet , ice shelf

таять(5)- dwindle , melt , waste away

земной шар (6)- balloon , globe ,ball

морское дно(7)-sea bottom , seabed , marine dregs

тюлень(7)- clumsy clot , seal , pup

детеныш тюленя(7)- pup , seal baby , seal

Exercise 5.

Translate into Russian paying attention to **Conditional Sentences**

1. According to Professor Peck, there is even some evidence to suggest that **if concentrations of carbon dioxide (CO_2) in the atmosphere go above 450-600 ppm (parts per million)** - which according to current patterns could happen in no more than 30 years - the world's climate could "flip" to a new, "hotter" state from which there will be no return.
2. If it melted, it would raise global sea levels by five to six meters, putting Calcutta and half of Bangladesh under water.
3. If it disappears, they will not survive.
4. The scientist asked if he might collaborate.

Exercise 6.

Find paragraphs, dealing with the following:

bear, atmosphere , unprecedented, steeply , globe , isolation , isopod , profit , dispassionately , intellectually

Exercise 7.

Find answers to the following questions:

1. What is Lloyd Peck?
2. What could happen with the world's climate according to Professor Peck?
3. How many times did he visit Antarctica?
4. What countries will be in danger first if global sea level is raised?
5. How much ice do form around Antarctica every year?
6. How does sea ice operate?
7. What are sea temperature changes around Antarctica and Europe's coasts?
8. Where is the Southern Ocean located?
9. What unique animals live there?
10. What does Peck think about the future of the planet?

Exercise 8.

Fill in the gaps according to the text.

1. "I believe I could see the extinction of …….bears within my lifetime, and that's perhaps 35-40 years," says Professor Lloyd Peck.

2. His pragmatic but profoundly alarming ……..of the impact of climate change within the next few decades made a strong impression on Green Week participants.

3. Peck is a ……biologist and member of the British Antarctic Survey.

4……., in turn, hold glaciers in place, and without them they too can slide into the ocean at ever-increasing speed.

5. Sea ice reflects light and can have a major impact on the……., and human communities.

6. The ……..is home to a unique biodiversity.

7. At least 8 million crab-eater ……..live and raise their pups on the sea ice.

8. This will only happen when it affects their……, or health, or the money in their pockets.

9. The West Antarctic ice sheet may be vulnerable.

10. If it……, it would raise global sea levels by five to six meters.

Exercise 9.

Make up sentences of your own with the following word combinations:

to make a strong impression , to track changes , prime concern , in total , in turn , raise something by five to six meters, put under water , have a major impact on , in the isolation of , to wipe somebody out

Exercise 10.

Determine whether the statements are true or false . Correct the false statements:

1. According to Professor Peck, there is even some evidence to suggest that if concentrations of nitrous oxide in the atmosphere go above 450-600 ppm (parts per million) - which according to current patterns could happen in no more than 30 years - the world's climate could "flip" to a new, "hotter" state from which there will be no return.

2. His nine visits to the frozen continent over the last 20 years have enabled him to track unprecedented changes.

3. The land itself is covered by an ice sheet containing 80% of the world's salty water and 90% of its ice.

4. But over the past fifty years , three large sections of the seaborne ice shelf - over 16,000 sq km in total - have collapsed.

5. The impact of climate change means temperatures rise more steeply at the equator than the poles , with some predictions estimating up to 5-7° over the next 100 years.

6. The East Antarctic ice sheet may be vulnerable.

7. If it melted, it would raise global sea levels by five to six centimeters, putting Calcutta and half of Bangladesh under water.

8. Much of Britain would disappear.

9. Every year, 15-20 thousand sq km of sea ice form around Antarctica.

10. As a biologist, his prime concern is the life that has developed over 10 to 20 million years in the isolation of Antarctica and the Southern Ocean, where temperatures never vary more than 2-3°C all year round, (compared to 15°C changes around Europe's coasts, for example).

Exercise 11.

Match the word with its definition:

decade- a period of ten years

reveal	the way that a person , thing , or situation seems to you
truth	this is what someone says
decade	information that helps to prove that

	something is true
impression	to tell people your ideas about what they should do or about what you should all do together
according to	the one that exists at the present time, but may not exist for long
evidence	the condition that someone or something is in
suggest	the true facts about something
current	have turned into ice because of very cold weather
state	a period of ten years
frozen	to provide information , especially information that was not known about before

Exercise 12.

Summarize the article "**A** mission to reveal the truth"

Part 2

Exercise 1.

Look through the text and say what it is about in Russian:

Antarctica

Antarctica is the land of extremes. It is the coldest**,** windiest**,** and highest continent anywhere on earth. Many fascinating things have been discovered in the Antarctic that have challenged some of our most basic ideas about what life on earth means. Some really cool factoids (1)

90% of the ice on earth is located in Antarctica. There is so much ice there you could carve up a block of ice the size of the Great Giza pyramid for every human being on the planet! 98% of Antarctica is *covered in ice*. (2)

Deepest Earth Depression: The lowest point on earth is located in the basin of the Bentley Subglacial Trench. At -2,555 meters (8,325 feet) below sea level it is the world's lowest elevation not under seawater. It is not accessible because it is buried under the thickest ice yet discovered. (3)

Marine Life: Some species of fish that live in the waters around Antarctica are specially adapted to life in near-freezing waters. Most living creatures on this planet have *hemoglobin* in their blood, which gives it that red color we all know so well. These particular species of fish, however, have extremely low levels of hemoglobin in their blood. So low that their blood isn't even red! They also have natural antifreeze in their bodies to protect them from freezing to death. If you were to catch one of these fish and cut it open the blood, gills and all the organs would be WHITE. (4)

Weather: Yes, the Antarctic has the coldest temperatures on the earth, but that shouldn't surprise you. (Coldest reported temperature ever was -89.4°C/-129°F.) What most people don't know is that the South Pole has the clearest, calmest weather anywhere on earth. Most of the wickedly high winds that everyone associates with the cold and the ice

of the Antarctic are around the edges of the continent at the shores. These winds are so fast and so fierce they are world-famous and they have a special name, too - *katabatic winds* - and they can blow with hurricane force up to 304kmh/190 mph! (5)

Believe it or not with all the ice in the Antarctic, there is very little actual snowfall or *precipitation*. It does snow on the ice during the austral winter, but measured on an annual basis the Antarctic is as dry as the Sahara Desert. (6)

Exercise 2.

Form adverbs from the following words:

clear (5), calm(5) , deep(3) , actual (6), extreme , windiest(1) , basic(1) , mean(1) , particular(4) **,**annual(6)

Exercise 3.

Find synonyms to the following words. Translate them into Russian:

high(1), to be discovered(3) , to locate(2), below(3) , living creature(4), elevation(3) , to surprise (5), fierce(5), world-famous(5), calm (5)

Exercise 4.

Find antonyms to the following words. Translate them into Russian:

cold (1), high(1), cool(1), below(3) , thick(3), clear(5), calm(5), fast(5), fierce(5), austral(6), dry(6).

Exercise 5.

Give the situations from the text in which the following words are used:

basin, pyramid, factoids, wickedly, precipitation, katabatic, near-freezing, hemoglobin, antifreeze, gills

Exercise 6.

Match the words to make word combinations:

basic idea

basic	antifreeze
katabatic	being
Sahara	level
natural	idea
near-freezing	creature
human	Pole
sea	Desert
living	elevation
South	winds
lowest	waters

Exercise 7.

Find in the article examples of Forms of Adjectives (degrees of comparison)

Exercise 8.

Put all possible questions to the following sentences:

1. Antarctica is the land of extremes.
2. Antarctica is the coldest**,** windiest**,** and highest continent anywhere on earth**.**
3. 90% of the ice on earth is located in Antarctica**.**
4. 98% of Antarctica is covered in ice.

5. The lowest point on earth is located in the basin of the Bentley Subglacial Trench.

6. Most living creatures on this planet have hemoglobin in their blood, which gives it that red color we all know so well.

7. Some species of fish that live in the waters around Antarctica have extremely low levels of hemoglobin in their blood.

8. If you were to catch one of these fish and cut it open the blood, gills and all the organs would be WHITE.

9. The Antarctic has the coldest temperatures on the earth.

10. The South Pole has the clearest, calmest weather anywhere on earth.

Exercise 9.

Give the explanations of the following words:

depression , elevation , hemoglobin , antifreeze , precipitation , ice , hurricane , snowfall , Pole , desert

Exercise10.

Speak on the following topic:

Think about other interesting places on the Earth. What special facts do you know about them?

Lesson 6

Part 1

Exercise 1.

Say what Russian words help to guess the meaning of the following words:

civilization, plastic , result , European , pressure , industrial , traffic , extraction, chemical , ballast

Exercise 2.

Read the following words and give Russian equivalents:

Mediterranean, environment, hazard, threat, pollution, European, civilization, diverse, capacity, sewage, pressure, industrial, management, widespread, invasion, nutrient, average, trawling, marine, traffic, extraction, chemical, ballast tank, dump

Text

Mediterranean in peril

(Part 1)

The rich Mediterranean environment is under threat from natural hazards, as well as man-made pollution and overdevelopment. The European Environment Agency has prioritized these threats to gain a better understanding of how to fight them. (1)

Human civilization has flourished around the Mediterranean for thousands of years and has been despoiling its diverse habitats for most of that time. Its hills were soon stripped of trees for building and lost

their soil and capacity to retain water. The arid islands where holidaymakers now pour their sewage and plastic into the sea for more than half the year are the result. In modern times, tourists are not the only sources of pressure on the environment. Many areas are close to being fished out, industry has added its pollution and coastal building has concreted over some diminishing ecosystems.(2)

Owing to the huge range of the Mediterranean, the problem can be simplified by breaking it down into two halves. In the north, a major threat comes from industrial wastes. In the south and east, uncontrolled urban growth and lack of environmental management are widespread. Exotic flora and fauna sneak in through the Suez Canal and threaten native species - 64 such invasions have already been recorded in this century.(3)

The main problems

This report focuses on the most important issues rather than trying to include every environmental risk. The Mediterranean is naturally salty and rather poor in nutrients. Excess fertilizers run-offs can feed the growth of algae which cause toxic blooms and poison shellfish. Fish have been over-exploited so that the average size of fish caught is decreasing. Trawling can destroy swathes of the seabed and mop up young or inedible fish. Making up the deficit through 'fish farming' also brings pollution in its wake.(4)

2. Marine traffic causes oil pollution - even without major accidents, normal ballast tank washing and other discharges release 250 000 tones of oil into the Mediterranean every year. More oil is spilt through

operation and accidents at oil terminals. Extraction of sand can degrade coastlines, while solid materials washed into the sea can smother marine life. Dumps of toxic chemicals that are now illegal can lead to harmful run-off into the water. The enclosed nature of the sea concentrates these problems. (5)

Exercise 3.

Use context clues to get the meaning of the words and choose the correct variant:

in peril (1) – рискуя , в опасности

threat(1) – угроза , предзнаменование

hazard(1) – шанс , опасность , удар

man-made pollution(1) – промышленное загрязнение, искусственное загрязнение

overdevelopment (1) – чрезмерная развитость , передержка

to gain a better understanding(1) – добиться согласия , получить объяснение , прояснить

to despoil(2)- грабить , разорять

habitat(2)- подводный дом , место рождения , среда обитания

capacity(2)- мощность , емкость , способность

arid(2)- скучный , засушливый , неинтересный

island (2)- зона , остров , обособленная группа клеток

holidaymaker (2)- турист , экскурсовод , турагент

range(3)- ряд, период существования , ареал , область

waste (3)- отходы , ущерб , перерасход

widespread(3)- раскинувшийся , распространенный

invasion(3)- начало заболевания , агрессия , вмешательство

to focus on(4)- помещать в фокус , сосредоточить внимание

nutrient(4)- питательные вещества , лекарственное средство

trawling(4)- невод , ловля рыбы траловыми сетями

inedible fish(4)- несъедобная раба , невкусная раба, не съеденная рыба

oil (5)- масло , масляная краска , нефть

Exercise 4.

Find English equivalents for the following Russian words and word combinations:

угроза(1) – menace , threat

окружающая среда(1) – environment , habitat , surrounding

цивилизация(2)- civility , civilization , civilianization

водоросль(4)- alga , algae

ракообразные(4)- cancerous , shellfish , cancroid

морское судоходство (5)- marina , marine traffic , marine express

добыча песка(5)- mining of sand , extraction of sand , output of sand

береговая линия (5)- off- shore line , coastline , beacon line

загрязнение(4)- contamination , pollution , dirtying

незаконный(5)- illegal , illegitimate

Exercise 5.

Translate into Russian paying attention to

a) Present Perfect Continuous

1. Human civilization has flourished around the Mediterranean for thousands of years and **has been despoiling** its diverse habitats for most of that time.

2. She has been planning her trip for months.

3. We have been touring Scotland.

4. A strong wind has been blowing all day.

b) meaning of **" rather than"**

1. This report focuses on the most important issues **rather than** trying to include every environmental risk.

2. I'd rather play tennis than swim.

3. I'd sooner die than marry you.

c) meaning of able suffixes:

1. Trawling can destroy swathes of the seabed and mop up young or **inedible** fish.

2. Inedible means impossible to eat.

3. Illiterate means unable to read.

4. Irreplaceable means unable to be replaced.

Exercise 6.

Find paragraphs, dealing with the following:

hazard , to prioritize , to flourish , to simplify , swathes , wake , fertilizer ,blooms , ballast , smother

Exercise 7.

Find answers to the following questions:

1. How has human civilization influenced the Mediterranean?
2. What are the problems typical of the south and the north of the Mediterranean?
3. How did exotic flora and fauna sneak in there?
4. What causes toxic blooms and poisons shellfish?
5. What hazard does trawling have?
6. What causes oil pollution?
7. How does oil get into the sea?
8. How much oil is released into the Mediterranean every year?
9. How does extraction of sand degrade coastlines?

Exercise 8.

Fill in the gaps according to the text.

1. The rich Mediterranean environment is under threat from natural……, as well as man-made pollution and overdevelopment.

2. The European Environment Agency has prioritized these ……to gain a better understanding of how to fight them.

3. Human civilization has flourished around the Mediterranean for thousands of years and has been ……its diverse habitats for most of that time.

4. Its hills were soon stripped of trees for building and lost their soil and ……..to retain water.

5. The ……islands where holidaymakers now pour their sewage and plastic into the sea for more than half the year are the result.

6. Owing to the huge ……..of the Mediterranean, the problem can be simplified by breaking it down into two halves.

7. In the north, a major threat comes from industrial……..

8. In the south and east, uncontrolled urban growth and lack of environmental management are…….

9. This report …….on the most important issues rather than trying to include every environmental risk.

10. Excess fertilizers run-offs can feed the growth of ……. which cause toxic blooms and poison shellfish.

Exercise 9.

Make up sentences of your own with the following words:

to be under threat from , to gain a better understanding of, to flourish around , to be stripped of , to be fished out , to sneak in through , to focus on , poor in , to mop up

Exercise 10.

Determine whether the statements are true or false. Correct the false statements:

1. In modern times, tourists are the only sources of pressure on the environment.
2. Many areas are close to being fished out.

3. Industry has added its pollution.

4. Coastal building has concreted over some diminishing ecosystems.

5. Exotic flora and fauna sneak in through the Suez Canal and threaten native species - 64 such invasions have already been recorded last century.

6. The Mediterranean is rather rich in nutrients.

7. The average size of fish caught is increasing.

8. Trawling can destroy swathes of the seabed and mop up young or inedible fish.

9. Making up the deficit through 'fish farming' brings pollution in its wake.

10. Marine traffic causes oil pollution - even without major accidents, normal ballast tank washing and other discharges release 300 000 tones of oil into the Mediterranean every year.

Exercise 11.

Match the word with its definition:

civilization – a society that has a high level of social and political organization , and has its own special culture

gain	on the coast , near the coast , or typical of the coast
diverse	something that causes difficulty or inconvenience
tourist	connected with cities and people who live there
civilization	to get less

coastline	to break or damage something so badly that it is no longer exists
problem	to get or receive something
coastal	the shape or length of a country's coast
urban	someone who visits a place for enjoyment or interest ,especially when they are on holiday
decrease	when something consist of many different parts, and this makes it interesting
destroy	a society that has a high level of social and political organization , and has its own special culture

Exercise 12.

Summarize the article "Mediterranean in peril"

Part 2

Exercise 1.

Look through the text and say what it is about in Russian:

Mediterranean in peril

(Part 2)

Evaluating the threats

These trends have to be assessed in order to plan how to reduce their effects. EEA began to collect information in 1999, together with the UN's Environmental Programme and the Mediterranean Action Plan. Each of the 22 countries with a Mediterranean coast has contributed such data as it collects on its national pollution. This immediately reveals two problems: data availability is variable, being particularly sparse in the south and east, and overall much poorer than for the North Sea or the Baltic. Moreover, this environment does not stop at national frontiers. Lack of standardisation means that we cannot even compare different countries easily at the moment. (1)

The EEA recommendations cover the need for much more data collection and management. Investment in technology could cut the pollution that is dumped into the sea, industrial effluent in the north and urban waste in the south and east. Financial aid to poorer countries would help them to introduce good environmental management practices, such as the creation of marine conservation areas. Regional and multilateral collaboration, through Integrated Coastal Zone Management, for example, should be encouraged. (2)

All these elements need to be integrated into a system that puts the whole Mediterranean ecosystem first. The number one priority, concludes the EEA, is to develop the necessary environmental legislation, and then to enforce it. (3)

Exercise 2.

Form adjectives from the following words:

information(1), technology(2), practice(2), region (2), system(3), effect(1), north(1) , south(1),east(1)

Exercise 3.

Find synonyms to the following words. Translate them into Russian:
threat(1) ,to reduce(1) ,to effect(1) , to begin(1) , coast(1) , to reveal(1) , availability(1) , to integrate(2) , investment(3), frontier (1)

Exercise 4.

Find antonyms to the following words. Translate them into Russian:
begin(1), information(1), together, availability(1), sparse(1), poor(2), stop(1) , different(1) , variable(1) , urban(2)

Exercise 5.

Give the situations from the text in which the following words are used:
trend , contribute , availability , frontiers , sparse , standardization , recommendations , multilateral , urban , legislation

Exercise 6.

Match the words to make word combinations:

to collect information

collect	Zone
reduce	aid
Coastal	information
Financial	Sea

regional	collection
North	effects
data	coast
Mediterranean	frontiers
national	collaboration
environmental	legislation

Exercise 7.

Find in the article examples of words expressing modal meaning

Exercise 8. Put all possible questions to the following sentences:

1. These trends have to be assessed in order to plan how to reduce their effects.

2. EEA began to collect information in 1999.

3. Each of the 22 countries with a Mediterranean coast has contributed such data as it collects on its national pollution.

4. This immediately reveals two problems: data availability is variable, being particularly sparse in the south and east, and overall much poorer than for the North Sea or the Baltic.

5. Moreover, this environment does not stop at national frontiers.

6. Lack of standardisation means that we cannot even compare different countries easily at the moment.

7. Investment in technology could cut the pollution that is dumped into the sea, industrial effluent in the north and urban waste in the south and east.

8. Financial aid to poorer countries would help them to introduce good environmental management practices, such as the creation of marine conservation areas.

9. Regional and multilateral collaboration, through Integrated Coastal Zone Management, for example, should be encouraged.

10. The number one priority, concludes the EEA, is to develop the necessary environmental legislation, and then to enforce it.

Exercise 9.

Give the explanations of the following words:

data, investment, financial , aid, conservation , ecosystem , variable , to collect , priority , lack

Exercise 10.

Speak on the following topic:

Think of a water system in your area. Say what ecological problems it has and how it is possible to solve them.

Supplementary reading:

An opportunity for innovation

Over the years, input from the world of business has become an increasingly important part of Green Week. This year, participants were able to unveil a range of initiatives designed to respond to the dangers of climate change.

Earlier this year, the Carbon Disclosure Project wrote to the FT (Financial Times) 500 largest companies in the world requesting information about their policies on greenhouse gas emissions. The CDP, which was launched five years ago, is the biggest global collaboration of institutional investors working on the business implications of climate change.

The CDP now reports information from some 300 of the world's top corporations on its website. "Investors can benefit from more information on the risks and opportunities of climate change," CDP's Paul Dickinson told Green Week participants.

Increasingly, individual companies are factoring environmental considerations into their operations. With 1.2 billion cars expected to be on the world's roads in 2020 - nearly twice the current number - vehicle manufacturers have a special responsibility to ensure that this growth does not lead to a drastic increase in exhaust emissions. Japanese car producer Toyota has set itself the target of developing technologies that cut emissions to much lower levels, and in some cases to zero.

It is working towards this goal in a number of ways. One is the development of hybrid technology, which advantageously combines the benefits of two types of power source, such as a petrol engine with an electric motor, by maximizing the strengths of each instead of relying on just one. The company has also re-examined the whole structure of the internal combustion engine so that fuel can be used more efficiently.

Adopting Kyoto targets

Lafarge, the world leader in building materials, provides an example of a company that is taking the Kyoto CO_2 emissions targets - which are directed at countries - and using them in its own internal organisational planning. In 2001, Lafarge decided to reduce its emissions by 10% between 1990 and 2010. Working closely with the Worldwide Fund for Nature (WWF), it is looking to meet this commitment by promoting sustainable construction and by developing new materials with lower carbon content.

The UK's National Grid Transco pick, one of the largest deliverers of energy across the world, is another firm following the same approach. Its decision to achieve the Kyoto targets as if it were a country is especially significant, since 45% of its business is in the USA, which has not signed up to the Protocol.

Consumer choice

DHL, the worldwide logistics company that is now part of Deutsche Post World Net, launched an innovative pilot project three years ago to reduce the amount of carbon-intensive fuels its fleet consumes in Scandinavia. Its Grona Ton (Green Tonnage) service uses vehicles powered by biogas and rapeseed fuel blends. These give off only a fraction of the harmful greenhouse gases produced by conventional fuels.

By paying a small premium, customers are able to choose the number of 'green' or reduced carbon dioxide tonnage kilometers to use up for their shipment. The scheme has been so successful that the

company is looking to apply it elsewhere within the 220 or so countries where it operates.

Participants at the Green Week session on a low carbon economy also heard how textile manufacturer Interface has cut greenhouse gas emissions by 46% over the past decade, and how German vehicle multinational Iveco is making its contribution through aerodynamic improvements to its trucks and by transporting products by rail and sea instead of by road.

Information technology can also make a contribution. The European Telecommunication Network Operators' Association estimates that 100 million audio conferences could save 2.2 million tones of CO_2 in Europe by reducing business travel.

Climate change from every angle was on display in Green Week's indoor exhibition area. Seventy-two businesses, local and regional authorities, non-governmental organisations and interest groups showed off their work to support the environment, and gained new inspiration from other exhibitors. This vibrant exchange of experience is now an important part of Green Week.

A place to make friends

Between conference sessions, the exhibition is where Green Week participants congregate to ponder on the latest debate, browse through the massive range of literature and samples on show, and compare notes

with environmentalists in other countries. It offers a learning experience for everyone.

"We have found a lot of countries looking for cooperation and partnership," said Magdalena Wieckiewicz, Communications Manager for the Polish Environmental Partnership Foundation, the only exhibitor from Poland. In 2004, in partnership with BP and UK-based Groundwork, the foundation became the first Polish beneficiary of an EU LIFE-Environment grant for the development of its 'Environment Manager' internet tool, to help small businesses improve their environmental performance. "There has been a lot of interest, and we hope for new partnerships because many people are interested in developing educational programmes," she added.

Another beneficiary of the networking effect was Planet Sciences, a French association that organises scientific discovery activities for young people aged from seven to 25. A graphic demonstration of the effect of global warming on sea-ice, using a tank of water and coloured ice-cubes, attracted large groups of visitors every day. "Green Week has been very good for us," explained Eldrich Martins. "We have found a new financial backer."

Planet Sciences' approach is to encourage young people to think for themselves and reach their own conclusions. Although some of the information on climate change may be quite alarming, Martins points out that young audiences must be informed without being frightened.

Where there's a will

Several major companies were among the exhibitors, such as Lafarge and Unilever, and car manufacturers Honda, Toyota and Volvo. Educationalist Wayne Talbot was attending his first Green Week on the

Volvo Adventure stand. Volvo Adventure is an education programme for youngsters aged 10-16, ran in partnership with the UN Environment Programme (UNEP). This year's award-winning project involved the replacement of 4,000 light bulbs in the South African township of Ladysmith with low-energy models, saving over 1.5 million kilowatt hours. "Volvo's programme aims to give young people a voice, and show that where there's a will there's a way," explained Talbot. Its simple message is: 'Leaders of tomorrow must act today'.

With increasing greenhouse gas emissions from aviation high on the Green Week agenda, the stands reflected a lively debate on how to respond. Atmosfair and

My climate were two of the groups offering air travellers opportunities to offset their personal carbon emissions through support for climate protection projects. But Jeff Gazzard, International Coordinator of the Green Skies Alliance, was distributing a questionnaire to measure support for higher airfares to pay for environmental damage and reduce passenger volume. "This is a hot issue!" he noted.

EU Environment Commissioner Stavros Dimas opened an exhibition of 50 stunning photographs of the world's reaction to climate change, outside the Green Week venue in Brussels. The climate change exhibition produced by the Climate Group in partnership with the British Council has been travelling around the world. Science Director Lloyd Anderson was on hand to introduce the presentation to visitors.

Caught on camera

After showing in Australia and the UK, the collection of one-metre-square pictures by world-famous photographers arrived in Brussels for a spectacular outdoor exhibition at Green Week. North-

Southeast West: A 360° View of Climate Change, captures images from around the globe to illustrate impacts and solutions. The exhibition ran for ten days outside the EU's Charlemagne building in Brussels, and will move on to university sites in Leuven and Ghent in the autumn. Ten countries worldwide will be able to see the exhibition this year, including Croatia, the USA, Lithuania and South Africa.

The pictures, from the Magnum photo-graphic agency, form part of the British Council's Zero Carbon City campaign, designed to increase public understanding and stimulate debate about climate change and the energy challenges facing the world's great cities. Most of the global population lives in cities, and it will be impossible to stop climate change without making fundamental alterations to the way our cities work. The low-carbon city is not just a grand idea, but something we must all work to achieve if climate change is to be halted.

Communities taking action

"As the global temperature increases, its impacts will become even more extreme," explained Steve Howard, chief executive officer of the UK Climate Group. "To illustrate this we commissioned ten of the world's top photographers to capture what is happening around the globe. Their photographs show not only the impacts of climate change, but also the solutions being implemented to reduce carbon emissions in communities north, south, east and west."

Images of extreme weather events and glacier retreat are contrasted with environmental refugees and poor urban air quality. But innovative examples of how local people have adapted their lifestyles, sometimes with the support of inter-national bodies, to solve problems through

energy efficiency, fuel cell technology and carbon capture and storage, offer hope and inspiration for the future.

Political courage

A book of essays to go with the photo-graphs includes contributions from ten experts and world leaders. UN Secretary-General Kofi Annan writes: "It is time to stop being so economically defensive, and become more politically courageous."

"We will need to adapt. Governments should be helping us to do so, not holding us back," adds The Economist's editor-in-chief Bill Emmott.

"Six hundred thousand people died in weather-related disasters in the 1990s," points out Jong-wook Lee, Director-General of the World Health Organisation. "But we also know that changes in temperature and rainfall patterns influence the rates of disease, some of which are reoccurring where they had been eliminated for centuries."

Science and technology visionary Sir Arthur C Clarke warns that the task might defeat us. "In this enormous universe, we can never run out of energy or material resources. But we can, all too easily, run out of brains."

Polar impact

Alain Hubert is a passionate mountaineer, explorer and advocate of polar science. Through films such as Magic Ice - From Adventure and Polar Science to Climate Change, screened during Green Week, he inspires audiences to understand the importance of polar science to climate change studies. Hubert co-founded the International Polar Foundation in Brussels to communicate these issues to a wider public.

A witness to change

How does polar research contribute to climate change science?

The Polar Regions are the only places on Earth that remain consistently below OfiC, so snow crystals stay intact and form layers that build up over time. Trapped within the layers are microscopic air bubbles that effectively give a frozen time-profile of our atmosphere. In Antarctica, ice cores are being extracted that take our knowledge of the Earth's atmosphere back almost 1 million years. By analysing the gases trapped in the bubbles we can see how levels of greenhouse gases such as methane and CO2 change over time. This allows computer models of climate change to be validated. The change over the past SO years compared to the previous million years is really shocking!

Have you seen changes in the polar environment itself?

Yes. And they are different between the North and South. In the Arctic the sea ice thickness is changing: perhaps a 6% decrease in ten years and summer cover-age has reduced by around 40% over the past 100 years.

How does this effect polar exploration?

It makes things difficult. Even in ten years I have seen significant changes. Thinner ice is weaker so it is deformed more easily. The ice can form peaks up to four metres high that are impossible to get through with sledges or on skis. Another phenomenon is 'rubber ice': thin ice with a high liquid seawater component that wobbles. There is a famous film sequence of me standing on flexing ice during an expedition to the North Pole in 2002. Not a good experience!

What about Antarctica?

Antarctica is different: it is a continent and at -30aC all year. But the glaciers on the Antarctic Peninsula are melting and the ice shelves are changing. It looks like much of the ice on the peninsula could melt, which would raise global sea levels by several meters. Combined with melting in Greenland we could see an increase of 11 meters over the next 200 years. It is important that people like me who witness these changes can tell society at large, and hopefully provoke a response.

You are a civil engineer by training -how did you get your passion for exploration?

When I was 15 I had my first revelation during a family walking-holiday in the Alps. It was the first time I got to the top of a mountain and looked down on the world - an amazing feeling. Then when I was 30 I went on my first expedition to the Himalayas, climbing a very difficult route - I almost died - but when we got to the top of the mountain suddenly the cloud cleared and I saw Everest surrounded by a halo of cloud. It was a tremendous sight. I was 40 when I started polar exploration but it was a childhood dream to challenge the cold and wild places in the world. I am not afraid to pursue my dreams.

Are you planning your next expedition?

Two major expeditions are being planned. One is the recreation of the Norwegian explorer Nansen's 1893 expedition in a replica of his boat the Fram. But the big expedition is to cross Antarctica by balloon. Some scientists think this is impossible, because no winds blow across the

continent and there are limited places you can start from. But models of the airflows indicate there is a possibility. It will definitely be an adventure!

Research on obesity

Obesity is a growing problem in Europe. Ten EU-funded research projects are helping to provide a scientific basis for education and political change to address efficiently this emerging problem and its effects. Much of the work is on babies, children and adolescents.

Europeans, like people in other industrialised countries, are getting fatter. Although the details are complex, the basic reasons are clear enough. Increasing affluence lets us buy more food; the fast pace of modern life encourages us to eat high-calorie foods; and many people do not get as much exercise as they need.

According to the European Association for the Study of Obesity, almost a third of people living in the EU are overweight and more than one in ten is now clinically obese. Some 14 million European children are estimated to be overweight, and the figure is rising by more than 400 000 a year.

Seriously overweight people have an increased risk of health problems. These include type 2 diabetes, cardiovascular diseases, hypertension, sleep apnoea, some cancers, osteoarthritis, psychological problems and a decrease in perceived quality of life. Particularly worrying is the dramatic rise in type 2 diabetes among children and adolescents in recent years.

As a result, obesity is one of the biggest public health issues facing the EU. It has been estimated to cost us €70-130 million a year, or 2-8% of total healthcare costs.

Combating obesity is a complex business that needs the cooperation of governments, researchers, health professionals, food manufacturers, retailers, consumer representatives and the media. Science is an important part of this mix, because there is still a lot we do not know about how the human body regulates its energy balance.

The EU has contributed €61 million to ten research projects dealing specifically with obesity under its Fifth and Sixth Framework Programmes for Research.

Genes, metabolism and psychology

The NUCENOB project in Denmark confirmed that for the same number of calories, a low-fat diet is better than a high-fat diet for losing weight, and learned more about certain genes thought to be linked to obesity.

DiOGenes is a big new project that counts three large food manufacturers among its 29 partners. It aims to study how the glycaemic index (Cl) of carbohydrates and the amount of protein we eat affect how we lose or gain weight. DiOGenes plans to identify the genes and psycho-behavioural characteristics influencing the development of obesity. New food with enhanced satiety signals remaining in the preferred sensory range will be developed.

LIPGENE is looking at how the composition of fat affects weight gain. The result could be healthier fats in meat, dairy products and

vegetable oil, achieved by changing animal feeds, and by developing new oilseeds by selective breeding and genetic engineering.

It is widely believed that malnutrition before birth, and either under- and over-feeding in the first few years of life, can make people susceptible to obesity. Several projects examined this area, studying both rats and people. One of them, EU CHIL-DOOD OBESITY, is measuring how the protein content of infant formula affects the growth rate of children under two, on the assumption that rapid growth may create problems in later life.

The FACTORS IN HEALTHY EATING project showed that people suffering from anorexia, bulimia or obesity combine genetic vulnerability with a set of identified psychosocial risk factors. Interviews that the project developed for diagnosing and predicting these eating disorders are now widely used in the EU and the USA. The project identified a likely gene, and (changes in) eating behaviour as probable risk factors in the development of eating disorders.

The HELENA project starts with the idea that obesity often begins in adolescence. It is studying the eating habits and lifestyles of people aged between 13 and 16.

Young people took centre stage on the concluding day of Green Week, seizing their chance to address questions to high-level political panellists and being rewarded in the children's art competition.

Children have a stake in fighting climate change

In keeping with the theme of climate change, pupils from the International Montessori School in Tervuren, Belgium, were invited to

put their questions to the panel. The children asked the panellists what they could do to help fight climate change.

Two of the speakers, MEP Anders Wijkman and Director-General of DG Environment Catherine Day, illustrated their comments on sustainability and the throwaway nature of today's society by showing that their three-year-old mobile phones were already outdated. They urged their audience to consider the effect of their spending on the environment. They should set their own trends rather than be slaves to fashion, the panel suggested.

The young people were passionate about wanting to change things for the better and eager to get started, certain that they could influence their families and friends to contribute to global efforts to combat climate change. To this end, they asked European Commission representatives what they should do, and called for policy-makers' help to communicate to other young people on environmental issues. One student reminded speakers how important it is for young people to appear to be 'cool'. It is time to communicate the message that it is cool to be green, he said, to raise awareness among young people of the environmental challenges facing the planet. Catherine Day agreed that young people can achieve a lot by being aware and spreading the message.

The winning touch

EU Environment Commissioner Stavros Dimas awarded the young winners who submitted the best entries in the art and video competitions. Part of their prize was a two-day visit to Belgium, packed with green-

themed activities. Congratulating them on their success, he pointed out that Green Week is an important opportunity to capitalise on the interest shown by the younger generation in climate change.

Young people from schools across the EU and candidate countries submitted over 3,000 entries for the competitions. Southern Europe and the candidate countries swept the board this year. First prize in the video section went to a group of teenagers from Greece, while apart from 10-year-old Sarah Spiteri from Malta, who won third prize in the art competition, all the other awards went to original and thought-provoking pieces of work from Romanian and Bulgarian youngsters.

Measuring up to climate change

The figures speak for themselves. Green Week once again showed that it is Europe's premier forum for sharing ideas, formulating policy and planning action for environmental protection.

A total of 3,824 people took part this year, in 20 different sessions all relating to the climate change theme.

There were 166 experts and speakers to make presentations, share their know-ledge and answer questions, and in many cases inspire or dismay their audiences.

In the indoor exhibition areas 72 companies, local and regional authorities and non-governmental organisations displayed their projects and activities.

This year the European Commission went a step further in making Green Week a truly green event, by calculating the emissions of CO2 created by the conference (travel, heating and cooling, lighting, preparation of food, etc.) and planning to offset them by investing in

projects aiming at neutralising emissions, for instance through the Kyoto Protocol's Clean Development Mechanism.

Green Week also featured an offset market, where participants could calculate the quantities of CO2 emissions they personally created by their attendance and neutralise them by investing in different projects.

As usual, the organisers went the extra mile to find green products and suppliers for the event. Printing was on chlorine-free paper, and the stands, lit with low-voltage lamps, will be reused throughout the year. Ecological cotton was used for the conference bags, and even the ballpoint pens were made from recycled computer printers. The caterers too served organic food and fair-trade ingredients, on real plates to save waste.

The challenge

The event attracted policy-makers, business leaders and environmental groups, scientists, students, the media and other stakeholders. The Week's eye-catching logo featured a little boy putting the squeeze on a mercury thermometer, urging people to 'Get to grips with climate change' and to halt the rising tempera-tures.

EU Environment Commissioner Stavros Dimas opened Green Week with a tour of the exhibition, stopping at the 'Weather Station', where an interactive display demonstrated the impact of weather conditions on renewable energy output, and viewing the brightly coloured pictures of the young painting-competition winners.

Day one set the tone for the week: 'The challenge is on', with explorers, diplomats, teachers and broadcasters among the speakers emphasising the urgency of the problem.

Day two delved into some of the lesser-known causes of climate change and their effect on the environment. Apart from air pollution, sessions also examined the significant roles of air and road transport in creating emissions, and asked whether biodiversity can survive the impact. Day three focused on the tools and technologies available to combat climate change, with special emphasis on industry, and the six-month-old EU Emissions Trading Scheme.

The final day focused on the needs of developing countries in the climate change battle, and the responsibility of richer neighbours to help them adapt. It also offered young people the chance to question leading policy-makers and offer their own opinions on tackling climate change. Finally, Commissioner Dimas presented the awards to the winning entrants in the schools competition.

The first six months:
Green Week examines the record

The European Union is committed to leading efforts to reduce the human-generated greenhouse gas emissions that threaten to disrupt the global climate. For the last six months, it has been operating the world's largest company-level scheme for trading in carbon dioxide (CO2) emissions.

The EU emissions trading scheme (EU ETS), launched in January 2005, is Europe's most cost-effective tool for combating greenhouse gas

emissions. Under the scheme, Member States grant emissions allowances to polluting industries based on their needs and the Kyoto Protocol targets. Companies that face difficulties in keeping within their allowance have a choice: they can either take measures to reduce their emissions - for instance by investing in more energy-efficient technology - or they can buy extra allowances on the emissions trading market, whichever is cheaper.

Speaking at the Green Week debate, Christian Egenhofer of the Centre for European Policy Studies said, "Emissions trading is a cornerstone of the EU's climate change policy. Not only does it cover some 45% of all EU CO2 emissions, but it also represents a clear demonstration that the EU is serious about climate change."

How far we've come

"The EU ETS is now the world's largest emissions trading scheme," said European Environment Commissioner Stavros Dimas. "It is a reality, with an active market and with credits changing hands on a daily basis."

Fairness, simplicity and harmonisation were key words throughout the debate. Commissioner Dimas noted that some market operators have called for more predictability and certainty, saying, "We need to have a serious look at the way we allocate emissions credits, but it is important to consider that changes have the potential to undermine the certainty that markets need. I believe we should not have change for change's sake, but must seriously consider the costs and benefits of any proposed modifications."

With that, Dimas announced the launch of a review of the EU's Emissions Trading Directive, to include a wide-ranging consultation in which stakeholders will be asked for ideas and input. The review will also look at the possible inclusion of additional sectors and pollutants.

Changing minds - connecting global partners

For Leo Birnbaum of McKinsey, the group carrying out the EU ETS review, the psychological effect of the EU's trading scheme is important. "Emissions trading represents the cheapest way to reduce emissions and it is now factoring into the short-term and long-term thinking of European companies," he said. "This is having a real effect on both the natural and business environments."

Linking the EU ETS to similar schemes around the world is seen as an ultimate goal. Reid Harvey of the Environmental Protection Agency in the United States shared his country's experience of similar schemes covering air pollutants stressing the importance of harmonised standards and procedures. "Our common goals are to establish environmental caps on emissions and to reduce the costs for companies trying to meet those caps," he said. "The less the government intervenes the better."

Matthias Duwe of Climate Action Network Europe insisted, "If certainty is important to investors, then let them be sure - European emissions trading does not end with Kyoto in 2012. It will go on."

Evaluation of the ElB's investments in airlines

Just before the summer, when people were getting ready to jet off on holiday, the EIB published an ex post evaluation of its investments in airlines. Two investments in freight airlines were included, but the emphasis was on passenger carriers, with Operations Evaluation looking in-depth at six EU investments and two in Partner Countries. These represented a mix of publicly and privately owned carriers offering national, international and transcontinental services.

The EIB has a long history of financing a range of different types of aircraft: large and small passenger aircraft, freighters, fire-fighting and rescue aircraft, etc. However, for this evaluation Operations Evaluation, working with the operational departments of the Bank, decided to concentrate on recent investments in commercial aircraft. Between 1990 and 2001, the Bank financed thirty-one projects with a total value of over EUR 5 billion. Most of these were within the European Union, and covered a range of types of airline. As part of the evaluation, ten projects considered to be typical of the Bank's operations were evaluated in-depth. Eight of the investments were with EU-based airlines: two for freight aircraft, four for new long-haul passenger aircraft, and two investments with smaller airlines for regional and intra-EU flights. The other two investments were with non-EU "flag carriers" - one small and one medium sized. In all cases, the main intention was to modernise fleets rather than expand capacity. There were some capacity gains through the more efficient use of aircraft, etc., but the real benefits were the decreases in fuel consumption, lower exhaust gas emissions, and reductions in noise, particularly during take-off and landing. The

full text of the synthesis report "Evaluation of EIB Financing of Airlines" may be found at www.eib.org/projects/evaluation/.

Market background

Demand for air travel has shown strong, consistent, long-term growth since the late 1940s. This is expected to continue at around 4% per annum for at least the next decade, but year-on-year growth has shown large variations. A shrinkage of 5% in 1991, coinciding with the first Gulf War, was converted into growth of 10% in 1992. Broadly speaking, demand has followed changes in GDP, but overlying this are large swings caused by national and international events, e.g. 9/11, SARS, international conflicts.

Despite these variations, a growing market might have been expected to generate profits for the airlines. In reality, out of the fourteen years between 1990 and 2003, the industry as a whole was only profitable for four of them - and average losses were always bigger than average gains. At the same time, the sector has been substantially deregulated within the EU, many Member States have moved towards privatisation of their national, or "flag" carriers, and the European Commission has been taking action to limit state aid. Finally, the sector has seen the rise of low-cost or "no-frills" airlines. So far, the effect of these airlines has mainly been to develop the market by attracting a new clientele, although some traditional airlines have been losing customers. However, in the longer term they are likely to have a much larger impact on the business model of traditional airlines in a range of different areas: fare structures, pricing, levels of service, aircraft utilisation, destinations, etc.

Clearly, air travel is becoming a difficult sector in which to do business.

Air transport and the environment

The environment was not a key element of the evaluation, but the current debate on the environmental impact of air travel could not be ignored. Air travel cannot be seen in isolation: it has to be seen in the broader transport context. So, consider the data published by the Intergovernmental Panel on Climate Change (see graph below).

Clearly, there is little difference between flying and personal transport in terms of the carbon emissions per passenger-kilometer. Assuming comparable occupancy rates, passenger trains and buses are significantly better, but high-speed trains running on electricity generated using fossil fuels are similar to medium-haul aircraft. Another environmental issue for air transport is noise. Exhaust emissions may be more important in environmental terms, but it is noise which is the most immediate nuisance. Between 1980 and 2000, Heathrow airport in London, Europe's busiest, saw a 60% increase in aircraft movements. However, during the same period the number of people affected by aircraft noise fell by some 80%. Air transport has had, and will continue to have, a negative impact on the environment. However, increasingly strict noise and exhaust gas emission regulations have reduced this to the point where air travel can be considered comparable with other forms of mechanised transport.

The EIB follows EU policy on air transport, i.e. that air transport is a legitimate form of transport but that its environmental impact should

be minimised. As already noted, all of the projects involved the renewal of aircraft fleets to improve fuel consumption, reducing the carbon emissions per passenger kilometer flown, lower exhaust gas emissions and reduce noise. Within that context, therefore, the Bank's investments in airlines during this period can be seen to have had a net positive impact on the environment.

Project performance: achieving objectives

When considering a project for a loan, the Bank looks first at whether the proposed investment is a good fit with EU policies. Apart from EU environmental policies, the most obvious policies to consider are transport and regional development. All of the projects were fully in line with EU policies, with a particular emphasis on intra-EU links and connections with the EU's major trading partners.

After project "relevance", which is one of the Bank's four major evaluation criteria and which looks at how well projects fit with EU policies, we have "efficacy". This is also referred to as "effectiveness" and tries to identify whether the project can achieve what it was meant to achieve. For an airline investment, this would mean asking whether the aircraft will be able to perform to specification and whether they will be delivered on-time and on budget. As might be expected, the evaluation found that the projects scored very highly against this criterion, reflecting the nature of the aviation industry. Although there may only be two suppliers for a particular class of aircraft, there is still a high degree of competition. Pricing of aircraft is very sensitive to the overall deal that the airline wants to negotiate, and to a combination of

short-term market sentiment and stage in the economic cycle. The lead time on aircraft manufacture is long and, again depending on the economic cycle, there can be substantial waiting lists. These characteristics mean that airlines tend to have a rolling acquisition programme with a supplier, whereby they will negotiate a deal based on firm orders for a few aircraft, options for more aircraft, and longer-term letters of intent. These deals can extend over many years and may be signed before development of an aircraft has even been completed. At the same time, aircraft are very tightly regulated throughout their life. An aircraft which is given a certificate of airworthiness will have been so thoroughly tested that the manufacturer will be prepared to guarantee its performance.

The effect of all this is to make it almost certain that aircraft investments will be to specification and will be delivered at the price and on the date negotiated years before.

Project performance: economic and financial performance

The Bank's third criterion is "efficiency" and compares the economic benefits with costs. The air-line industry in the EU has been a liberalised market since the mid-1990s. This means that the financial efficiency of an investment can be taken as a proxy for the economic efficiency, although there are some distortions. These include: a biased distribution of landing slots at airports, some environmental costs, flag carriers' preferential landing rights and constrained market exits. However, a financial assessment ignores the wider environmental benefits of using modern aircraft.

The ex ante financial, and hence economic, efficiency of all the projects was sound and in some cases was very high. However, it is important to realise that the efficiency of the project only relates to the aircraft being purchased, not the airline as a whole. This explains why the evaluation could show a positive outcome when the profitability of some of the airlines involved could be quite weak. With the combination of established airlines, very little increase in capacity, and purchase and operating costs known in advance, the ex post efficiency was very close to ex ante predictions and was wholly satisfactory for all of the investments.

Project performance: sustainability

Where the difference between "project profitability" and "airline profitability" shows up is in the final evaluation criterion: "sustain-ability". Again, the tight technical regulation of the industry, with aircraft certification and strict controls on maintenance, means that physical sustainability is not an is-sue. All reputable carriers, the only type of airline the Bank would finance, make sure that their air-craft are technically sound throughout their life. The airlines themselves are less fortunate. Two major European carriers have been put into receivership in recent years, along with numerous smaller operators. However, the Bank has only seen one of its borrowers go into liquidation. Two lessons may be drawn from that experience. Firstly, although the

Bank was prepared to finance the airline's investment in regional aircraft, it refused to fund larger air-craft because it felt that the company's plans were overambitious. The judgment of the Bank's project and lending staff turned out to be correct. The original "EIB

project aircraft" were sold at full market value to another EU airline and are performing a similar role to that originally envisaged - and to that extent perhaps the original project was still a success.

All of the EU airlines evaluated in-depth are either profitable or breaking even with a positive trend towards profitability. This is despite the problems created by 9/11, SARS, the second Gulf War, etc. There is still excess capacity in the EU air-travel market, and observers are confident that the next few years will see either airline consolidation, as is happening with Air France and KLM, or smaller national airlines retreating from international competition and concentrating on domestic and regional travel.

The situation with projects outside the EU is less positive. In one case, the airline is dominant in both the domestic and regional markets. It is technically fully competent, but a history of long-term profitability has turned into short-term losses, probably due to political instability in the region. As a state-owned flag carrier it is unlikely to be allowed to fail, and it certainly has the potential to return to profitability. However, to achieve this it will need to develop its commercial awareness and take action on operating costs, particularly in the areas of flight crew and administration. The second airline is in a more difficult situation. When the Bank offered its original funding it said that it would only finance some of the aircraft proposed, and that the other aircraft could not be justified. However, although the airline was going through a restructuring plan, it went ahead and purchased most of the aircraft the Bank felt were unnecessary. The additional capacity, plus an economic recession, has meant that an airline which was supposed to return to

profitability has continued to make substantial losses and has to be "bailed out" by the government every year. Again, this is a case where the "EIB project aircraft" are performing well, but the airline may collapse around them.

Future directions for the EIB

The Bank's airline projects have per-formed well, although they have sometimes become trapped inside ineffective airline structures. However, ex post evaluation is not just about rating the performance of projects, and the Bank, against a set of evaluation criteria. It is also about learning - certainly from mistakes, but equally importantly from the past generally. One lesson which stands out is that the airline sector is becoming increasingly dynamic, with new entrants which play by a different set of rules from the old national flag carriers. The analysis of future investment proposals will need to take this into account, with more emphasis on corporate sustainability than on financial viability at the project level. Similarly, if it is to achieve broader objectives, including regional development and international competitiveness, the airline sector will need to continue to broaden its client base, with more attention being paid to regional and low-cost operators, where the Bank also has the opportunity to increase its value added.

Lending for the environment in the Mediterranean partner countries (MFCs)

FEMIP puts particular emphasis on the protection of the environment. It plays an active role in implementing the environmental policy of the Union. Not only does FEMIP finance projects protecting

and upgrading the environment, reducing pollution and improving the quality of life, but it also assesses the environmental impact of all projects it considers for financing. All borrowers are encouraged to take steps that go beyond the minimum legal requirements.

The environment has always been a priority in the region, partly because of the scarcity of water resources. In addition, pollution does not respect borders - some 90 million European Union inhabitants living in the Mediterranean catchment basin share a precious common heritage and a challenge to the quality of life with the MPCs on the southern and eastern borders of the Mediterranean. In the spirit of the Barcelona Process and of true partnership with the countries in the region, environmental remedies and protection measures require an international response. Here FEMIP is well placed to play a significant role by financing projects on both sides of the Mediterranean. Substantial funds have been made available for drinking water, urban sewerage, and wastewater treatment projects in EU Member States along the northern Mediterranean coast, as well as in Algeria, Egypt, Gaza/West Bank, Jordan, Lebanon, Morocco, Tunisia and Turkey, including the large conurbations of the eastern Mediterranean region.

Such schemes improve the living conditions of the local population. They also promote economic development by stimulating new economic activity in tourism, which is of particular interest to all the Mediterranean countries. Sustaining rural development and employment is also important. This is why FEMIP has funded cooperative agricultural sector ventures in most of the countries, as well as projects for the conservation of farmland through irrigation schemes

in the Nile Delta, Morocco and along the Syrian coast. Responding to natural disasters, e.g. floods, forest fires and earthquakes, FEMIP has also increased its lending for reconstruction projects. Its loans have focused on the reconstruction of damaged infrastructure and short-term clean-up operations, but also on preventive investment, in particular flood prevention.

Traditionally, FEMIP loans for environmental protection have concentrated on water and sanitation projects. However, investment to reduce atmospheric pollution or improve urban transport and waste management is equally eligible for FEMIP finance.

FEMIP has supported projects in the environmental protection sector with some EUR 2.4 billion in loans in the ten-year period since 1995, representing some 20% of its lending during this time. Loans went to:

- projects to collect, monitor, treat and distribute drinking water supplies, as in Algeria (Algiers, the Oran region, and the towns along the Tizi Ouzou-Algiers axis), Gaza/West Bank (southern West Bank, and mainly around the Hebron/Bethlehem area), Jordan (Amman, Irbid, Zarqa and Souf) and Morocco (six major Moroccan towns, including Marrakech);
- municipal sewerage and sewage treatment schemes in Algeria (Algiers, Wilaya de Boumerdes), Egypt (Cairo), Gaza/West Bank (southern West Bank including Bethlehem), Jordan (the towns of Fuheis, Mahis, Salt, Irbid, Ramtha, Madaba, Zarqa and Ma'an), Morocco (Settat and Meknes), Tunisia (Tunis, Menzel, Bourguiba, M'saken, Monastir, Kelibia, Medenine and Sousse) and Turkey (Bursa, Adana, Mersin, Diyarbakir, Izmit and Tarsus);

- investment to reduce air pollution from coal-fired power stations, refineries and other industrial plants in Tunisia (rehabilitation of the Southern Lake in Tunis, cleaning up of Groupe Chimique's industrial site in Gabes) and Turkey (desulphurisation equipment at the Yenikoy power station on the Aegean coast);
- investment in urban development, mainly transport projects: Algeria (Algiers ring road), Egypt (Cairo Metro line 2), Jordan (Amman ring road), Tunisia (Tunis ring road and light metro) and Turkey (Bursa and Eskisehir light metros);
- FEMIP has also made a facility available to part-finance investment in environmental protection undertaken by the private sector in tourist resorts in the Gulf of Aqaba, Gulf of Suez and Red Sea. This longterm funding is expected to provide a solid incentive to hotel promoters to invest in pollution abatement infrastructure and optimise the use of scarce water and other local resources in a context of rapid sector growth.

Lending to projects in the environmental sector is a major objective for FEMIP, but it faces a number of key constraints in the region: weak institutional frameworks, national budgetary constraints and insufficient project preparation and implementation capacity. The opening of FEMIP offices in the region (Cairo, operational since 2003, and Rabat and Tunis, coming up soon) along with the planned provision of enhanced technical assistance for the region should help to reinforce FEMIP's environmental activity in the region.

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