**Технологическая карта урока английского языка в 11 классе по теме «Основные экологические проблемы» (повышенный уровень)**

**Цель:** Развитие коммуникативных компетенций средствами английского языка.

**Задачи:**

- систематизировать знания по теме урока на уровне понимания, применения, анализа;

- содействовать развитию внимания, памяти, языковой догадки;

-способствовать развитию интереса, познавательной деятельности учащихся посредством информационных и коммуникативных технологий;

- повышать лингвострановедческую компетенцию;

- создать условия для формирования экологической грамотности, чувства любви к природе и ответственности за ее сохранение.

**Оборудование**: компьютер, экран, мультимедийный проектор, таблицы с критериями оценки, таблицы с экологическими проблемами, распечатки с текстами.

**Тип урока:** комбинированный урок

**Формы работы:** фронтальная, групповая, индивидуальная.

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| --- | --- | --- | --- | --- | --- |
| №  п/п | Этап урока | Прогнозируемый результат | Деятельность учителя | Деятельность учащихся | Время |
| 1 | Организацион -ный момент. | Введение учащихся в атмосферу иноязычного общения. | Приветствует учащихся, включает видеоклип | Просматривают видеоклип | 3 мин |
|  | Целеполагание | Формулировка темы учащимися, определение целей и задач урока | Направляет учащихся для формулирования темы урока.  Сообщает цель урока | Пытаются сформулировать тему урока |
| 2 | Речевая разминка | Активизация лексических единиц, изученных ранее | Предлагает задания на интерактивной доске (образование прилагательных, образование словосочетаний по теме) | Выполняют задания, по очереди выходя к доске | 7 мин |
| 3 | Основная часть урока | Подготовить учащихся к восприятию текстов, снять возможные трудности, создать мотивацию предстоящей деятельности | Предлагает задание на интерактивной доске. Выдает тексты для дальнейшей работы | Ищут по очереди экологические проблемы на доске (Word Search) | 22 мин |
| Предтекстовый этап |
|  | Текстовый этап | Обеспечить закрепление и повышение уровня осмысления новых знаний.  Способствовать развитию навыков говорения на основе прочитанного текста | Следит за выполнением заданий, снимает возникшие трудности с пониманием текста | А) Читают свои тексты, выделяют ключевые моменты, делают пометки в таблице.  Б) Выступают с сообщением ключевой информации по своим проблемам.  В) Делают пометки во время прослушивания докладов в таблице |
|  | Послетекстовый этап  (работа в группах) | Выявить степень владения изученным материалом, выявить и скорректировать пробелы в знаниях. Вовлечь учащихся в групповую дискуссию, подтолкнуть к формулированию решений проблем окружающей среды | Следит за ходом обсуждения, исправляет и корректирует при необходимости ошибки и неточности в речи учеников | В группах обсуждают услышанный материал, предлагают возможные решения, записывают их на листках бумаги | 3 мин |
|  | Предъявление результатов обсуждения | Подвести итоги работы групп.  Снять мышечное напряжение | Следит за ходом выполнения задания, исправляет и корректирует при необходимости ошибки и неточности в речи учеников | По очереди выходят к доске и читают по одному возможному решению проблем с окружающей средой | 2 мин |
| 4 | Рефлексия | Обобщить информацию, полученную на уроке | Инициирует парную и индивидуальную рефлексию | В парах обсуждают итоги урока.  Один ученик отвечает на главный вопрос урока | 3,5 мин |
| 5 | Подведение итогов урока.  Домашнее задание | Дать качественную оценку работы класса и отдельных учащихся.  Обеспечить понимание цели, содержания и способов выполнения домашнего задания | Выслушивает комментарии учеников по поводу отметок. При необходимости корректирует их. Благодарит за работу.  Описывает домашнее задание | Оценивают и комментируют работу одноклассников.  Записывают домашнее задание | 4,5 мин |

**Ход урока**

1. **Начало урока. Приветствие. Постановка цели. (***В классе висят фотографии, связанные с экологическими проблемами***)**

**Учитель.** Good afternoon, dear girls. Glad to see you.

Are you ready to work? Now I want to show you a video to give you a hint what we will speak about. Be very attentive and try to guess.

**Просмотр видео**

**Учитель**. What is the topic of our lesson?

What ecological problems do you know? What is the most important for our environment? We will discuss these problems. At the end of our lesson you should answer the question: Can you help to save the planet? To do this task we need to revise our active vocabulary. Now let’s start.

1. **Речевая разминка.** Повторение лексики предыдущих уроков

**Учитель.** You see words on the blackboard. One by one come to the blackboard and make adjectives. What do we need to make adjectives?

**Ученики выходят к доске по очереди и выполняют задание.**

**Учитель.** I have one more task for you. We have to build word combinations.

**Ученики выполняют задания на интерактивной доске.**

1. **Основная часть урока.**

**Учитель.** Look at the blackboard. One by one you should find the problem in this puzzle. Who finds the problem gets the text with this problem. You have the table on your desk, you have time to read your texts and fill these tables. Then you will present your problem to the group.

**Ученики…**

***Ученики работают с текстами.***

**Учитель**. I see you are have finished your tasks and ready to present your problems. *(Ученики по очереди выступают с представлением своей экологической проблемы. На парте у учеников лежит таблица, которую они должны заполнить во время рассказа одноклассников (Приложение 2)).*

**Учитель.**  Now I will divide you into two groups. You have blank papers on your desks. You have time to discuss in groups the ways how we can help our environment. Write one solution on one paper.

***Ученики работают в группах.***

**Учитель.** So, I see you are ready. One by one come to the blackboard, read your solution and put it on the blackboard.

***Ученики по очереди выходят к доске и прикрепляют листики с решениями на доску.***

1. **Рефлексия и оценивание.**

**Учитель.** Now I want you to sum up the ideas. Discuss it in pairs and then someone will present the whole idea.

**Один из учеников подводит итог урока.**

**Учитель.** Well, I enjoyed our lesson, but what do you think about it. What was the aim of our lesson? Did we discuss the main ecological problems? Did we find the probable solutions to these problems? Did we answer the question of our lesson? So, now I want you to estimate your work. I have the box with your names. One by one you will take a card with name and you have to estimate the work of this person.

**Ученики выставляю оценки одноклассникам и комментируют их.**

**Учитель.** Your home task is in your books Ex. 2 c, p. 70-71. Tomorrow we will discuss the problem of deforestation in a detailed way. Now, our lesson has come to an end. Thank you for your work.

Приложение 1

**Deforestation**

Deforestation is decrease of forest cover of an area. World forest cover of 7000 million hactares has been reduced 2400 million hectares in 2000.

It is estimated that about 40% forests have been lost in the tropics compared to 1% loss in temperatre regions.

**Causes of Deforestation:**

**Hydroelectric Projects:**

Man made dams, reservoirs and hydroelectic projects submerge forest areas, killing all plants and animals.

**Forest fire:**

Huge forest fires in dry seasons destroy large patches of forests.

**Human Establishment:**

There is an increasing demand for agricultural land in order to grow more food crops for feeding the growing human population which is done through clearing forest areas. Forest land is also used for building more residential complexes and industrial townships.

**Mountain and Forest Roads:**

Construction of roads and railway tracks in hilly forested areas results in lot of deforestation, landslides and soil erosion.

**Canals:**

Canals constructed for irrigation under irrigation projects destroy lot of forest areas and cultivated land.

**Overgrazing:**

The population of livestock in India is about 500 million but grazing area is only 13 million hectares. One hectare of land supports only 6 livestock. The remaining naturally graze in forests causing destruction of seedlings and causing compaction of soil. The latter reduces water holding capacity and increases run off. Ultimately huge forest area is destroyed.

**Wood Demand:**

Requirement of wood is rising for fuel, house construction and paper industry leading to loss of several million hectares of forest area.

**Effects of Deforestation:**

1. Increase in carbon dioxide concentration in atmosphere.

2. Deforestation results in reduced rainfall, increased draught, hotter summer and colder winter.

3. Soil is exposed to insolation, dries up and gets eroded by wind and water.

4. Timber and fuel wood availability has been drastically reduced. Forest products like resin tannin, gums, latex, lac may not be available.

5. Loss of forest leads to soil erosion and finally desertification occurs which is of no use Moist and fertile land of forests will be converted to deserts due to decrease amount of rainfall and no floods.

6. Deforestation would result in loss of biodiversity and germplasm having devastating effect in ecological balance.

**Resource Depletion**

Resource depletion is the consumption of a resource faster than it can be replenished. Natural resources are separated into two categories: renewable sources and non-renewable sources. Resource depletion is most commonly used in reference to farming, fishing, mining, water usage, and consumption of fossil fuels.

CAUSES

The main causes of resource depletion are overuse of resources, technological and industrial development and population growth. Peoples are exploiting non-renewable resources at a very fast speed to meet the increasing demands for economic and industrial growth. Irrational use is when resources are being used in an illogical manner, for example using extra water for washing cars.

Soil is what plants grow in. Soil formation takes a very long span of time. Careless human activities can destroy the soil in a very short time. Deforestation, overgrazing, over cultivation, mining, etc. affect the soil in different ways. Destruction of vegetation and overgrazing causes widespread soil erosion.

Deforestation has caused destruction of natural habitats of several species. About 10% of the species of flowering plants are about to become extinct. Destruction of nature disturbs the ecosystem greatly.

Natural resources are unequally distributed over the world. In India, water is unequally distributed throughout the states as well as a lack of coal reserves in some states however others are getting overmined.

Fast technological development and industrialization causes depletion of fossil fuels.

Coal is used as a source of energy for industries. It is also converted into coal gas, electricity and oil for industrial and technological purpose. Therefore, the coal stock is rapidly depleting.

To feed more and more people, more land is being brought under agriculture by cutting forests. This has serious environmental repercussions, including destruction of wildlife. So forests and wildlife are getting depleted due to population growth.

Population growth is causing a strain on resources like land, electricity, transport etc. So there is depletion of resources.

EFFECTS

The impacts of resource depletion are an imbalance in nature, a shortage of materials, the struggle for human life and slackening of economic growth.

Our natural resources bring a balance in the environment and make it stable. Increasing deforestation and other terrible acts has greatly affected the balance in nature.

Indiscriminate use of resources has caused shortage of material. Many materials that we used to get from forest are in short supply because forests have been cleaned for making cities, roads, dams etc.

A struggle for existence is taking place between different countries, between the neighboring states of one country, so they can take the natural resources of that area.

The economic growth of a country depends upon the availability of resources. Because of the depletion of resources it causes terrible effects on economic growth. Decreased supply of petroleum in the 1970s because of rising international process of the commodity slackened economic growth. The entire world is being affected by resource depletion, it is a global quandary!

**POLLUTION**

Environmental pollution is a term that refers to all the ways by which people pollute their surroundings. People dirty the air with gases and smoke, poison the water with chemicals and other substances, and damage the soil with too many fertilizers and pesticides. People also pollute their surroundings in various other ways. For example, they operate machines and motor vehicles that fill the air with disturbing noise.

One of the pivotal issues nowadays is the water pollution. The enlargement of the population means more trash and garbage. The rubbish dumps decay and the toxic substances permeate the soil going to the rivers and oceans. Moreover, tons of garbage are thrown directly into the water. There are even special islands for garbage in the oceans.  
 Even though the technological development offers various approaches to garbage utilization, most of the poor countries do not utilize innovative technologies. Thus, pollution becomes the leading cause of death in underdeveloped low-income countries. Nevertheless, water is contaminated not only due to regular garbage utilization. The plants, factories and mills are the key pollutants of the water. The process water from factories goes to the rivers and seas in neighborhood areas. The fish and living environment of natural ecosystems are contaminated by dangerous chemicals that causes either the death of the entire ecosystems or hurts the consumers of the contaminated products (seafood, fish, water, salt).

 Additionally, water is polluted by pesticides and fertilizations used in agriculture.

 Another big humanity’s challenge is air pollution. The primary reason of air contamination is the effect of the burning fuels. The smoke floats in the air and most people breathe it in. Further, it affects the health resulting in respiratory diseases, cancers and other problems. Another type of air pollutants are dangerous gases, such as sulfur dioxide, nitrogen oxides, carbon monoxide, and chemical vapors. Those gases undergo the reactions in the higher atmosphere layers and return to the surface in the form of the dangerous chemicals (acid rains) that ruin the living environment. Moreover, carbon dioxide and sulfur dioxide create the so-called “greenhouse effect” when the radiation is absorbed while the heat is prevented from escaping. It is a natural process.

However, the high concentration of the gases makes Earth warmer and affects the natural processes on the planet. Thus, air pollution is one of the contributors to the global warming.

One of the least discussed problems is sound pollution. People tend to underestimate this problem because it is not possible to smell, see or touch it. However, noise pollution also has negative effects on the environment and people. The research shows that many illnesses are connected to noise pollution, such as hearing loss, high blood pressure, coronary heart disease and speech interference. The industrial noises also affect the lives of animals.

 The growth of population and technological progress have imprints on the ecological stage of Earth. The extraction of natural sources, work of factories and plants, and other products of human activity result in various environmental problems. The pollution of water, air and sound have extremely negative effects on our environment. The effects of the pollution include acid rains, detrimental diseases and illnesses of people and animals, and global warming. The environmental pollution is the global problem that calls for radical actions for environment protection and rehabilitation. More than that, the problem should be resolved on a global level by the united efforts of the global community.

**Global Warming**

* Global warming is the current increase in temperature of the Earth's surface (both land and water) as well as it's atmosphere. Average temperatures around the world have risen by 0.75°C (1.4°F) over the last 100 years about two thirds of this increase has occurred since 1975. In the past, when the Earth experienced increases in temperature it was the result of natural causes but today it is being caused by the accumulation of greenhouse gases in the atmosphere produced by human activities.
* The majority of man-made carbon dioxide emissions is from the burning of fossil fuels such as coal and oil so that humans can power various vehicles, machinery, keep warm and create electricity. Other important sources come from land-use changes and industry
* Methane is created by humans during fossil fuel production and use, livestock and rice farming, as well as landfills.
* Nitrous oxide emissions are mainly caused by the use of synthetic fertilizers for agriculture, fossil fuel combustion and livestock manure management.
* Fluorinated gases are used mainly in refrigeration, cooling and manufacturing applications.

The natural greenhouse effect maintains the Earth's temperature at a safe level making it possible for humans and many other lifeforms to exist. However, since the Industrial Revolution human activities have significantly enhanced the greenhouse effect causing the Earth's average temperature to rise by almost 1°C. This is creating the global warming we see today.

Deforestation has become a massive undertaking by humans and transforming forests into farms has a significant number of impacts as far as greenhouse gas emissions are concerned. For centuries, people have burned and cut down forests to clear land for agriculture. This has a double effect on the atmosphere both emitting carbon dioxide into the atmosphere and simultaneously reducing the number of trees that can remove carbon dioxide from the air.

Global warming is damaging the Earth's climate as well as the physical environment. One of the most visible effects of global warming can be seen in the Arctic as glaciers, permafrost and sea ice are melting rapidly. Global warming is harming the environment in several ways

**Desertification**

Increasing temperatures around the world are making arid and semi-arid areas even more dry than before. This is causing water shortages and an intense amount of distress to the over 2.5 million people in dry regions which are degrading into desert.

**Increased melting of snow and ice**

Around the world, snow and ice is melting at a much faster pace than in the past

**Sea level rise**

The Earth's sea level has risen by 21 cm (8 inches) since 1880. The rate of rise is accelerating and is now at a pace that has not been seen for at least 5000 years.

**Stronge hurricanes and cyclones**

Tropical cyclone activity has seen an obvious upswing trend since the early 1970s. Interestingly, this matches directly with an observed rise in the oceans' temperature over the same period of time. Since then, the Power Dissipation Index which measures the destructive power of tropical cyclones has increased in the Pacific by 35% and in the Atlantic it has nearly doubled. Global warming also increases the frequency of strong cyclones.

**Ozone Layer Depletion**

Ozone layer depletion is one of the most serious problems faced by our planet earth. It is also one of the prime reasons which are leading to global warming. Ozone is a colourless gas which is found in the stratosphere of our upper atmosphere. The layer of ozone gas is what which protects us from the harmful ultraviolet radiations of the sun. The ozone layer absorbs these harmful radiations and thus prevents these rays from entering the earth’s atmosphere. Ultraviolet radiations are high energy electromagnetic waves emitted by the sun which if enters the earth’s atmosphere can lead to various environmental issues including global warming, and also a number of health related issues for all living organisms. Thanks to the ozone layer which protects us from these harmful rays.

Low temperatures, increase in the level of chlorine and bromine gases in the upper stratosphere are some of the reasons that leads to ozone layer depletion. But the one and the most important reason for ozone layer depletion is the production and emission of chlorofluorocarbons (CFCs). This is what which leads to almost 80 percent of the total ozone layer depletion. There are many other substances that lead to ozone layer depletion such as hydro chlorofluorocarbons (HCFCs) and volatile organic compounds (VOCs). Such substances are found in vehicular emissions, by-products of industrial processes, aerosols and refrigerants. All these ozone depleting substances remain stable in the lower atmospheric region, but as they reach the stratosphere, they get exposed to the ultra violet rays. This leads to their breakdown and releasing of free chlorine atoms which reacts with the ozone gas, thus leading to the depletion of the ozone layer.

The depletion of ozone layer allows entering of UV rays from sun into the earth’s atmosphere which is associated with a number of health related and environmental issues. Let us see its major impacts on human beings

Skin Cancer: exposure to UV rays from sun can lead to increased risk for developing of several types of skin cancers.

Eye Damage: UV rays are harmful for our eyes too. Direct exposure to UV rays can lead to Cataract problems, and also Photokeratitis or snow blindness.

Damage to Immune system: our immune system is also highly vulnerable to UV rays. Increased exposure to UV rays can lead to weakening of the response of immune system and even impairment of the immune system in extreme cases.

Aging of skin: exposure to UV rays can lead to acceleration of the aging process of your skin.

In humans, exposure to UV rays can also lead to difficulty in breathing, chest pain, and throat irritation and can even lead to hampering of lung function.

UV rays affect other life forms too. It adversely affects the different species of amphibians and is one of the prime reasons for the declining numbers of the amphibian species. UV rays also have adverse effect on the marine ecosystem. It adversely affects the planktons which plays a vital role in the food chain and oceanic carbon cycle.  Affecting phytoplankton will in turn affect the whole ocean ecosystem.

UV rays will also affect the plants. UV radiations can alter the time of flowering in some plant species. It can also directly affect the plant growth by altering the physiological and developmental processes of the plants.

Ozone layer depletion leads to decrease in ozone in the stratosphere and increase in ozone present in the lower atmosphere. Presence of ozone in the lower atmosphere is considered as a pollutant and a greenhouse gas. Ozone in the lower atmosphere contributes to global warming and climate change. The depletion of ozone layer has trickle down effects in the form of global warming, which in turn leads to melting of polar ice, which will lead to rising sea levels and climatic changes around the world.

Animal extinction

When we talk of animal extinction, we talk of a species in particular becoming extinct. So when there is an extinction of an animal we simply mean that a specific species no longer exists or have died. It is also possible to say that an animal can be extinct when the available individuals of a certain species are not able to produce thus making it inevitable for such animals to have their offspring in future.   Extinction does take place in living organisms, plants and animals alike. Despite the rich environment that we have, you find that animal extinction has been on the rise.

**Causes of animal extinction**

In the twenty first century, there have been major causes of animal extinction. These include habitat degradation in that the surrounding the life of animals is interfered with and thus become harmful for the life of the species.  We find that there can be degradation to the habitat like poisoning which can directly mess up with the life of a species.

Also, there is over-exploitation which results from the total number of individuals of a species that use the same economic resources. Due to the nature of these resources, when they are exhausted, the lives of the species will be at stake. Animals of a given species will be struggling to fulfill its biological needs and yet the resources will not be there. This will lead to starvation to death among other causes.

Another cause of extinction can be attributed to the climate change that is human induced. Human beings have played a very big role in ensuring that the climate of the earth is not static. In addition to these, there are also some demographic phenomena and population genetics that do affect the evolution of animals thus risks extinction to certain species. Genus extinction could be as a result of limited geographic range thus can lead to mass extinction. In relation to this point, natural selection also play a very important role in that the weaker species is always get rid of and the stronger species is left to survive. In this sense, extinction of animals takes place through natural selection.

Predation, completion and diseases can also cause extinction in animals. It is natural for animals to compete for resources which are scarce. The process of completion may not take place naturally, but in some cases animals are subjected to competitions by man or due natural reason. Predation on the other hand refers to the process where a species is simply the food to a certain species. When the predators feed on the preys, the lives of the preys are not restored. So if the population of the predators overweighs that of the pres then the prey is in danger of extinction. Finally diseases can cause extinction in a species. For instance, when a there is an outbreak of a disease to a specific species, there is likelihood of this species loosing many of its members before the way forward is found. There is also a phenomena referred to as genetic pollution which also can cause extinction of a certain species.

**Effects of animal extinction**

When we lose the animals through extinction, we lose biodiversity. Biodiversity simply refers to the total number species as well as ecosystems in the earth’s surface or of a given place. It therefore reflects that when animals extinct, they reduces the variety of animals that were present in the earths surface. In this world, there are different roles that are played by animals of different types. So when we lose these animals there it means that we lose also the role it used to play. Animal extinction is a threat to the human life. Animals provide the human beings with many things. Look at food, clothing, hides and skins, look at attraction, look at the role that biodiversity at large.

**ACID RAIN**

Acid Rain includes rain, snow, hail, fog, or dew that is high in acid pollutants, especially sulphuric and nitric acid. Acid Rain is caused by emissions of sulphur dioxide and nitrogen oxide, which reacts with the water molecules in the atmosphere to produce acids.

There are two types of depositions in which acid rain occurs. They can be discussed as follows:

**Wet deposition**: When the acid falls on the ground in the form of rain, snow, fog or mist, it removes acid from the atmosphere and settles them on the Earth’s surface.

**Dry deposition**: When the acidic pollutants merge into dust or smoke and fall to the ground as dry particles, these stick to the ground and other surfaces such as buildings, cars, houses, trees and monuments.

Acid Rain is basically caused due to the combustion of fossil fuels which results in emissions of sulphur dioxide (SO2) and nitrogen oxide (NOx) in the atmosphere.

**Natural Sources**: The main nature causing agents for acid rain are volcanic eruptions. Volcanoes emit a large amount of lava, producing harmful gases which create higher than normal amount of Acid Rain. Decaying vegetation, wildfires and other biological processes within the environment also generate the Acid Rain forming gases. Lighting strikes also produce nitric oxides that react with water molecules via electrical activity to produce nitric acid, thereby forming acid rain.

**Human-Instigated Sources**: Human activities leading to the emissions of chemical gas include sulphur and nitrogen gases from the factories, power generating premises and automobiles. Most of all, the use of coal for electrical power generation is the biggest contributor to gaseous emissions which lead to acid rain. These gases react with water, oxygen, and other chemicals to form various acidic compounds such as sulphuric acid, nitric acid etc.

Acid rain has many **adverse effects** which can be described as follows:

* Lakes and rivers cannot sustain aquatic life when acid rain flows into the water. Acid rain affects the aquatic habitat of the ecosystem. The number and types of water animals and other aquatic plants that live in these waters decrease as the lakes, streams and other freshwater bodies become more acidic.
* It also leads to a reduction in crop yields.
* It causes massive damage to the forests and wildlife. When acid rain falls in forest areas, it releases toxic metals such as lead and zinc which cause the reduced growth of trees and plants. In this way, acid rain brings about reduced growth and the ultimate forest depletion.
* Being corrosive in nature, it can cause extensive damage to the buildings and infrastructure. An example of an important building that has been corroded by Acid Rain is the Taj Mahal at Agra.
* Acid Rain also affects human beings. Skin problems such as rashes and itching, hair loss and breathing problems are caused due to acid rain. Acid rain can also lead to heart and lung problems.
* Due to acid rain, the poisonous metals seep into underground drinking water sources also, thereby making it unfit for human consumption.

Climate change

The average temperature in many regions has been increasing in recent decades. The global average surface temperature has increased by 0.6° C – 0.20° C over the last century. Many countries have experienced increases in rainfall, particularly in the countries situated in the mid-to high- latitudes.

In some regions, such as parts of Asia and Africa, the frequency and intensity of droughts have been observed to increase in recent decades. Episodes of El Nino, which creates great storms, have been more frequent, persistent and intense since the mid-1970s compared with the previous 100 years. All these are signs that the Earth is ailing. Its climate is changing, making it more difficult for mankind to survive. The earth is losing its equilibrium due to the imbalances created by human activities.

Projections of future climate change are derived from a series of experiments made by computer based global climate models. These are calculated based on factors like future population growth and energy use. Climatologists of the intergovernmental panel on climate change (IPCC) have reviewed the results of several experiments in order to estimate changes in climate in the course of this century.

These studies have shown that in the near future the global mean surface temperature will rise by 1.4°C – 5.8° C. this ‘warming’ will be greatest over land areas, and at high latitudes. The projected rate extreme is likely to increase, leading to floods or drought. There will be fewer cold spells but more heat waves. The frequency and intensity of the El Nino is likely to increase.

The global mean sea level is projected to rise by 9.88 cm by the year 2100. More than half of the world’s population now lives within 60 km of the sea. They are likely to be seriously impacted by the ingress of salt water and by the rising sea. Some of the most vulnerable regions are the Nile delta in Egypt, the Ganges- Brahmaputra delta in Bangladesh, and many small islands including the Marshall islands and the Maldives, (WHO, 2001).

Human societies will be seriously affected by extremes of climate such as droughts and floods. A changing climate would bring about changes in the frequency and/or intensity of these extremes. This is also a fundamental concern for human health. To a large extent, public health depends on safe drinking water, sufficient food, secure shelter, and good social conditions.

Freshwater supplies may be seriously affected, reducing the availability of clean water for drinking and washing during drought as well as floods. Water can be contaminated and sewage systems may be damaged. The risk of spread of infectious diseases such as diarrheal also indirectly through an increase in pests and plant or animal diseases.

The local reduction in food production would lead to starvation and malnutrition with land-term health consequences, especially for children. Food and water shortages may lead to conflicts in vulnerable regions. Climate change related impacts on human health could lead to displacement of a large number of people, creating environmental refugees and lead to further health issues.

Changes in climate may affect the distribution of vector species (e.g., mosquitoes) which, in turn, will increase the spread of disease, such as material and filariasis, to new areas which lack a strong public health infrastructure. The seasonal transmission and distribution of many diseases that are transmitted by mosquitoes (dengue, yellow fever) and by ticks (Lyme disease, tick-borne encephalitis) may spread due to climate change.

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| **a** | **e** | **d** | **r** | **v** | **c** | **d** | **f** | **z** | **x** | **c** | **v** | **f** | **d** | **d** | **s** | **r** | **g** | **h** | **n** |
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**Приложение 2**

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|  | **Pollution** | **Resource depletion** | **Climate change** | **Ozone depletion** |
| **What is it? What kinds of the problem are there?** |  |  |  |  |
| **Causes** |  |  |  |  |
| **Results** |  |  |  |  |

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|  | **Greenhouse effect** | **Acid rains** | **Deforestation** | **Animal extinction** |
| **What is it? What kinds of the problem are there?** |  |  |  |  |
| **Causes** |  |  |  |  |
| **Results** |  |  |  |  |