**MINISTRY OF AGRICULTURE AND WATER RESOURCES OF THE REPUBLIC OF UZBEKISTAN**

**TASHKENT INSTITUTE OF IRRIGATION AND MELIORATION BUKHARA BRANCH**

DEPARTMENT OF LIBERAL ARTS, LANGUAGES & PHYSICAL TRAINING

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# ENGLISH FOR YOU

Specialized study-book for the intermediate students of agriculture (irrigation, melioration)

**Tashkent-2014**

**Shirinova Nilufar, Abdullayeva Nabiya. English for You. – T., 2014. 116 pp.**

This study-book is prepared for the teaching English for Specific Purposes (ESP) and dedicated to the education system of irrigation and melioration in Uzbekistan. It can be useful for the intermediate and advanced levels students of agriculture and natural sciences, for methodologists and trainers of English language, and for free researchers and learners as well.

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*MANUAL IS PREPARED ACCORDING TO THE STANDARD CURRICULUM OF TEACHING ENGLISH FOR SPECIFIC PURPOSES RECOMMENDED BY THE MINISTRY OF HIGHER AND SPECIAL SECONDARY EDUCATION OF THE REPUBLIC OF UZBEKISTAN*


*Undersigned and recommended by the Scientific Soviet of Tashkent Institute of Irrigation and Melioration (May, 2014).*

**Tashkent Institute of Irrigation and Melioration – TIIM, 2014.**

**CONTENTS**

## INTRODUCTION

Today the role and place of specialised training of English in modern teaching and didactics are especially underlined. The given concept and phenomenon had already come not only into the system of higher education, but also to the specialized secondary education and promote increase of knowing activity of learners. On the basis of this it is possible to assume that the purpose of studying and training of English language in Hydromelioration faculty is – **the professional training on learners` specialty** and direction, interests and activities; also developing their abilities to show and demonstrate writing, reading, listening and speaking skills in English.

In connection with new actions in the Republic of Uzbekistan last 2010-2013 years on organization of qualitative teaching of English language and retraining and refreshing of foreign languages teachers there have been conducted original researches on performance of the given problem. Carrying out of "The Practical course of English language» for the students of IV course under the program of actions confirmed by vise-minister Aripov A.N. on December, 1st, 2010 became an important event and this event obliged ELT, EFL and ESL teachers to create the full program of the given course and to modify its maintenance with the professional work and activity and practical skills of the students, to study and apply new methods of teaching English, and also to think up the best techniques of teaching English for the short time. For the convenient performance of the given purpose, first of all we should interest learners in entertaining exercises and other activities connected with various parameters of training of English language, as working with the specialized texts, text translation, and also detailed work with monolingual (English-English) and bilingual (English-Uzbek; English-Russian) dictionaries. This manual is created for decision and solving of the given problem in educational system of irrigation and meliorations.

Authors hope the given study-book can be useful as well as for students of agriculture and natural faculties, methodologists and trainers of English language, and for free researchers and learners, training on IELTS and TOEFL systems or other programs useful for learning and improving English.

# Unit 1

# AGRICULTURE

## SESSION I

## AGRICULTURE AS THE NATURAL SCIENCE

**Key words:** raw materials, fertilizers, pesticides, manure, crop rotation, nutrients, sustainable agriculture, rangeland, pastoral, tillage, irrigation, cultivation, surplus, domesticated, fungi, biofuel, fiber.

**Activity 1.** Regroup into 3 groups. Turn by turn tell the words based on agriculture.


**Activity 2.** Read the following passage carefully. Pay more attention to the new words.

**Agriculture** is the cultivation of animals, plants and other life forms for food, fiber, biofuel and other products used to sustain human life. Agriculture is also called **farming** or **husbandry**. The study of agriculture is known as agricultural science.

The word *agriculture* is the English adaptation of Latin *agricultūra*, from *ager*, "a field", and *cultūra*, "cultivation". In the strict sense it means "tillage of the soil". Thus, a literal reading of the word yields "tillage of fields".

The history of agriculture dates back thousands of years, and its development has been defined by greatly different climates, cultures, and technologies. However, all farming generally relies on techniques to expand and maintain the lands that are suitable for raising domesticated species.

The major agricultural products can be broadly grouped into *foods, fibers, fuels, and raw materials*. In the 21st century, plants have been used to grow biofuels, biopharmaceuticals, bioplastics, and pharmaceuticals.

**Specific foods** include cereals, vegetables, fruits, and meat.

**Fibers** include cotton, wool, hemp, silk and flax.

**Raw materials** include lumber and bamboo.

Other useful materials are produced by plants, such as resins. Biofuels include methane from biomass, ethanol, and biodiesel.

Cut flowers, nursery plants, tropical fish and birds for the pet trade are some of the ornamental products.

**Activity 3.** Define the words which are the most suitable for the boxes below.

Cereals, wheat, kerosene, silk, flatulence, wool, blog, mohair, vegetables, jute, flax, fruits, methane, meat, mustard.

| Foods | Fibers | Raw materials |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Activity 4.** Match the following statements with the notions given in the box.

- Supplying dry land with water by means of ditches etc.

- The successive planting of different crops on the same land to improve soil fertility and help control insects and diseases.

- An unprocessed natural product used in manufacture.

- Any of a large number of natural and synthetic materials, including manure and nitrogen, phosphorus, and potassium compounds, spread on or worked into soil to increase its capacity to support plant growth.

Raw material
Fertilizer
Irrigation
Crop rotation

**Activity 5.** Students should open the following website:

**http://www.searchquotes.com/quotes/about/Agriculture/**

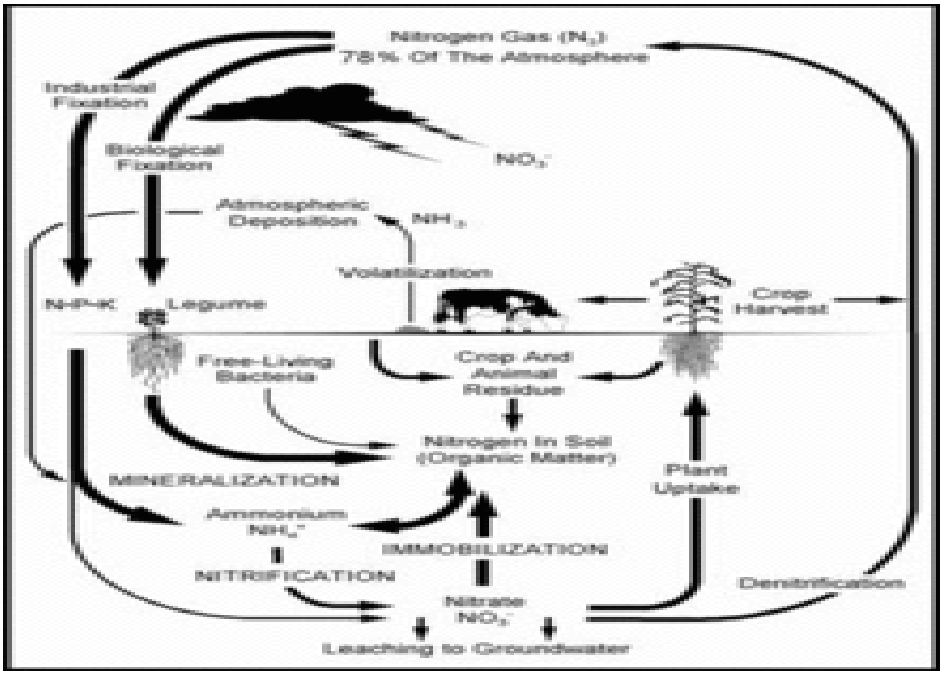
Learn the information and news on agriculture.

**SESSION II**

**LEACHING**

**Key words:** leaching, groundwater contamination, fertilizers, high salt content, salinity control, dumps and landfills, stored animal manure, biocides, pesticides, fungicides, insecticides, herbicides.

**Activity 1.** Prediction. Look at the illustration below. With a partner if possible, try to predict exactly what is being discussed.




**Activity 2.** Pre-reading questions:
Before reading the following text work with a partner, ask and answer the questions below. Base your answers on your possible knowledge of the topic:

- *What is leaching?*
- *What kind of leaching do you know*?
- *What is groundwater contamination?*
- *Are anthropogenic sources of nitrogen greater than from natural sources or not?*

**Activity 3.** Read the Reading Passage 1 attentively and translate it into Uzbek.

A Do you know what is leaching itself and how does it happen in nature?

In agriculture, **leaching** refers to the loss of plant nutrients from the soil, due to rain and irrigation. Soil structure, crop planting, type and application rates of fertilizers, and other factors are taken into account to avoid excessive nutrient loss.

B Leaching may also refer to the practice of applying a small amount of excess irrigation, where the water has a high salt content. The drainage must also usually be employed, to carry away the excess water.

C It is important to know that leaching is an environmental concern, because it contributes to groundwater contamination. As water from rain, flooding, or other sources seeps into the ground, it can dissolve chemicals and carry them into the underground water supply. Of particular concern are excess fertilizer, improperly stored animal manure, and biocides (e.g. pesticides, fungicides, insecticides and herbicides).

**Activity 4.** Now underline the main ideas and key words in the passage.

**Activity 5.** The reading passage has three sections A-C. Choose the most suitable headings for sections A-C from the list of headings.

1. Section A _____
2. Section B_____
3. Section C_____

| **List of headings** |
|---|
| i. Application rates of fertilizers |
| ii. Leaching in agriculture |
| iii. Leaching referring to the practice |
| iv. Drainage |
| v. Biocides |
| vi. Environmental concern contributed to groundwater contamination. |

**Activity 7.** Make up the dialogue with your partner on leaching.

Search independently other materials and sources on leaching in agriculture.

## SESSION III

## TILLAGE

**Key words:** tillage, row crop, harrowing, rollers, draft-animal-powered, raking, hoeing, mattock, hand tools, agitation, soil.

**Activity 1.** Pre-reading questions. Answer the following questions and name the text.


**Activity 2.** Read the following passage carefully.

**Tillage** is also called as “cultivation” and closely connected with the plant-growing and harvesting. Tillage is the agricultural preparation of the soil by mechanical agitation of various types, such as *digging, stirring, and overturning*. We used to divide leaching methods into: human-powered, draft-animal-powered or mechanized tilling methods.

Examples of **human-powered tilling methods** using hand tools include shovelling, picking, mattock work, hoeing, and raking.

Examples of **draft-animal-powered or mechanized work** include ploughing (overturning with moldboards or chiseling with chisel shanks), rolling with cultipackers or other rollers, harrowing, and cultivating with cultivator shanks (teeth).

Small-scale gardening and farming, for household food production or small business production, tends to use the smaller-scale methods above; consequently large-scale farming tends to use the larger-scale methods.

Tillage is often classified into two types, **primary and secondary**. There is no strict boundary between them. So the tillage that is deeper and more thorough is a primary tillage and the tillage that is shallower is a secondary tillage. Primary tillage such as ploughing tends to produce a rough surface finish, and secondary tillage tends to produce a smoother surface finish, such as that required to make a good seedbed for many crops.

**Activity 3.** Find out the adjective + noun word combinations from the text.

**Activity 4.** Fill the following statements using no more than 4 words from the text.

1. Tillage is often classified into….
2. Small-scale gardening and farming, for household food production or small business production, tends to use….
3. Primary tillage tends to….
4. Secondary tillage tends to produce…..

**Activity 5.** Name the pictures with the given words: mechanize, draft-animal-powered, hand tools.

1. 

2.

3.

Read the following text carefully and be ready for retelling.

# UNIT 2

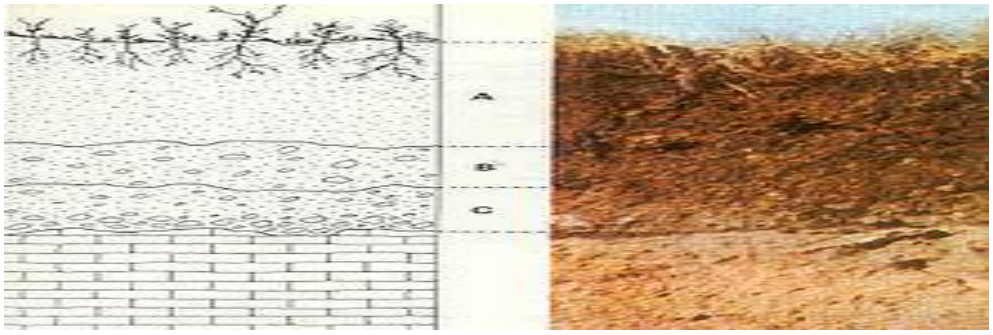
# SOIL

## SESSION IV

## SOIL

**Key words:** surface-water-gley, soil horizons, laterite, regolith, saprolite, a less-weathered regolith, bedrock, glacial till, loose rock material, 'solid geology', weathering, disintegration, erosion, lithosphere, hydrosphere, atmosphere, and biosphere, displaced soil, pore spaces, three-state system, density.

**Activity 1.** Look at the illustrations below. With a partner if possible, try to predict what is being discussed exactly.




A – represents soil; B – represents laterite, a regolith; C – represents saprolite, a less-weathered regolith; the bottom layer represents bedrock

**Activity 2.** Discuss the pictures. Try to write all essential details and key words from these pictures.


**Activity 3.** Read the text attentively. Look for the main idea.

1 It seems everybody knows what is the soil itself. However the scientific interpretation of the soil differs from its general meaning. Let`s look for its interpretation in agricultural science.

**Soil** is a natural body consisting of layers (soil horizons) that are composed of minerals. But those minerals differ from their parent materials in their texture, structure, consistency, color, chemical, biological and other characteristics. It is known as the unconsolidated or loose covering of fine rock particles that covers the surface of the earth. Soil is commonly referred to as "earth" or "dirt" (technically, the term "dirt" should be restricted to displaced soil).

2 You can see a structure filled with pore spaces in soil forms. Soil can be thought of as a mixture of mineral and organic materials in the form of solids, gases and liquids. Accordingly, soils are often treated as a three-state system. Most soils have a density between 1 and 2 g/cm³.

3 Soil is composed of particles of broken rock (parent materials) which have been altered by physical, chemical and biological processes. Consequently, soil is altered from its original material by the interactions between the lithosphere, hydrosphere, atmosphere, and biosphere. Soil is influenced by some factors, such as the climate (temperature, precipitation), relief (slope), organisms (flora and fauna), parent materials (original minerals), and time.

**Activity 4.** Which of the paragraphs deals with the given ideas?

| **Ideas** | **Paragraphs** |
|---|---|
| According to the paragraph – soil is treated as many-stated thing and can be considered as a complex of solids, gases and water. | |
| This paragraph says about the soil referred to the climate influence, also about typical usage of “soil” as a term. | |
| This part deals with the layers of earth. | |

**Activity 5.** Match the word combinations in A with the words and word combinations in B-C.

| A | B | C |
|---|---|---|
| Soil is a natural body… | …the layer that contains organic material… | …(soil horizons) that are primarily composed of minerals. |
| In horticulture, the term 'soil' is defined as… | …that include weathering (disintegration) with associated erosion (movement). | …which have been altered by physical, chemical and biological processes |
| Soil is composed of particles of broken rock (parent materials)… | …consisting of layers… | …that influences and has been influenced by plant roots and may range in depth from centimetres to many metres. |

Translate the text into Uzbek. Make vocabulary record and learn new words by heart.

## SESSION V

## SOIL STRUCTURE

**Key words:** soil, mineralogical, aggregates, effect, sizes, aeration, intensive tillage, soil degradation, texture, organic matter content, biological activity, past soil evolution, human use, chemical conditions.

**Activity 1.** Answer the following questions:

- What can affect aeration, water movement or conduction of heat?
- What does water do due to its solution and precipitation of minerals?
- What improves or destroys the soil structure?

**Activity 2.** Write the following text using the words given in the box.

| Soil, ped, destroyed, forms, defined, mineralogical, aggregates, erosion, effect, sizes |
|---|

*Writing passage 11*

The clumping of the soil textural components of sand, silt and clay forms **aggregates** and the further association of those … into larger units forms soil structures called **peds**. The adhesion of the soil textural components by organic substances, iron oxides, carbonates, clays, and silica, and the breakage of those aggregates due to expansion-contraction, freezing-thawing, and wetting-drying cycles, shape soil into distinct geometric … . These peds evolve into units which may have various **shapes**, … and degrees of **development**[1]. A soil clod, however, is not a … but rather a mass of soil that results from mechanical disturbance. The soil structure affects aeration, water movement, conduction of heat, plant root growth and resistance to … . Water has the strongest effect on soil structure due to its solution and precipitation of minerals and its … on plant growth.

… structure often gives clues to its texture, organic matter content, biological activity, past soil evolution, human use, and the chemical and … conditions under

[1] file:///C:\Users\7\GTA-ViceCityMATRIX\Soil–Wikipedia,thefreeencyklopedia.mht#cite_note-8

which the soil formed. While texture is … by the mineral component of a soil and is an innate property of the soil that does not change with agricultural activities, soil structure can be improved or … by the choice and timing of farming practices.

**Activity 4.** Find the words to the definitions given below:

- The upper layer of earth, in which plants grow;
- A strong magnetic silvery-grey metal;
- Introducing air into something;
- A living thing that grows in the ground, having roots;

The liquid which forms the seas, lakes, rivers, and rain and is the basis of the fluids of living things.

**Activity 5.** Take part at the game: *"Past – Present – Future"*.

Re-grouped into three teams, you have to fill up the table with columns *"Past – Present – Future"*. Remember what information did you know on soil structure before this session and write in column *Past* all details; summarize what you have learned during this class and write in column *Present*; conclude what information would you like to learn more after the session, e.g. in the future. Write all predictions in column *Future*. Wins the team, which will write more information and details in the columns.

| **Teams** / **Columns** | **I team** | **II team** | **III team** |
|---|---|---|---|
| **Past** | | | |
| **Present** | | | |
| **Future** | | | |

Get ready for the retelling of the text.

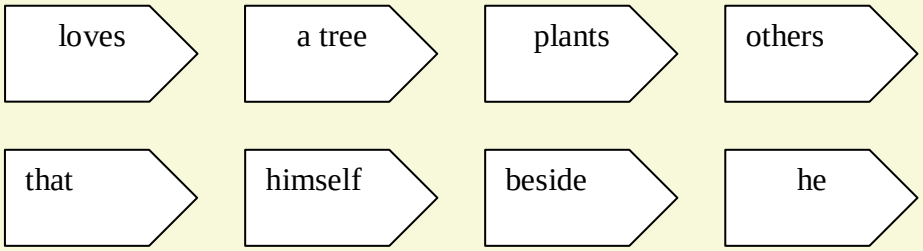
## SESSION VI

## PHYSICAL PROPERTIES OF SOILS

**Key words:** physical properties of soils, porosity, consistency, temperature, colour, resistivity, porosity, consistency, temperature, resistivity, infiltrate, relative proportion, kinds of soil particles, soil "separates", sand, silt, clay, iron oxides, carbonates, silica, organic constituent humus, coat particles, stable secondary structures, bulk density, depth of a soil profile, soil volume.

**Activity 1.** Playing a game: “Seat-changing”.

Teacher sticks the pieces of papers on students` backs. It is one of the wise-sayings of Thomas Fuller. Students must reorder the words for making the whole sentence by changing their seats (without knowing the stick-words stuck on their backs).




**Activity 2.** Tell about the meaning and actuality of the proverb, make discussion.

**Activity 3.** Fill in the gaps using to be in appropriate forms of verbs and write down full text in your notebook.

*Writing text 1*

Let`s speak about physical state of soil. The physical properties of soils … (be) **texture**, **structure**, **density**, **porosity**, **consistency**, **temperature**, **colour** and **resistivity**. Most of these … (determine) the aeration of the soil and the ability of water to infiltrate and to be held in the soil.

**Soil texture** … (be, determine) by the relative proportion of three kinds of soil particles. They are called soil "separates": sand, silt, and clay.

Do you know what are **“peds”**? Peds are larger soil structures and they … (be, create) from the separates when iron oxides, carbonates, clay, and silica with the organic constituent humus, coat particles, and cause them to adhere into larger, relatively stable secondary structures.

The main measure of soil **density**, particularly bulk density … (be) a soil compaction.
So the soil **porosity** … (consist) of the part of the soil volume occupied by air and water.
**Consistency** … (be) the ability of soil to stick together.
**Soil temperature and colour** … (be) self-defining. So according to these factors soils can be recognized and regrouped into classes.
**Resistivity** may … (refer) to the resistance to conduction of electric currents and … (affect) the rate of corrosion of metal and concrete structures. The properties … (may) vary through the depth of a soil profile.

**Activity 4.** Look for the specific information of the text. Choose the title for it. Explain the reason of your choice.

**Activity 5.** Do the following statements agree with the information in Reading Passage? In boxes 1-3 on your answer sheet write. Time – 10 min.

***TRUE (T)*** ***if the statement agrees with the information***
***FALSE (F)*** ***if the statement contradicts the information***
***NOT GIVEN (NG)*** ***if there is no information on this passage***

| | |
|---|---|
| | Soil texture is determined by the relative proportion of the three kinds of soil particles, called soil "separates": sand, silk, and clay. |
| | Consistency is the ability of soil to stick together, e.g. agglutinate or paste. |
| | Resistivity refers to the resistance to conduction of electric currents and affects the rate of corrosion of metal and concrete structures. |

Make the presentation on physical properties of soils.

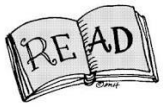
## SESSION VII

## THE MINERAL COMPONENTS OF SOIL

**Key words:** mineral constituents, soil behaviour, dissolved minerals, specific surface area, unbalanced ionic charges, cation exchange capacity, chemically active, rock fragments, primarily quartz particles, optical microscope, rock, gravel, gravelly sandy loam, mineral fraction, organic matter.

**Activity 1.** Answer the following pre-reading questions:

a) Can you tell about the structure of soil?
b) What components do you consider the soil is made of?
c) Do you differentiate organic soil from the mineral soil?




**Activity 2.** Skim over the following text (quickly) and look for the words referring to the definitions given in the table:

| Definition | Paragraph | Word |
|---|---|---|
| Ground, earth, land, country | 1 | ? |
| To receive something good | 2 | ? |
| Related to the supposed ability of the human mind to sense things that can not be observed | 3 | ? |
| One part of a system or whole | 2,3 | ? |
| Ability of a living thing to act or function independently | 3 | ? |

*Reading passage 10*

1 When we talk about soil`s texture we always mention it`s mineral components of soil, sand, silt and clay. The mineral constituents of a loam soil might be 40% sand, 40% silt and the balance 20% clay by weight. Soil texture affects soil behavior, in particular its retention capacity for nutrients and water.

2 Sand and silt are the products of physical and chemical weathering; clay, on the other hand, is a product of chemical weathering, but often forms as a secondary mineral precipitated from dissolved minerals. It is considered as the specific surface area of soil particles. The unbalanced ionic charges exchange capacity of soil, and hence its fertility.

3 Sand is least active, followed by silt; clay is the most active. Sand's greatest benefit to soil is that it resists compaction and increases porosity. Silt is mineralogically like sand but with its higher specific surface area it is more chemically active than sand. But it is the clay content, with its very high specific surface area and generally large number of negative charges, that gives a soil its high retention capacity for water and nutrients. Clay soils also resist wind and water erosion better than silty and sandy soils, as the particles are bonded to each other.

**Activity 3.** Choose the title for the passage.

**Activity 4.** Put the headings to the paragraphs independently. Explain your choice.

**Activity 5.** Using **NO MORE THAN FOUR WORDS** from the passage, answer the following questions. Write your answers on your paper-sheet.

1. What does affect the soil texture?
2. What do clay soils also resist better than silty and sandy soils, as the particles are bonded to each other?
3. Where is the clay often washed downward through the soil profile and accumulates?
4. What kind of soil components are classed as rock and gravel?
5. According to the text, how is called the soil rather than mineral soil?

Look for other sources on soil. Try to analyze them.

## SESSION VIII

## FERTILIZER

**Key words:** fertilizer moisture, harm, nutrient, oxygen, hydrogen, carbon, liquid, solid.

**Activity 1.** Look at the pictures and predict what is being discussed.


A


B

C


**Activity 2.** Read the passage carefully and note new words.

**Fertilizer** (or **fertiliser**) is any organic or inorganic material of natural or synthetic origin (other than liming materials) that is added to a soil to supply one or more plant nutrients essential to the growth of plants. Conservative estimates report 30 to 50% of crop yields are attributed to natural or synthetic commercial fertilizer.

Fertilizers come in various forms. The most typical form is solid fertilizer in granulated or powdered forms. The next most common form is liquid fertilizer; some advantages of liquid fertilizer are its immediate effect and wide coverage.

There are also slow-release fertilizers (various forms including fertilizer spikes, tabs, etc.) which reduce the problem of "burning" the plants due to excess nitrogen. Polymer coating of fertilizer ingredients gives tablets and spikes a 'true time-release' or 'staged nutrient release' (SNR) of fertilizer nutrients.

More recently, organic fertilizer is on the rise as people are resorting to environmental friendly (or 'green') products. Although organic fertilizers usually contain a lower concentration of nutrients, this lower concentration avoids complication of nitrogen burn harming the plants. In addition, organic fertilizers such as compost and worm castings break down slowly into complex organic structures (humus) which build the soil's structure and moisture- and nutrient-retaining capabilities.

**Activity 3.** Give the explanation of the following statements by your own words.

Fertilizer –
solid fertilizer –
liquid fertilizer –
slow-release fertilizers –
organic fertilizer –

**Activity 4.** Multipal choice.

1.Fertilizer added to the soil to …
a) cultivate the plant
b) grow the plant
c) pick the plant
d) watering the plant

2.Choose the correct form of the fertilizer forms.
a) solid fertilizer, organic fertilizer, slow-release fertilizers, carbon fertilizer
b) liquid fertilizer, organic fertilizer, solid fertilizer, nutrient fertilizer
c) organic fertilizer, slow-release fertilizers, liquid fertilizer, solid fertilizer
d) solid fertilizer, organic fertilizer, carbon fertilizer, nutrient fertilizer

3.Which fertilizer reduced the problem of burning
a) slow-release fertilizers
b) liquid fertilizer
c) carbon fertilizer
d) solid fertilizer

4. Organic fertilizers usually contain a lower concentration of nutrients, this lower concentration avoids
a) growing plants
b) harming plants
c) cultivate plants
d) watering plants

**Activity 5.** Find out Participle II from the text and separate them in “regular” and “irregular” forms.

Learn new materials and sources on the topic.

# UNIT 3

# WATER AND WATER USE

**SESSION IX**
**WATER**

**Key words:** water, compound, liquid, tasteless, solvent, states of matter, heavy water, temperature scales.

**Activity 1.** Look at the picture and tell what is being discussed.


**Activity 2**. Reading Passage 9.

Water is the source of life and civilization. Without it nothing can survive in the world. Humanity can develop only on the base of water and everything in the nature is balanced because of the water. That's why it is considered as the most essential and needful element of all.

**Water** (H2O) is the most abundant compound on Earth's surface, covering about 70 percent of the planet. Naturally, water exists in liquid, solid, and gaseous states. Usually we meet indynamic equilibrium between the liquid and gas states at standard temperature and pressure. At room temperature, it is a tasteless and odorless liquid, nearly colorless with a hint of blue.

Perhaps, you have already observed that many substances dissolve in water and that`s why it is commonly referred to as *the universal solvent*. Because of this, water in nature (or natural water as we call it) and in use is rarely pure. Analogically, some of its properties may vary slightly from those of the pure substance (However, there are also many compounds that are essentially, if not completely, insoluble in water).

Do you know water is the only unique substance found naturally in all three common states of matter? Yes, it is the three-stated element and *it is essential for all life on Earth*. Another interesting fact is that water usually makes up 55% to 78% of the human body. It says about necessity of it in the life and great demand of it for human being is growing day by day.

**Activity 3.** Fill in the gap of the following statements and explain the meaning of the missing words.

In nature, … exists in liquid solid, and gaseous states. It is in … between the … and gas states at standard temperature and pressure. At….., it….. and odorless liquid, nearly colorless with a …. .
Many substances dissolve in water and it is commonly referred to as *the universal… .*

**Activity 4.** Do the following statements agree with the information in Reading Passage 9?

***YES (Y)*** ***if the statement aggress with the information***
***NO (N)*** ***if the statement contradicts the information***
***NOT GIVEN (NG)*** ***if there is no information on this passage***

| | |
|---|---|
| The first decomposition of water into hydrogen and oxygen, by electrolysis, was done in XX century | |
| Water (H2O) is the most plentiful compound on Earth`s surface, covering about 70 percent of the planet. | |
| In nature, water exists in liquid, solid, and energies states. | |
| Water can use affectively by human being | |

**Activity 5.** Read the sentences and choose the correct words from the text.

The most useful compound of the Earth.
Water is tasteless and order less.
Many sustances dissolve in water.
Water consists 55 or 78%.
Water is composed of two parts.

**Activity 6.** Learn some essential details on the history of water. Take some notes and make some questions to the given statements.

*History*

The first decomposition of water into hydrogen and oxygen, by electrolysis, was done in 1800 by an English chemist William Nicholson. In 1805, Joseph Louis Gay-Lussac and Alexander von Humboldt showed that water is composed of two parts hydrogen and one part oxygen.
Gilbert Newton Lewis isolated the first sample of pure heavy water in 1933.
The properties of water have historically been used to define various temperature scales. Notably, the Kelvin, Celsius, Rankine, and Fahrenheit scales were, or currently are, defined by the freezing and boiling points of water. The less common scales of Delisle, Newton, Réaumur and Rømer were defined similarly. The triple point of water is a more commonly used standard point today[2].

Get ready for the retelling of the given material and look for other arguments on this topic.

**SESION X**
**WATER STRUCTURE**

**Key words:** liquid phase, solid phase, granular, crystals, ice cubes, amorphous, gaseous phase, water vapor, supercritical fluid, critical temperature, critical pressure, hydrothermal vents, volcanic plumes, deuterium, Heavy water, neutrons, light water

**Activity 1.** Pre-reading questions.

1. Have you ever heard about the types of the water?
2. How can you explain heavy, liquid and light water?


**Activity 2.** Reading passage 10. Read the following text carefully.

As it was mentioned in the previous passage, water can be met in the three states (liquid, solid and gaseous). But today you are going to study the fourth state of water in the nature. Let`s study them in order.

The states of the water are also broadly categorized by **phase of matter**. The *liquid phase* of them is the most common among water's phases (within the Earth's atmosphere and surface) and it is interesting to sign that it is generally denoted by the word "water." The *solid phase* of water is known as ice and commonly takes hard, amalgamated crystals structure (such as ice cubes, or loosely accumulated granular crystals, like snow). The *gaseous phase* of water is known to everybody as water vapor (or steam). Consequently, it is characterized

[2] http://en.wikipedia.org/wiki/Properties_of_water

by water assuming the configuration of a transparent cloud. (Note that visible steam and clouds are, in fact, water in the liquid form as minute droplets suspended in the air.)

As in above-stated paragraph, there is the fourth state of the water in the nature and it is interesting fact. Have you ever heard about *supercritical fluid*? It is considered as the fourth state of the water and is much less common than the other three. Additionally, this type of water only rarely occurs in nature, in extremely uninhabitable conditions. When water achieves a specific critical temperature and a specific critical pressure (647 K and 22.064 MPa), liquid and gas phase merge to one homogeneous fluid phase and express its properties of both gas and liquid. One example of naturally occurring supercritical water is found in the hottest parts of deep water hydrothermal vents, in which water is heated to the critical temperature by scalding volcanic plumes and achieves the critical pressure because of the crushing weight of the ocean at the extreme depths at which the vents are located.

**Heavy water** is water with a higher-than-average deuterium content, up to 100%. Chemically, it is similar but not identical to normal water. This is because the nucleus of deuterium is twice as heavy as protium, and this causes noticeable differences in bonding energies. Because water molecules exchange hydrogen atoms with one another, hydrogen deuterium oxide (DOH) is much more common in low-purity heavy water than pure dideuterium monoxide ($D_2O$). Humans are generally unaware of taste differences, but sometimes report a burning sensation or sweet flavor. Rats, however, are able to avoid heavy water by smell. Toxic to many animals, heavy water is used in the nuclear reactor industry to moderate (slow down) neutrons. Light water reactors are also common, where "light" simply designates normal water.

**Light water** more specifically refers to deuterium-depleted water (DDW), water in which the deuterium content has been reduced below the standard 155 ppm level.

Concluding, it is important to say studying the structure of water in nature may give us ideas how to keep it safe and poor for us and future generation.

**Activity 3.** Match the box A with B one.

| A | B |
|---|---|
| composed of molecules that move freely among themselves but do not tend to separate like those of gases | nuclear |
| having a grainy or granulated | deuterium |

| | |
|---|---|
| surface | |
| an isotope of hedrogen with one proton and one neutron in the nucleus having an atomic weight of 2014. | gas |
| relatively great expansion and contraction with changes in pressure and temperature | granular |
| pertaining to or involving atomic weapons | solid |
| Frim or compact in subtance | liquid |

**Activity 4.** Complete the sentences by your own understandings.

Solid water
Heavy water
Light water

**Activity 5.** List adjective + noun word combination from the text and tell the translation of them.

Learn new words and wordcombinations.

**SESSION XI**

**IRRIGATION**

**Key words:** irrigation, fresh water, large-scale farming, rivers, lakes, reservoirs, wells, seeds, first plants, irrigation techniques, water sources, evaporation, evapotranspiration.

**Activity 1.** Pre-reading questions:
Before reading the following text work with a partner and ask and answer the questions below. Base your answers on your possible knowledge of the topic:

- *How do you think and imagine the first invention of a man how to grow plants?*
- Does water used by men eventually return to the environment?

- *What are the natural and artificial applications of water?*

**Activity 2.** Re-grouped into three groups do the following tasks:

a) pay attention to the proverb:

***Knowledge is like a garden: if it is not cultivated, it cannot be harvested*** *(African proverb).*

b) be attentive to the metaphors used in the saying. What do they describe? Discuss it with your partners and other teammates.

c) choose proverbs in English and Uzbek languages similar to the meaning of this proverb.


**Activity 3.** Read the Reading Passage 1 attentively and translate it into Uzbek.

*Reading Passage 1.*

Think of what your supper table might be like if water was not used to irrigate crops. Do you think you could survive very long without heaping servings of eggplant, beets, brussels sprouts, and rutabagas? Irrigation water is essential for keeping fruits, vegetables, and grains growing to feed the world's population, and this has been a constant for thousands of years.

Throughout the world, irrigation (water for agriculture, or growing crops) is probably the most important use of water (except for drinking and washing a smelly dog, perhaps). Almost 60 percent of all the world's freshwater withdrawals go towards irrigation uses. Large-scale farming could not provide food for the world's large populations without the irrigation of crop fields by water gotten from rivers, lakes, reservoirs, and wells. Without irrigation, crops could never be grown.

Irrigation has been around for as long as humans have been cultivating plants. Man's first invention after he learned how to grow plants from seeds was probably a bucket. Ancient people must have had strong backs from having to haul buckets full of water to pour on their first plants. Pouring water on fields is still a common irrigation method today—but other, more efficient and mechanized methods are also used. One of the more popular mechanized methods is the center-pivot irrigation system, which uses moving spray guns or dripping faucet heads on wheeled tubes that pivot around a central source of

water. The fields irrigated by these systems are easily seen from the air as green circles. There are many more irrigation techniques farmers use today, since there is always a need to find more efficient ways to use water for irrigation.

**Activity 4.** Choose the title for the passage. Explain the reason of your choice.

**Activity 5.** Put headings to the paragraphs:

- Water returning to the environment
- Ancient people and irrigation
- No very long surveying without irrigation
- Artificial application of water
- Irrigation throughout the world

Write an essay on the theme: "Water in our life".

**SESSION XII**

**IRRIGATION: ARTIFICIAL APPLICATION OF WATER**

**Activity 1. Pre-reading questions:**

- How do you define the terms "usable", "unusable", and "reusable", towards the water?
- What do you know about returning the water used by human to the environment?
- Describe the ways of loosing water in use?

**Activity 2.** Read the Reading Passage. Do the following statements agree with the information in Reading Passage? In boxes 1-3 on your answer sheet write. Time – 5 min.

***YES (Y)*** ***if the statement agrees with the information***
***NO (N)*** ***if the statement contradicts the information***
***NOT GIVEN (NG)*** ***if there is no information on this passage***

| | |
|---|---|
| | Irrigation is the natural application of water to the land or soil. |
| | Irrigation systems are also used for dust suppression, disposal of sewage, and in mining. |

| | |
|---|---|
| | Irrigation is seldom studied together with drainage, which is the natural or artificial removal of surface and sub-surface water. |

Water is an essential element for our being and surviving. When we use water in our home, or when an industry uses water, about 90 percent of the water used is eventually returned to the environment where it replenishes water sources (water goes back into a stream or down into the ground) and can be used for other purposes. But of the water used for irrigation, only about one-half is reusable. The rest is lost by evaporation into the air, evapotranspiration from plants, or is lost in transit, by a leaking pipe, for example.

We used to call irrigation as the artificial application of water to the land or soil, because natural sources of watering the plants (raining, snowing, flooding etc.) aren`t irrigation means as themselves. It is used to assist in the growing of agricultural crops, maintenance of landscapes, and revegetation of disturbed soils in dry areas and during periods of inadequate rainfall. Additionally, irrigation also has a few other uses in crop production, which include protecting plants against frost, suppressing weed growing in grain fields and helping in preventing soil consolidation. In contrast, agriculture that relies only on direct rainfall is referred to as rain-fed or dryland farming. Irrigation systems are also used for dust suppression, disposal of sewage, and in mining. Irrigation is often studied together with drainage, which is the natural or artificial removal of surface and sub-surface water.

**Activity 3.** Find the words to the definitions.

a) a formal request for assistance, employment, admission to a school, etc.
b) preparing the land to grow crops.
c) to continue living.
d) the supplying of water to dry land.

**Activity 4.** Using **NO MORE THAN THREE WORDS** from the passage, answer the following questions. Write your answers on your paper-sheet.

1. What kind of application deals the irrigation with?
2. Is irrigation the artificial application of water to the land or soil?
3. Is drainage considered as the natural or artificial removal of surface and sub-surface water?

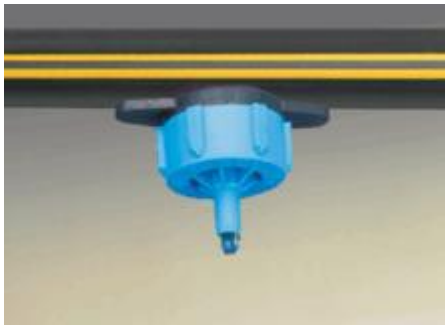
Look for other sources on irrigation. Summarize the views about irrigation and drainage and make your own conclusion on importance of them in your area.

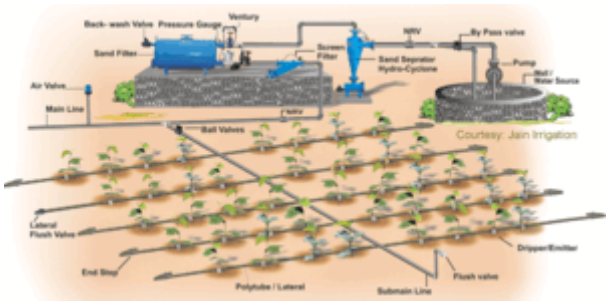
## SESSION XIII

## TYPES OF IRRIGATION

**Key words:** drip irrigation, trickle irrigation, position of roots, root zone, water-efficient method, irrigation techniques, surface irrigation systems, flood irrigation, localized irrigation.

**Activity 1. Pre-reading.** Look at the pictures below and tell your understanding.







**Activity 2.** Teacher regroups students to two or three groups, orders them to read 4 paragraphs from the Reading Passage attentively (A).

**A.** Reading passage.

Do you know what is drip irrigation and how does it function? **Drip irrigation**, also known as *trickle irrigation*, functions as its name signs. The water in this system falls drop by drop just at the position of roots (water is delivered at or near the root zone of plants, drop by drop). It is important to manage this process properly that the method can be the most water-efficient method of irrigation.

It is known that various types of irrigation techniques (methods) differ in how the water obtained from the source distributed within the field. In general, the goal is to supply the entire field uniformly with water, so that each plant has the amount of water it needs, neither too much nor too little. The modern methods are efficient enough to achieve this goal. The irrigation techniques are commonly divided into drip irrigation, surface irrigation and localised irrigation.

In **surface irrigation** systems, water moves over and across the land by simple gravity flow in order to wet it and to infiltrate into the soil. Surface irrigation can be subdivided into *furrow, borderstrip or basin irrigation*. It is often called **flood irrigation** when the irrigation results in flooding or near flooding of the cultivated land. Historically, this has been the most common method of irrigating agricultural land.

**Localized** irrigation is a system where water is distributed under low pressure through a piped network, in a pre-determined pattern, and applied as a small discharge to each plant or adjacent to it. Drip irrigation, spray or micro-sprinkler irrigation and bubbler irrigation belong to this category of irrigation methods.

**B.** Participants must order them by numbering and make the whole topic (B).

**Activity 2.** Choose the title for the passage. Explain your choice.

**Activity 3**. Match each topic in A with two items in B.

| A | B |
|---|---|
| **Drip irrigation** | applied as a small discharge to each plant<br>water falls drop by drop |
| **Surface irrigation** | subdivided into furrow, *borderstrip or basin irrigation* trickle irrigation |
| **Localized irrigation** | water is distributed under low pressure flood irrigation |

**Activity 4.** Fill in the gaps and complete the text with the words in the box.

| *Water* | *Types* | *Source* |
|---|---|---|

| | | |
|---|---|---|
| *Plant* | *Efficient* | *Supply* |

*Various … of irrigation techniques differ in how the water obtained from the … distributed within the field. In general, the goal is to … the entire field uniformly with …, so that each … has the amount of water it needs, neither too much nor too little. The modern methods are … enough to achieve this goal.*

Translate the text in written form. Compare the definitions and interpretations in your manuals and encyclopedias (in your native language).

## SESSION XIV

## SPRINKLER

**Key words:** sprinkler or overhead irrigation, central locations, high-pressure sprinklers or guns, higher pressure, industrial applications, moving platforms, waste water, cable-type travelers, modern irrigation projects.

**Activity 1.** Prediction. Look at the illustration below. With a partner if possible, try to predict exactly what is being discussed.


**Activity 2.** Read the passage carefully.

*Reading Passage 3.*

Sprinklers are the most essential device of present irrigation in the world, specifically in Uzbekistan that are used not only for watering plants, but for dust suppression as well. We meet them in our gardens and fields, and we can monitor their mechanism and structure: *water is piped to one or more central locations within the field here* and distributed by overhead high-pressure sprinklers or guns. A system utilizing sprinklers, sprays, or guns mounted overhead on permanently installed risers. Higher pressure sprinklers that rotate are called *rotors* and are

driven by a ball drive, gear drive, or impact mechanism. Rotors can be designed to rotate in a full or partial circle.

You can see another type of sprinklers, which are mounted on moving platforms connected to the water source by a *hose.* Automatically moving wheeled systems known as *traveling sprinklers* and they may irrigate areas such as small farms, sports fields, parks, pastures, and unattended cemeteries. This type of the system is known to most people as a *"water reel traveling irrigation sprinkler"* and they are used extensively for dust suppression, irrigation, and land application of waste water. Other travelers use a flat rubber hose that is dragged along behind while the sprinkler platform is pulled by a cable. These cable-type travelers are definitely old technology and their use is limited in today's modern irrigation projects.

As it was mentioned above, sprinklers and sprinkler-use are very important and actual for today means which need to be developed in the future not only plant-growing, irrigating and decorating, but also for keeping the fresh air and environment, for solving some ecological and human (biological) problems as well.

**Activity 3.** Find 10 verbs dealt with irrigation.

**Activity 4.** Match the words in A with the words in B and complete the sentences.

*Example:* Automatically moving wheeled systems known as traveling sprinklers.

| **A** | **B** |
|---|---|
| Water is piped to … | traveling sprinklers |
| Automatically moving wheeled systems known as … | the sprinkler is pulled across the field. |
| When the sprinkler arrives back at the reel … | one or more central locations within the field |
| As the tubing is wound on the drum powered by the irrigation water or a small gas engine… | the system shuts off. |

**Activity 5.** Write the new word and phrases; compare your previous vocabulary record with the new one. Learn them by dictionaries.

**Activity 6.** Choose the synonyms or appropriate definitions from column B to the following words from column A.

| | |
|---|---|
| Feature(n) | To find an original way to make an object or plan |
| Sprinkler(n) | Characteristic |
| Devise(v) | Put together with one or more other parties |
| Joined(adj) | Machine |
| Mounted(adj) | Construction, building |
| System(n) | Bunch, cluster |
| Truss(n) | Fixed or fitted |

1. Try to record new vocabulary from the text and learn their usage in situations.
2. Make the questions to the textual points.

**SESSION XV**

**SUB-IRRIGATION**

**Key words:** artificially raising, permanent grasslands, river valleys, drainage infrastructure, pumping stations, commercial greenhouse, potted plants, nutrients, automation, subsurface.

**Activity 1.** Re-order the words in the mystery questions below:

1. *artificially is of method the a water raising table It?*
2. *greenhouse is sub-irrigation in commercial also production used?*

**Activity 2.** Gapfill. Fill in the gaps using Present forms of the verbs given in brackets.

1 Sub-irrigation … (have, be) used for many years in field crops in areas with high water tables. It … (be) a method of artificially raising the water table to allow the soil to be moistened from below the plants' root zone. Often those systems … (be) located on permanent grasslands in lowlands or river valleys and combined with drainage infrastructure. A system of pumping stations,

canals, weirs and gates … (allow) it to increase or decrease the water level in a network of ditches and thereby control the water table.[3]

2 Sub-irrigation … (be) also used in commercial greenhouse production, usually for potted plants. Water … (be) delivered from below, absorbed upwards, and the excess collected for recycling. Typically, a solution of water and nutrients … (flood) a container or … (flow) through a trough for a short period of time, 10–20 minutes, and is then pumped back into a holding tank for reuse. Sub-irrigation in greenhouses … (require) fairly sophisticated, expensive equipment and management. Advantages (be) water and nutrient conservation, and labor-saving through lowered system maintenance and automation. It … (be) similar in principle and action to subsurface drip irrigation.

**Activity 3.** Multiple choice questions:

1. Sub-irrigation has been used for many years in …

a) mountains high covered with snow
b) field crops in areas with high water tables
c) rivers
d) valleys

2. Sub-irrigation is also used in…

a) commercial offices
b) institutes for irrigation
c) scientific laboratory
d) commercial greenhouse production.

3. Water and nutrient conservation, and labor-saving through lowered system maintenance and automation … What are they?

a) advantages of sub-irrigation
b) disadvantages of sub-irrigation
c) results of irrigation
d) causes of irrigation

**Activity 4.** TRUE/FALSE/NOT GIVEN. Refer to the text and sign:

| | |
|---|---|
| ***True (T)*** | ***if the statement agrees with the information*** |
| ***False (F)*** | ***if the statement contradicts the information*** |
| ***NOT GIVEN (NG)*** | ***if there is no information on this passage*** |

[3] http://en.wikipedia.org/wiki/Subirrigation

| | |
|---|---|
| | A system of pumping stations, canals, weirs and gates … (allow) it to increase or decrease the water level in a network of ditches and thereby control the water table. |
| | Flue is delivered from below, absorbed upwards, and the excess collected for recycling. |
| | A solution of water and nutrients floods a container or receptacle, repository of water or flows through a trough for a short period of time. |

**Activity 5.** Find the single words in paragraph 1 which mean the following.

i. territory, region ……..
ii. harvest ……..
iii. enlarge, intensify……..
iV. hothouse , conservatory……

**Activity 6.** Matching Sentence Halves: Refer to the text and match the halves of the given sentences together:

a. Subirrigation has been used… + ……
b. A system of pumping stations, canals, weirs and gates … +……..
c. Sub-irrigation is also used in commercial greenhouse production, usually … +……
d. Sub-irrigation in greenhouses … +……
e. never in plants protection.
f. for many years.
g. completed by engineers.
h. allows it to increase or decrease the water level in a network of ditches and thereby control the water table.
i. requires fairly sophisticated, expensive equipment and management.
j. only in fields.
k. for potted plants.
l. by containers full with water and nutrients.

Make up the special questions to the sentences from the text.

## SESSION XVI

## SOURCES OF IRRIGATION WATER

**Key words:** irrigation water sources, spate irrigation, floodwater harvesting, non-conventional sources, treated wastewater, desalinated water, drainage water, spate irrigation, floodwater harvesting, dry river beds, runoff water, rainwater harvesting, water pollution, lucrative markets.

**Activity 1.** Pre-reading questions: Before reading the following text work with a partner and ask and answer the questions below. Base your answers on your possible knowledge of the topic:

- *What type of irrigation water sources do you know?*
- *What is the spate irrigation?*
- *How do you imagine the floodwater harvesting?*

**Activity 2.** Now, supply the missing first and third letters in the mystery questions below.

1. –h- -p-te -r-igation -s -l-o -a-led -l-odwater –a-vesting?
2. –h-t -h- -o-ld -e-lth -r-anization -a- -e-eloped -u-delines -o-?


**Activity 3.** Read the text once for the gist (overall idea) and then in detail:

*Reading Passage 6*

Let`s discuss the sources of irrigation today. Do you know what sources are there in the world irrigation system and in Uzbekistan as well?

Specialists in irrigation divide them (the sources) into:

- Groundwater;
- Surface water;
- Non-conventional sources.

Each of them is divided into some intra-groups in itself. For learning irrigation it is useful and actual to study each source as it is.

So, the sources of irrigation water can be **groundwater** extracted from *springs* or by using *wells*, **surface water** withdrawn from *rivers, lakes* or *reservoirs* or non-conventional sources like *treated wastewater, desalinated water* or *drainage water*. A special form of irrigation using surface water is *spate irrigation*, also

called *floodwater harvesting*. In case of the flood (spate) water is diverted to normally dry river beds (wadis) using a network of dams, gates and channels and spread over large areas. Spate irrigation areas are in particular located in semi-arid or arid, mountainous regions. It is actual to know that floodwater harvesting belongs to the accepted irrigation methods, but rainwater harvesting is usually not considered as a form of irrigation. Rainwater harvesting is the collection of runoff water from roofs or unused land and the concentration of this. Some of Ancient India's water systems were pulled by oxen.

Now it is time to speak on **non-conventional sources** of irrigation. it is known around 90% of wastewater produced globally remains untreated, causing widespread water pollution, especially in low-income countries. Consequently, agriculture in Uzbekistan also is using untreated wastewater as a source of irrigation water. Cities provide lucrative markets for fresh produce, so are attractive to farmers. There is often no alternative for farmers but to use water polluted with urban waste, including sewage, directly to water their crops. There can be significant health hazards related to using water loaded with pathogens in this way, especially if people eat raw vegetables that have been irrigated with the polluted water.
We can conclude here natural and artificial sources (or the types of irrigation sources classified above) of irrigation are the main actual subjects (let it say problems) for today which need to be solved as they closely connected with human being and preservation of environment.

**Activity 4.** Write the new words and phrases into your dictionary; write down new sentences with them.

reservoirs
non-conventional sources
treated wastewater
desalinated water
drainage water
spate irrigation.

**Activity 5.** Within the group try to do the following task.

Continue on making glossary. Be attentive at giving their meanings by other words, also their expressions in the sentences.

## SESSION XVII

## DRAINAGE

**Key words:** sown, plough, ridge, sandy, clay, cattle, sub-surface water, drain, dig

**Activity 1.** Look at the following pictures. And answer the pre-reading questions.

1. Explain the following picture. What do you see in the picture?
2. What are the advantages of it for human being?

**Activity 2.** Read the following passage carefully.

Perhaps, there is not anybody who doesn`t know anything about the drainage and draining. Because it is the popular way of ancient and present-day irrigation everywhere. So the **drainage** is considered as the natural or artificial removal of surface and sub-surface water from an area. Many agricultural soils need drainage to improve production or to manage water supplies.

The best time for this operation is always in spring or summer, when the ground is dry. Main drains ought to be made in every part of the field where a cross-cut or open drain was formerly wanted; they ought to be cut four feet (1.2 m) deep, upon an average. This completely secures them from the possibility of being damaged by the treading of horses or cattle, and being so far below the small drains, clears the water finely out of them. In every situation, pipe-turfs for the main drains, if they can be had, are preferable. Analogically, If good stiff clay, a single row of pipe-turf and if sandy, a double row.

It is clear from the above-stated method of draining that the expense will vary very much, according to the quantity of main drains needful for the field, also the distance of the small drains from each other, and the distance the turf is to be carried.

**Activity 3.** Do the following statements agree with the information in Reading Passage 19? In boxes 1-4 on your answer sheet write. True, false not given.

***True (T)*** ***if the statement agrees with the information***
***False (F)*** ***if the statement contradicts the information***
***NOT GIVEN (NG)*** ***if there is no information on this passage***

| | |
|---|---|
| Drainage is not necessary for agricultural soil | |
| Main drains should be cut four feet (1.2 m) deep. | |
| Drainage is done by human hands. | |
| The pit method of draining is not a very effectual one | |

**Activity 4.** Match the definition with the table A and B.

| | |
|---|---|
| A<br>BRidge | waste matter carried away in sewers or drains |
| Dig | To make available for use; provide. |
| plough | To break up, turn over, or remove (earth or sand, for example), as with a shovel, spade, or snout, or with claws, paws or hands. |
| cattle | an agricultural implement with sharp blades, attached to a horse, tractor, etc., for cutting or turning over the earth |
| sewerage | a long narrow raised land formation with sloping sides esp one formed by the meeting of two faces of a mountain or of a mountain buttress or spur |
| Supply | Any of various chiefly domesticated mammals of the genus *Bos,* including cows, steers, bulls, and oxen, often raised for meat and dairy products. |

**Activity 5.** Draw the effective way of using drainage.

Learn new words.

# UNIT 4

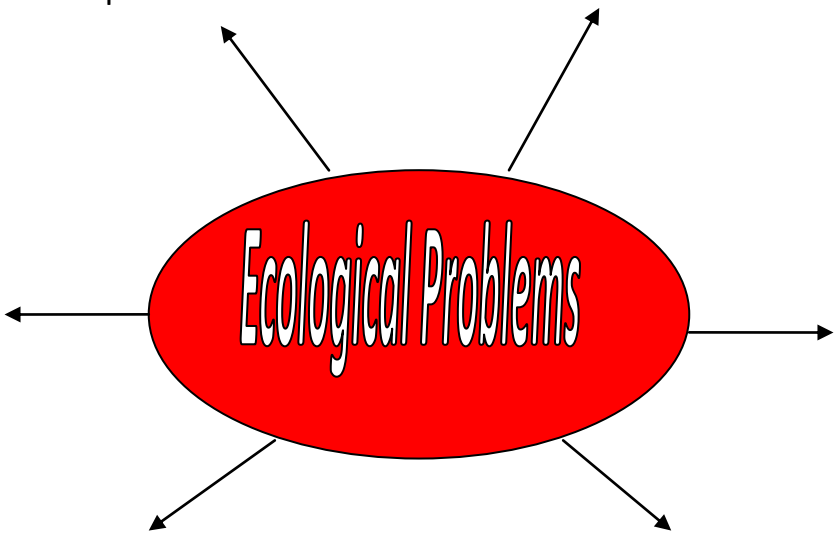
# ECOLOGICAL PROBLEMS & HEALTH CARE

## SESSION XVIII

## ECOLOGICAL PROBLEMS

**Key words:** acid rain, reduce, disease, destruction, pollution, utilization, equilibrium, ecological crises, harmony.

**Activity 1.** Teacher orders students to cluster the word, in which "Ecological problems" was written. Students should write down their opinions about this word.





**Activity 2.** Read the passage carefully.

Since ancient times Nature has served Man, being source of his life.

For thousand of years people lived in harmony with environment and it seemed to them natural riches were unlimited. But with the development of civilization man's careless interaction with nature a sign of ecological crises. Many cities suffer from smog. Vast forest burn in fire. A number of rivers and lakes dry up. Today life on the Earth is in danger: man himself might destroy the equilibrium of ecosystem by pollution and utilization of the globe's material resources. Best control is also important problem. The world "ecology" was born 19th century. The destruction of nature gradually led to the loss of the most essential element of existence, a healthy biological habitat. Environmental pollution increases the cares of disease, raises the cost of medical services reduce the life span of a man. By now the pollution and poising of the soil water and air have reached a critical level.

Environmental pollution has become significant obstacles to economic growth. This discharge of dust and gas into the atmosphere returns to the Earth in the

from of “acid rain “affects crop the quality of forests the amount of fish. To this we can add the rise of chemicals radioactivity noise and others types of pollution.

Economic, social technological and biological process have become so interdependent that modern produce on must seen as s complex economic system . It is wrong to see economy and ecology as diametrically opposed: such an approach inevitable leads to one extreme or the other.

Some progress has been already made in this direction more than 159 countries members of the UNO have set up environmental protection agencies. Numerous conferences have been held by these agencies to discus questions of ecologically poor regions including the Aral Sea. The international organization “Green Pease “ is also doing much to preserve the environment.

But these are only the initial steps and they must carried forward to protect nature , to save life on the planet not only for the sake of the presents but also for the future generations.

**Activity 3.** Choose the words and word combinations concerning the theme from the word given above.

Harmful substances, education, university, nuclear power stations, newspaper, deforestation, teapot, mountains, wonderful, ozone depletion, plane, field, acid rains, global warming, society, conflict, natural, greenhouse effect, century, system industrial and nuclear waste.

**Activity 4.** Name the pictures. Which ecologic problems are they?

**Activity 5.** Draw a picture on the theme "Advantages and disadvantages of the environment" and explain your drawings.

Find out more information about "Global problem" from internet sources and discuss it in class.

## SESSION XIX

## AFFORESTATION

**Key words:** topsoil, over-harvesting, livestock, overgrazing, environmental, biodiversity, carbon capture, reforestation.

**Activity 1.** Pre-reading question.

Look at the picture and find out the meaning of the text. What text can be discussed for this session?

**Activity 2.** Read the following passages.

**Forestation** is the establishment of a forest or stand of trees in an area where there was no forest. Reforestation is the reestablishment of forest cover, either naturally (by natural seeding, coppice, or root suckers) or artificially (by direct

seeding or planting). Many governments and non-governmental organizations directly engage in programs of *afforestation* to create forests, increase carbon capture and sequestration, and help to anthropogenically improve biodiversity. (In the UK, afforestation may mean converting the legal status of some land to "royal forest".) Special tools, e.g. tree planting bar, are used to make planting of trees easier and faster.

**Gap dynamics** refers to the pattern of plant growth that occurs following the creation of a forest gap, a local area of natural disturbance that results in an opening in the canopy of a forest. Gap dynamics are a typical characteristic of both temperate and tropical forests and have a wide variety of causes and effects on forest life.

***In areas of degraded soil*** In some places, forests need help to reestablish themselves because of environmental factors. For example, in arid zones, once forest cover is destroyed, the land may dry and become inhospitable to new tree growth. Other factors include overgrazing by livestock, especially animals such as goats, cows, and over-harvesting of forest resources. Together these may lead to desertification and the loss of topsoil; without soil, forests cannot grow until the long process of soil creation has been completed - if erosion allows this. In some tropical areas, forest cover removal may result in a duricrust or duripan that effectively seal off the soil to water penetration and root growth. In many areas, reforestation is impossible because people are using the land. In other areas, mechanical breaking up of duripans or duricrusts is necessary, careful and continued watering may be essential, and special protection, such as fencing, may be needed.

**Activity 3.** Name the pictures with the given words: *harvest, desertification, erosion, soil, biodiversity, livestock*

**1.**

**2.**

**3.**

**4.**

**5.**

**6.**



**Activity 4.** Continue the sentence by your own understanding.

***Forestation***

***Reforestation***

***Gap dynamics***

***Degraded soil***

***Livestock***

***Desertification***

**Activity 5.** Group task. Draw pictures of your imaginary forest and explain your drawings.

Learn new words and be ready for retelling the text.

**SESSION XX**

**WORLD REGIONS OF DEFORESTATION**

**Key words:** desertification, almond, oak, species, habitat destruction, sustainable, replant.

**Activity 1.** Pre-reading questions.

Do you know any country which is deforested?
What do you think why they are deforested?

**Activity 2.** Regroup students into 4. Give each passage to the group and each group should make a presentation of them.

**Brazil**

Because of the extensive Amazon deforestation during the last decades and ongoing, the small efforts of afforestation are insignificant on a national scale of the Amazon Rainforest.

**China**

China has deforested most of its historically wooded areas. China reached the point where timber yields declined far below historic levels, due to over-harvesting of trees beyond sustainable yield. Although it has set official goals for reforestation, these goals were set for an 80 year time horizon and are not significantly met by 2008. China is trying to correct these problems by projects as the Green Wall of China, which aims to replant a great deal of forests and halt the expansion of the Gobi desert. A law promulgated in 1981 requires that every citizen over the age of 11 plant at least one tree per year. As a result, China currently has the highest afforestation rate of any country or region in the world, with 47,000 square kilometers of afforestation in 2008. However, the forest area per capita is still far lower than the international average. An ambitious proposal for China is the Aerially Delivered Re-forestation and Erosion Control System

**North Africa**

In North Africa, the sahara forest project coupled with the Seawater Greenhouse has been proposed. Some projects have also been launched in countries as Senegal to revert desertification. As of 2010, African leaders are discussing the combining of national countries in their continent to increase effectiveness. In addition, other projects as the Keita project in Niger have been launched in the past, and have been able to locally revert damage done by desertification. See Development_aid#Effectiveness

**Europe**

Europe has deforested the majority of its historical forests. The European Union (EU) has paid farmers for afforestation since 1990, offering grants to turn farmland back into forest and payments for the management of forest. Between 1993 and 1997, EU afforestation policies made possible the re-forestation of over 5,000 square kilometres of land. A second program, running between 2000 and 2006, afforested more than 1000 square kilometres of land (precise statistics not yet available). A third such program began in 2007.

In Poland, the National Program of Afforestation was introduced by the government after World War II, when total area of forests shrank to 20% of country's territory. Consequently, forested areas of Poland grew year by year, and on December 31, 2006, forests covered 29% of the country (see: Polish forests). It is planned that by 2050, forests will cover 33% of Poland.

According to FAO statistics, Spain had the third fastest afforestation rate in Europe in the 1990-2005 period, after Iceland and Ireland. In those years, a total of 44,360 square kilometers were afforested, and the total forest cover rose from 13,5 to 17,9 million hectares. In 1990, forests covered 26,6% of the Spanish territory. As of 2007, that figure had risen to 36,6%. Spain today has the fifth largest forest area in the European Union.

**Iran**

Iran is considered a low forest cover region of the world with present cover approximating seven percent of the land area. This is a value reduced by an estimated six million hectares of virgin forest, which includes oak, almond and pistacio. Due to soil substrates, it is difficult to achieve afforestation on a large scale compared to other temperate areas endowed with more fertile and less rocky and arid soil conditions. Consequently, most of the afforestation is conducted with non-native species, leading to habitat destruction for native flora and fauna, and resulting in an accelerated loss of biodiversity.

**India**

India, after 1950 till 2006 has witnessed a minor increase in the percentage of the land area under forest cover. In 1950 around 40.48 million hectare area was under forest cover. in 1980 it increased to 67.47 million hectare and in 2006 it was found to be 69 million hectare. Out of the total land available around 23% of land is under forest cover. The forests in India have been grouped into 5 major categories and 16 types according to biophysical criteria. The distribution of these groups indicates 38.20% subtropical dry deciduous, 30.30% tropical moist deciduous, 6.7% subtropical thorn and 5.8% tropical wet evergreen forests. Other categories include subtropical pine (5%), tropical semi-evergreen forests (2.5%) and other smaller categories. Temperate and alpine areas cover about 10% of the forest areas. It is taken care that only local species are planted in an area. Trees bearing fruits are of higher choice in any geography.

**Activity 3.** Matching features. Which country is this?

**1.** Afforestation is not big.
**2.** It paid farmers for foresting the place.
**3.** Combining national countries in the continent to increase effectiveness
**4.** Afforestation is conducted with non-native species.
**5.** The highest afforestation country.
**6.** Only local species are planted in the area.

| | |
|---|---|
| **A** | **Iran** |

| | |
|---|---|
| **B** | **European Union** |
| **C** | **India** |
| **D** | **Brazil** |
| **E** | **China** |
| **F** | **North Africa** |

**Activity 4.** Draw a diagram of the countries' afforestation.

**Activity 5.** Write down all the numbers from the text and pronounce them correctly.

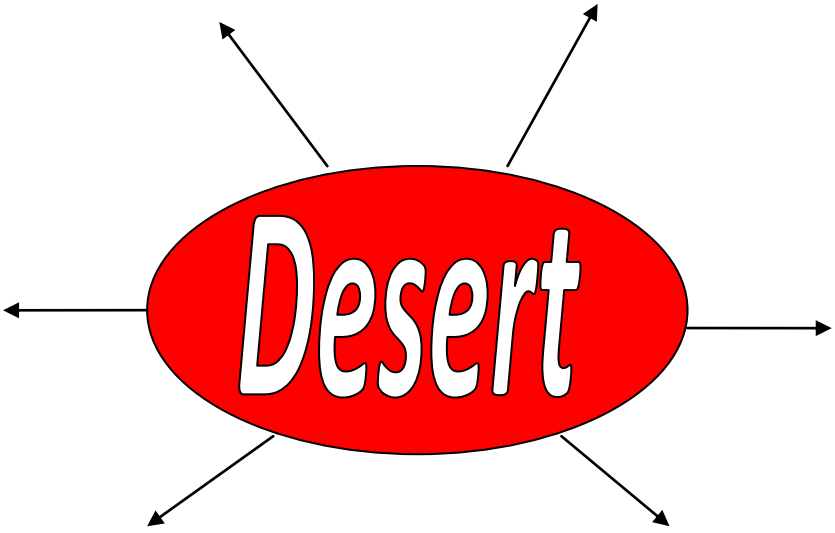
Search other source on internet about other deforested countries.

**SESSION XXI**

**DESERTIFICATION**

**Key words:** wildlife, vegetation, environmental problem, climate change, sand seas, dry , land degradation

**Activity 1.** Teacher orders students to cluster the word in which "Desert" was written. Students should write down their opinions about this word.





**Activity 2.** Reading comprehension.

**Desertification** is a type of land degradation in which a relatively dry land region becomes increasingly arid, typically losing its bodies of water as well as vegetation and wildlife. It is caused by a variety of factors, such as climate change and human activities. Desertification is a significant global ecological and environmental problem.

***History***

The world's great deserts have been formed by natural processes interacting over long intervals of time. During most of these times, deserts have grown and shrunk independent of human activities. Paleodeserts are large sand seas now inactive because they are stabilized by vegetation, some extending beyond the present margins of core deserts, such as the Sahara, the largest hot desert.

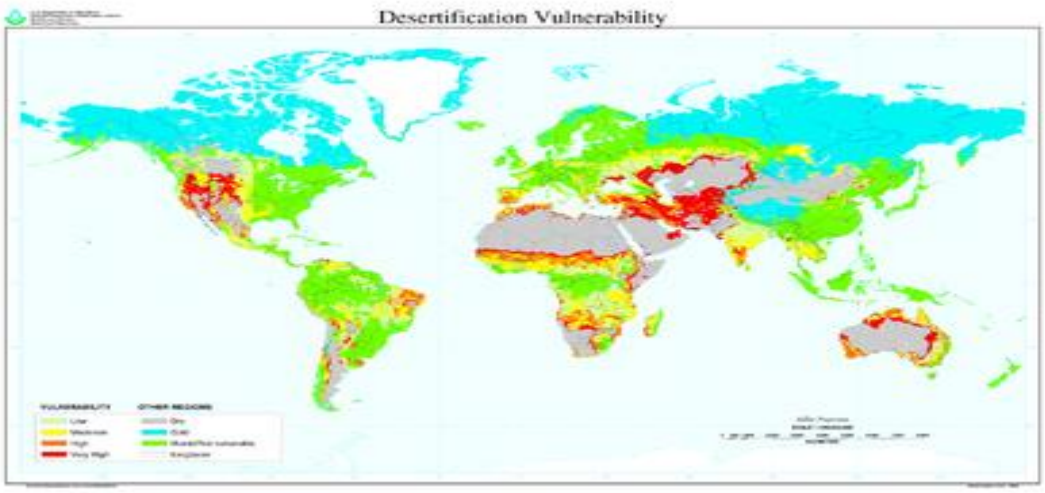
Desertification has played a significant role in human history, contributing to the collapse of several large empires, such as Carthage, Greece, and the Roman Empire, as well as causing displacement of local populations.

***Areas affected***

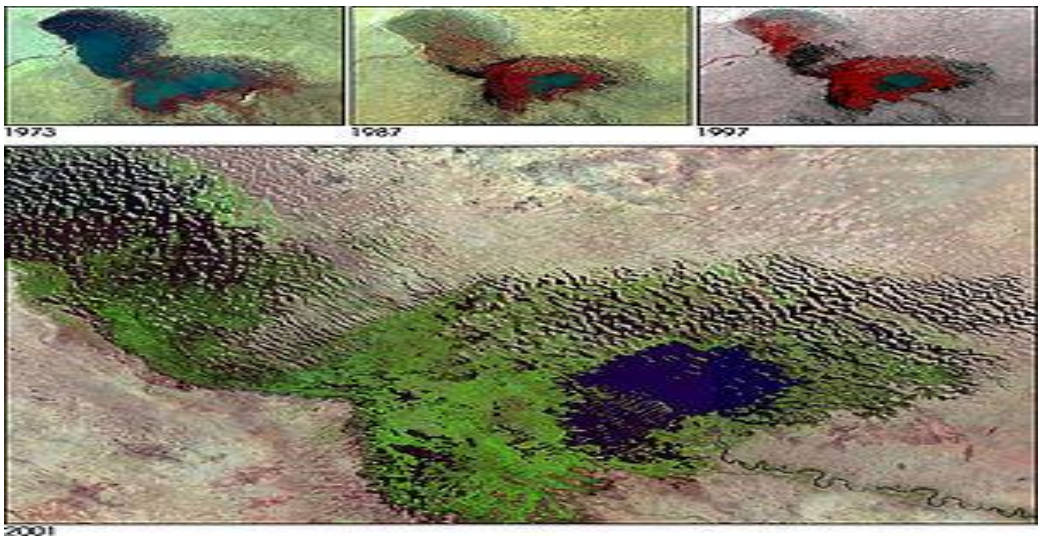
Sun, Moon and Telescopes above the Desert.

Drylands occupy approximately 40–41% of Earth's land area and are home to more than 2 billion people. It has been estimated that some 10–20% of drylands are already degraded, the total area affected by desertification being between 6 and 12 million square kilometres, that about 1–6% of the inhabitants of drylands live in desertified areas, and that a billion people are under threat from further desertification.

The Sahara is currently expanding south at a rate of up to 48 kilometers per year.




Global Desertification Vulnerability Map




Lake Chad in a 2001 satellite image, with the actual lake in blue. The lake has shrunk by 95% since the 1960s.

**Activity 3.** Read the following statements and choose the correct words from the text.

1. Increasing of arid zones.
2. Largest hot desert.
3. Large sand seas now none functional.
4. Several large empires which is connected with the history of desertification.
5. Desertification caused by….

**Activity 4.** Reorder the words in columns “Air Pollution” and “Water pollution”. These are the most global Ecological and Environmental problem.

*Throwing garbage, global warming, carbon dioxide, smelly, toxic chemicals, greenhouse gases, destruction of the ozone, untreated sewage, leaking oil and petroleum, smoke of cars.*

| Air pollution | Water pollution |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

**Activity 5.** Find out adjective + noun constructional words from the text given above and translate them.

Learn new words and word combinations and find out more information about Global Ecological and Environmental problems.

## SESSION XXII

## STAGES, CAUSES AND POVERTY OF DESERTIFICATION

**Key words:** migrations, marginalization, flood, soil layer, overgrazing, landscape, poverty.

**Activity 1**. Teacher regroups students into 3 groups. Each group should tell their own opinion about the following statements.

***Stages of the desertification***
***Causes of the desertification***
***Poverty of the desertification***


**Activity 2.** Teacher distributes students the passages. While reading the text they should compare with their own knowing and take a note.

***Stages***

As the desertification takes place, the landscape progresses through different stages and continuously transforms in appearance. The desertification generally creates increasingly larger empty spaces over a large strip of land, a phenomenon known as "tiger fur pattern". A mathematical model has been made of it by Sjors van der Stelt. Besides explaining the process of desertification, the model is also useful for developing methods to combat it.

***Causes***

A herd of goats in Norte Chico, Chile. Overgrazing of dry lands is one of the primary causes of desertification.

A shepherd guiding his sheep through the high desert outside of Marrakech, Morocco.

The immediate cause is the removal of vegetation. Vegetation plays a major role in determining the biological composition of the soil. Studies have shown that, in many environments, the rate of erosion and runoff decreases exponentially with increased vegetation cover. Overgrazing removes this vegetation causing erosion and loss of topsoil. Unprotected, dry soil surfaces then blow away with the wind or are washed away by flash floods, leaving infertile lower soil layers that bake in the sun and become an unproductive hardpan. This is driven by a number of factors, alone or in combination, such as drought, climatic shifts, tillage for agriculture, overgrazing and deforestation for fuel or construction materials.

***Poverty***

At least 90% of the inhabitants of dry lands live in developing nations, where they also suffer from poor economic and social conditions. This situation is exacerbated by land degradation because of the reduction in productivity, the precariousness of living conditions and the difficulty of access to resources and opportunities. [4]

A downward spiral is created in many underdeveloped countries by overgrazing, land exhaustion and overdrafting of groundwater in many of the marginally productive world regions due to overpopulation pressures to exploit marginal dry lands for farming. Decision-makers are understandably averse to invest in arid zones with low potential. This absence of investment contributes to the marginalization of these zones. When unfavorable agro-climatic conditions are combined with an absence of infrastructure and access to markets, as well as poorly adapted production techniques and an underfed and undereducated population, most such zones are excluded from development.

Desertification often causes rural lands to become unable to support the same sized populations that previously lived there. This results in mass migrations out of rural areas and into urban areas, particularly in Africa. These migrations into

[4] http://en.wikipedia.org/wiki/Desertification#Causes

the cities, often cause large numbers of unemployed people who end up living in slums.

**Activity 3.** Teacher gives some statements for the students, they should tell: “Agree” or “Disagree”.

1. Vegetation is not caused of being desertification.
2. There is reduction of productivity in dry lands.
3. There is not a mathematical model in the process of desertification.
4. Desertification can involve more people in rural land than in urban land.
5. Desertification can cause the country be undeveloped.
6. There are many employed people in Africa.

**Activity 4.** Find out the word combinations prefix + word from the text and translate them.

**Activity 5.** Find out antonym of the following words from the text and fill the table.

| ***Wetland*** | *Dry land* |
|---|---|
| ***Forestation*** | |
| ***Presence*** | |
| ***Waterlogged*** | |
| ***Increasing*** | |
| ***Wealth*** | |
| ***Productive*** | |
| ***Nowadays*** | |

Make a glossary of this theme and explain words in it.

**SESSION XXIII**

**EROSION**

**Key words:** rill, ephemeral, till, terrace, urban sprawl, roads, ecological collapse, sedimentation.

**Activity 1.** Look at the words and explain if these expressions are familiar for you. What do you think about the topic? What is it about?

Flowing of water and wind
Removing of soil and rock.
Increasing desertification and land degradation.


**Activity 2.** Read the following passage carefully and get acquainted with the new words.

A natural arch produced by the erosion of differentially weathered rock in Jebel Kharaz, Jordan

**Erosion** is the process by which soil and rock are removed from the Earth's surface by natural processes such as wind or water flow, and then transported and deposited in other locations.

While erosion is a natural process, human activities have dramatically increased (by 10-40 times) the rate at which erosion is occurring globally. Excessive erosion causes problems such as desertification, decreases in agricultural productivity due to land degradation, sedimentation of waterways, and ecological collapse due to loss of the nutrient rich upper soil layers. Water and wind erosion are now the two primary causes of land degradation; combined, they are responsible for 84% of degraded acreage, making excessive erosion one of the most significant global environmental problems we face today. [5]

Industrial agriculture, deforestation, roads, anthropogenic climate change and urban sprawl are amongst the most significant human activities in regards to their effect on stimulating erosion.[3] However, there are many available alternative land use practices that can curtail or limit erosion—such as terrace-building, no-till agriculture, and revegetation of denuded soils.

[5] http://en.wikipedia.org/wiki/Erosion

***Physical processes water erosion rainfall***

A hillside covered in rills and gullies due to erosion processes caused by rainfall

There are three primary types of erosion that occur as a direct result of rainfall—*sheet erosion*, *rill erosion*, and *gully erosion*. Sheet erosion is generally seen as the first and least severe stage in the soil erosion process, which is followed by rill erosion, and finally gully erosion (the most severe of the three).

The impact of a falling raindrop creates a small crater in the soil, ejecting soil particles. The distance these soil particles travel (on level ground) can be as much as 2 feet vertically, and 5 feet horizontally. Once the rate of rain fall is faster than the rate of infiltration into the soil, surface runoff occurs and carries the loosened soil particles down slope.

*Sheet erosion* is the transport of loosened soil particles by surface runoff that is flowing downhill in thin sheets.

*Rill erosion* refers to the development of small, ephemeral concentrated flow paths, which function as both sediment source and sediment delivery systems for erosion on hill slopes. Generally, where water erosion rates on disturbed upland areas are greatest, rills are active. Flow depths in rills are typically on the order of a few centimeters or less and slopes may be quite steep. This means that rills exhibit very different hydraulic physics than water flowing through the deeper, wider channels of streams and rivers.

***Gully erosion*** occurs when runoff water accumulates, and then rapidly flows in narrow channels during or immediately after heavy rains or melting snow, removing soil to a considerable depth.

**Activity 3.** Match the definition of the word.

| | |
|---|---|
| **Erosion** | *lasting a very short time* |
| **Ephemeral** | *a large rectangular piece of cotton or other fabric used as an article of bedding, commonly in pairs, with one below and one above the sleeper.* |
| **Sheet** | *the mechanical process of wearing or* |

| | |
|---|---|
| | *grinding something down (as by particles washing over it)* |
| **Gully** | *a small channel or gulley, such as one formed during soil erosion* |
| **Rill** | *the process of formation of sedimentary rocks* |
| **Sedimentation** | *A deep ditch or channel cut in the earth by running water after a prolonged downpour.* |

**Activity 4.** Flow-chart completion. Choose the words from the text to complete the sentence.

**Erosion** is the process by which soil and rock are removed from the Earth's surface

↓

**Erosion** is a natural process but … have increased it 10-40 times

↓

***Sheet erosion*** is the transport of loosened soil particles by surface runoff that is flowing downhill in thin sheets

↓

**Sheet erosion** occurs when … faster than the rate of infiltration into the soil, surface runoff occurs and carries the loosened soil particles down slope.

↓

**Rill erosion** refers to the development of small, ephemeral concentrated flow paths.

↓

**Rill erosion** occurs when … through the deeper, wider channels of streams and rivers

↓

**Gully erosion** occurs when runoff water accumulates, and then rapidly flows in narrow channels

↓

**Gully erosion** occurs after … or …, removing soil to a considerable depth.

**Activity 5.** Give some advice of lessening erosion using modal verbs "should" or "ought to".

Your home task is to make a presentation of this passage.

## SESSION XXII

## EROSION. RIVERS AND STREAMS.

**Key words:** slump, permafrost, stream, boulder, pebble, meanders, base level, traction.


**Activity 1.** Read the following passage and match the headings and explain your choice.

**A.** It occurs with continued water flow along a linear feature. The erosion is both downward, deepening the valley, and headward, extending the valley into the hillside. In the earliest stage of stream erosion, the erosive activity is dominantly vertical, the valleys have a typical **V** cross-section and the stream gradient is relatively steep. When some base level is reached, the erosive activity switches to lateral erosion, which widens the valley floor and creates a narrow floodplain. The stream gradient becomes nearly flat, and lateral deposition of sediments becomes important as the stream meanders across the valley floor. In all stages of stream erosion, by far the most erosion occurs during times of flood, when more and faster-moving water is available to carry a larger sediment load. In such processes, it is not the water alone that erodes: suspended abrasive particles, pebbles and boulders can also act erosively as they traverse a surface, in a process known as *traction*.

**B.** It is the wearing away of the banks of a stream or river. This is distinguished from changes on the bed of the watercourse, which is referred to as *scour*. Erosion and changes in the form of river banks may be measured by inserting metal rods into the bank and marking the position of the bank surface along the rods at different times. [6]

[6] http://en.wikipedia.org/wiki/Erosion#Rivers_and_streams

**C.** It is the result of melting and weakening permafrost due to moving water. It can occur both along rivers and at the coast. Rapid river channel migration observed in the Lena River of Siberia is due to thermal erosion, as these portions of the banks are composed of permafrost-cemented non-cohesive materials. Much of this erosion occurs as the weakened banks fail in large slumps. Thermal erosion also affects the Arctic coast, where wave action and near-shore temperatures combine to undercut permafrost bluffs along the shoreline and cause them to fail. Annual erosion rates along a 100-kilometer segment of the Beaufort Sea shoreline averaged 5.6 meters per year from 1955 to 2002.

***Thermal erosion***
***Bank erosion***
***Valley* or *stream erosion***


**Activity 2.** Read passage again carefully and make note of new words and discuss its translation in a group.

**Activity 3.** Complete the following sentences using the following words.

***a narrow floodplain, vertical, stream, wave action, sediment load***

The earliest stage of the stream erosion is …
Lateral erosion widens the valley floor and creates…
Faster-moving water can carry a larger…
It is the carrying away of the banks of a …or river
In the Arctic coast…. and near-shore temperatures combine

**Activity 4.** Short answer questions from the text (use one or two words for answering). Write your answers in boxes.

| | |
|---|---|
| What is the deepening valley? | |
| What is extending the valley? | |
| What does the lateral erosion create? | |
| When does stream of erosion occur? | |
| What is the result of Thermal erosion? | |
| How does the much part of Thermal erosion occur? | |

**Activity 5.** Find out the synonyms of these words from the text.

Rill, abrasion, dale, plane, thawing, happen, yearly, ripple

Learn new words and use them in your retelling.

**SESSION XXIII**

**HEALTH CARE**

**Activity 1.** Playing a game: "Seat-changing". Teacher sticks the pieces of papers on students` backs. It is one of the wise-sayings of Navoi are still used every day on the streets of Uzbekistan and other parts of Central Asia.

| | | | | | |
|---|---|---|---|---|---|
| be honored | speak | wish | you | if | if |
| less | less | *be healthy* | | | |
| you | wish | eat | | | |

**Activity 2.** Tell us your opinion about the meaning and actuality of the proverb, make discussion.


**Activity 3.** Teacher regroups students by new names: "Surgeons", "Psychologist", "Oculists" giving to the groups 3 paragraphs from the Reading Passage 1 and orders them to read it carefully (A). Participants must order them by numbering and make the whole topic (B).

**A.**

**1.** For much of recent Western history, health has been viewed in the physical sense only. That is, good health has been connected to the smooth mechanical operation of the body, while ill health has been attributed to a breakdown in this machine. Health in this sense has been defined as the absence of disease or illness and is seen in medical terms. According to this view, creating health for people means providing medical care to treat or prevent disease and illness. During this period, there was an emphasis on providing clean water, improved sanitation and housing.

**2.** The concept of health holds different meanings for different people and groups. These meanings of health have also changed over time. This change is no more evident than in Western society today, when notions of health and health promotion are being challenged and expanded in new ways.

**3.** In the late 1940s the World Health Organisation challenged this physically and medically oriented view of health. They stated that 'health is a complete state of physical, mental and social well-being and is not merely the absence of disease' (WHO, 1946). Health and the person were seen more holistically (mind/body/spirit) and not just in physical terms.

**B.**

| | | |
|---|---|---|
| | | |

**Activity 4.** Put headings to the paragraphs:

- view in the physical sense
- concept of health
- challenge of the view of health

**Activity 5.** Choose the title for the passage. Explain the reason of your choice of title.

**Activity 6.** Do the following statements agree with the information in Reading Passage 1? In boxes 1-3 on your answer sheet write. Time – 10 min.

***YES (Y)*** ***if the statement agrees with the information***
***NO (N)*** ***if the statement contradicts the information***
***NOT GIVEN (NG)*** ***if there is no information on this passage***

| | |
|---|---|
| | Health has been defined by World Health Organisation as the absence of disease or illness. |
| | Creating health for people means providing medical care to treat or prevent disease. |
| | The concept of health holds different meanings for different people and groups, like students, workers etc. |

**Activity 7.** Try to work in group to do exercises, to have skimming carefully and speaking well in English, also thinking logically. Find the words to the definitions.

**a)** an unhealthful condition caused by an infection or a long-term physical problem$_{(n)}$ (disease)
**b)** a general notion or idea$_{(n)}$ (concept)
**c)** related to the body$_{(adj)}$ (physical)

**Activity 7.** The groups are given the beginning of a short story. They need to be creative and come up with the rest of the story. As soon as all the opinions are heard, the teacher shows the original version of the story.

**"Once an old gentleman came to consult a doctor……."**
"What do you **complain of**?" – asked the doctor.
"You see, doctor, my nervous system is in a bad state. I have a **heartache,** often **headache** and my sleep isn't good. Sometimes I cannot sleep all night long."
The doctor **examined** the **patient** very carefully and said: "Your **treatment** will be very simple, in other words it will be a **rest-cure.** You should go to a quiet place in the village for a month and have an active rest there: get up early, do morning exercises, have breakfast and go for a walk. You should walk much, go to the forest for fresh air, eat much fruit and vegetables and drink milk before going to bed. And you can smoke only one cigarette a day.
A month later the gentleman came to see the doctor again.
"How are you?" – asked the doctor.
"I am quite well now," – answered the patient – "I've done everything that you recommended me, doctor. I **strictly** followed all your orders. I walked much, ate much fruit and vegetables and drank milk before going to sleep. But one cigarette a day almost killed me."
"But why?" – asked the doctor.
"It's not a joke to begin smoking at my age, I had never smoked before," – answered the gentleman.

**Activity 8.** Answer the following questions. Write your answers on your paper-sheet.

1. In which year did the World Health Organisation define health in terms of mental, physical and social well-being?
2. Name the three broad areas which relate to people`s health.
3. What is health for you?
4. What did you change on understanding of health?

Look for the instructions on balanced diet and keeping to a diet in magazines, journals or internet sites. Write your own receipt (may be from your experience) of keeping to a diet.

## TESTS FOR SELF-CONTROL

1. Man's first invention after he learned how to grow plants from seeds was probably …
a) a plate
b) a cup
c) a drainage
d) a bucket

2. The fields irrigated by these systems are easily seen from the air as …
a) black spots
b) white spots
c) red circles
d) green circles

3. When we use water in our home, or when an industry uses water, about … of the water used is eventually returned to the environment.
a) 10 percent
b) 20 percent
c) 25 percent
d) 90 percent

4. Irrigation is …
a) the natural use of water
b) the natural and artificial use of liquids
c) the historical use of liquids
d) the artificial application of water to the land or soil

5. What is irrigation used for?
a) to assist in the growing of agricultural crops and to maintenance of landscapes
b) for the revegetation of disturbed soils in dry areas
c) during periods of inadequate rainfall
d) a,b,c

6. What is a drainage?
a) the natural or artificial removal of surface water
b) man`s first invention
c) the natural or artificial removal of sub-surface water
d) a, c.

7. “In this system water falls drop by drop just at the position of roots.” What is described here?

a) raining
b) snowing
c) localized irrigation
d) drip irrigation

8. Sign the properties of drip irrigation.
a) water falls drop by drop just at the position of roots.
b) Water is delivered at or near the root zone of plants, drop by drop.
c) This method can be the most water-efficient method of irrigation, if managed properly, since evaporation and runoff are minimized.
d) a,b,c.

9. Sign the properties of surface irrigation.
a) water moves over and across the land by simple gravity flow in order to wet it
b) water moves over and across the land to infiltrate into the soil.
c) historically, this has been the most common method of irrigating agricultural land.
d) a,b,c.

10. It is often called flood irrigation when the irrigation results in flooding or near flooding of the cultivated land. What is being described here?
a) drip irrigation
b) localized irrigation
c) a,b.
d) surface irrigation

11. Describe the localized irrigation.
a) Localized irrigation is a system where water is distributed under low pressure through a piped network, in a pre-determined pattern
b) It is applied as a small discharge to each plant or adjacent to it.
c) Drip irrigation, spray or micro-sprinkler irrigation and bubbler irrigation belong to this category of irrigation methods.
d) a,b,c.

12. In sprinkler or overhead irrigation …
a) water is piped to one or more central locations within the field.
b) water distributed by overhead high-pressure sprinklers or guns.
c) water falls drop by drop just at the position of roots.
d) a,b.

13. Sprinklers can also … on moving platforms connected to the water source by a hose.

a) be stopped
b) be washed
c) be looked
d) be mounted

14. Automatically moving wheeled systems known as …

a) flooding sprinklers
b) washing sprinklers
c) pristine sprinklers
d) traveling sprinklers

15. What areas may irrigate the travelling sprinklers?

a) small farms and sport fields
b) parks and pastures
c) cemeteries unattended
d) a,b,c.

16. When the sprinkler arrives back at the reel the system…

a) shuts in
b) switches on
c) breaks down
d) shuts off

17. This type of system is known to most people as a "water reel" traveling irrigation sprinkler. What is described here?

a) Drip irrigation
b) Localized irrigation
c) Drainages
d) Sprinklers

18. What are the sprinklers extensively used for?

a) for dust suppression
b) irrigation
c) land application of waste water
d) a,b,c

19. In sprinkler or overhead irrigation water is piped to…

a) the rivers and streams
b) the sea

c) a,b,c
d) one or more central locations within the field.

20. Fill in the gaps choosing appropriate words below.
Various … of irrigation techniques differ in how the water obtained from the … distributed within the field.
a) kinds, types
b) groups, river
c) shapes, shapes
d) types, sources

21. Sprinklers can also be mounted on moving platforms connected to the water source by …
a) a paper
b) air plains
c) cars
d) a hose

22. What are the rotors?
a) Higher pressure sprinklers that rotate
b) driven by a ball drive
c) driven by a gear drive, or impact mechanism
d) a,b,c

23. By which parameters health has been viewed for much of recent Western history?
a) in the physical and mental sense
b) in the mental sense only
c) in the social sense only
d) in the physical sense only

24. As which phenomenon was health defined in physical sense?
a) as the presence of disease or illness
b) as complex unit of physical, mental and social well-being.
c) as the absence of mental and spiritual well-being
d) as the absence of disease or illness

25. Put heading to the paragraphs:

a) concept of health
b) challenge of the view of health

c) view in the mental sense
d) view in the physical sense

26. Put heading to the paragraphs:

The concept of health holds different meanings for different people and groups. These meanings of health have also changed over time. This change is no more evident than in Western society today, when notions of health and health promotion are being challenged and expanded in new ways.

a) view in the physical sense
b) challenge of the view of health
c) view in the mental sense
d) concept of health

27. Put heading to the paragraphs:

In the late 1940s the World Health Organisation challenged this physically and medically oriented view of health. They stated that 'health is a complete state of physical, mental and social well-being and is not merely the absence of disease' (WHO, 1946). Health and the person were seen more holistically (mind/body/spirit) and not just in physical terms.

a) view in the physical sense
b) concept of health
c) World Health Organisation
d) challenge of the view of health

28. Which of the following statements agree with the information in Reading Passage?

For much of recent Western history, health has been viewed in the physical sense only. That is, good health has been connected to the smooth mechanical operation of the body, while ill health has been attributed to a breakdown in this machine. Health in this sense has been defined as the absence of disease or illness and is seen in medical terms. According to this view, creating health for people means providing medical care to treat or prevent disease and illness. During this period, there was an emphasis on providing clean water, improved sanitation and housing.

a) health has been defined by World Health Organisation as the presence of disease or illness.
b) Health has been viewed as the complex unit of physical, meantal and social well-being.
c) Health has been viewed as historical phenomenon.

d) Health has been defined by World Health Organisation as the absence of disease or illness.

29. Which of the following statements agree with the information in Reading Passage?

For much of recent Western history, health has been viewed in the physical sense only. That is, good health has been connected to the smooth mechanical operation of the body, while ill health has been attributed to a breakdown in this machine. Health in this sense has been defined as the absence of disease or illness and is seen in medical terms. According to this view, creating health for people means providing medical care to treat or prevent disease and illness. During this period, there was an emphasis on providing clean water, improved sanitation and housing.

a) during this period there was an emphasis on providing spiritual improving of people.
b) Health has been defined by World Health Organisation as the presence of disease or illness.
c) Health has been viewed as the complex unit of physical, mental and social well-being.
d) Creating health for people meant providing medical care to treat or prevent disease.

30. Which of the following statements agree with the information in Reading Passage?

The concept of health holds different meanings for different people and groups. These meanings of health have also changed over time. This change is no more evident than in Western society today, when notions of health and health promotion are being challenged and expanded in new ways.

a) the concept of health has not changed over time.
b) the concept of health holds different meanings for different people and groups, like students, workers etc.
c) the concept of health holds different meanings for unique individual person only.
d) today notions of health and health promotion are being challenged and expanded in new ways.

31. Try to find the word to the definition: “an unhealthful condition caused by an infection or a long-term physical problem”

a) problem
b) unemployment
c) infection
d) disease

32. Try to find the word to the definition: “a general notion or idea”.
a) problem
b) unemployment
c) disease
d) concept

33. Try to find the word to the definition: “a general notion or idea”.
a) problem
b) unemployment
c) disease
d) concept

34. Try to find the word to the definition: “related to the body”.
a) problem
b) unemployment
c) disease
d) physical

35. In which year did the World Health Organisation define health in terms of mental, physical and social well-being?
a) 1940
b) 1942
c) 1945
d) 1946

36. Name the three broad areas which relate to people`s health.
a) chemical, physical, historical
b) philological, historical, philosophical
c) physical, chemical, physiological
d) physical, mental, social

37. Put heading to the paragraph:

Throughout the world, irrigation (water for agriculture, or growing crops) is probably the most important use of water (except for drinking and washing a smelly dog, perhaps). Almost 60 percent of all the world's freshwater withdrawals go towards irrigation uses. Large-scale farming could not provide food for the world's large populations without the irrigation of crop fields by water gotten from rivers, lakes, reservoirs, and wells. Without irrigation, crops could never be grown.

- Water returning to the environment
- Ancient people and irrigation
- Artificial application of water
- Irrigation throughout the world

38. Put heading to the paragraph:

When we use water in our home, or when an industry uses water, about 90 percent of the water used is eventually returned to the environment where it replenishes water sources (water goes back into a stream or down into the ground) and can be used for other purposes. But of the water used for irrigation, only about one-half is reusable. The rest is lost by evaporation into the air, evapotranspiration from plants, or is lost in transit, by a leaking pipe, for example.

a) Artificial application of water
b) Irrigation throughout the world
c) Water returning to the environment
d) Water returning to the environment

38. Put heading to the paragraph:

Irrigation has been around for as long as humans have been cultivating plants. Man's first invention after he learned how to grow plants from seeds was probably a bucket. Ancient people must have had strong backs from having to haul buckets full of water to pour on their first plants. Pouring water on fields is still a common irrigation method today—but other, more efficient and mechanized methods are also used.

a) Water returning to the environment
b) Artificial application of water
c) Irrigation throughout the world
d) Ancient people and irrigation

39. Put heading to the paragraph:

| |
|---|
| Think of what your supper table might be like if water was not used to irrigate crops. Do you think you could survive very long without heaping servings of eggplant, beets, brussels sprouts, and rutabagas? Irrigation water is essential for keeping fruits, vegetables, and grains growing to feed the world's population, and this has been a constant for thousands of years. |

a) Water returning to the environment
b) Artificial application of water
c) Irrigation throughout the world
d) No very long surveying without irrigation

40. Choose the right variant for the following definition: “preparing the land to grow crops”
a) irrigation
b) piping
c) removal
d) cultivation

41. Choose the right variant for the following definition: “to continue living”
a) irrigation
b) piping
c) removal
d) survive

42. What`s irrigation itself?
a) “preparing the land to grow crops”
b) “to continue living”
c) Pouring water by buckets
d) the supplying of water to dry land

43. What kind of application deals the irrigation with?
a) natural
b) meliorative
c) economic
d) artificial

44. Irrigation systems are also used for …
a) dust suppression
b) disposal of sewage
c) in mining

d) a,b,c.

45. Agriculture that relies only on direct rainfall is referred to as rain-fed or….

a) drip irrigation
b) surface irrigation
c) solar energy
d) dryland farming

## English-English GLOSSARY

**Acid rain** – noun [mass noun] rainfall made so acidic by atmospheric pollution that it causes environmental harm, chiefly to forests and lakes. The main cause is the industrial burning of coal and other fossil fuels, the waste gases from which contain sulphur and nitrogen oxides which combine with atmospheric water to form acids.

**Aggregate** – *noun* [/ˈagrɪgət] 1) a whole formed by combining several separate elements the council was an aggregate of three regional assemblies ■ the total score of a player or team in a fixture comprising more than one game or round he set the pace with a one-over-par aggregate of 151 [mass noun] the result put the sides level on aggregate 2) a material or structure formed from a mass of fragments or particles loosely compacted together ■ [mass noun] pieces of broken or crushed stone or gravel used to make concrete and in building
*verb* [/ˈagrɪgeɪt ]form or group into a class or cluster [with obj.].

**Agitation** – agitation agi|ta¦tion noun [mass noun] 1) a state of anxiety or nervous excitement she was wringing her hands in agitation 2) brisk stirring or disturbance of a liquid 3) the arousing of public concern about an issue and pressing for action on it widespread agitation for social reform ■ [count noun] a public demonstration.

**Atmosphere** – noun [usu. in sing.] 1) the envelope of gases surrounding the earth or another planet part of the sun's energy is absorbed by the earth's atmosphere ■ the air in any particular place these beetles breed best in a damp atmosphere ■ (abbrev.: atm) a unit of pressure equal to mean atmospheric pressure at sea level, 101,325 pascals 2) the pervading tone or mood of a place, situation, or creative work.

**Automation** – noun [mass noun] the use or introduction of automatic equipment in a manufacturing or other process or facility.

**Base** – noun 1) the lowest part or edge of something, especially the part on which it rests or is supported;
2) a conceptual structure or entity on which something draws or depends.

**Bedrock** – noun [mass noun] solid rock underlying loose deposits such as soil or alluvium ■ the fundamental principles on which something is based.

**Biocide** – noun 1) a poisonous substance, especially a pesticide 2) [mass noun] the destruction of life.

**Biofuel** – A biofuel is a gas, liquid, or solid from natural sources such as plants that is used as a fuel.

**Biodiversity** – noun [mass noun] the variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.

**Biosphere** – noun 1) the regions of the surface and atmosphere of the earth or another planet occupied by living organisms 2) an artificial structure enclosing a self-contained ecosystem or ecosystems.

**Boulder** – boul|der noun a large rock, typically one that has been worn smooth by erosion.

**Bulk** – noun 1) [mass noun] the mass or size of something large 2) (the bulk of) the greater part of something.

**Carbon** – 1) [mass noun] the chemical element of atomic number 6, a non-metal which has two main forms (diamond and graphite) and which also occurs in impure form in charcoal, soot, and coal (Symbol: C);
2) carbon dioxide or other gaseous carbon compounds released into the atmosphere, associated with climate change.

**Carbon capture** – noun [mass noun] the process of trapping carbon dioxide produced by burning fossil fuels or other chemical or biological process and storing it in such a way that it is unable to affect the atmosphere.

**Carbonates** - 1. car¦bon|ate noun a salt of the anion $CO_3^{2-}$, typically formed by reaction of carbon dioxide with bases 2. car¦bon|ate verb [with obj.] dissolve carbon dioxide in (a liquid) ■ convert into a carbonate, typically by reaction with carbon dioxide.

**Cattle** – plural noun 1) large ruminant animals with horns and cloven hoofs, domesticated for meat or milk, or as beasts of burden; cows and oxen 2) animals of a group related to domestic cattle, including yak, bison, and buffaloes.

**Clay** – noun [mass noun] a stiff, sticky fine-grained earth that can be molded when wet, and is dried and baked to make bricks, pottery, and ceramics.

**Climate change** – noun [mass noun] the change in global climate patterns apparent from the mid to late 20th century onwards, attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

**Crop rotation** – the system of growing a sequence of different crops on the same ground so as to maintain or increase its fertility.

**Cultivation** – 1) the action of cultivating land, or the state of being cultivated. 2) the process of trying to acquire or develop a quality or skill.

**Density** – noun pl. densities [mass noun] 1) the degree of compactness of a substance 2) the quantity of people or things in a given area or space.

**Destroy** – verb [with obj.] end the existence of (something) by damaging or attacking it.

**Depth of a soil profile** – the distance from the top or surface to the bottom of soil.

**Defined** – If something is clearly defined or strongly defined, its outline is clear or strong.

**Desalinated water** – removed salt from water.

**Destruction** – noun [mass noun] the action or process of causing so much damage to something that it no longer exists or cannot be repaired.

**Digger** – 1) (sometimes not capital) archaic slang a) an Australian or New Zealander, esp a soldier: often used as a term of address b) (as modifier) a Digger accent 2) one of a number of tribes of America whose diet was largely composed of roots dug out of the ground.

**Disease** – dis|ease noun a disorder of structure or function in a human, animal, or plant, especially one that produces specific symptoms or that affects a specific location and is not simply a direct result of physical injury.

**Disintegration** – noun [mass noun] 1) the process of losing cohesion or strength 2) the process of coming to pieces.

**Dissolved** – verb 1) (with reference to a solid) become or cause to become incorporated into a liquid so as to form a solution.

2) [with obj.] close down or dismiss (an assembly or official body).

**Displaced soil** – take over the place, position, or role of soil.

**Domesticated** – (of a plant) cultivated for food; naturalized.

**Draft-animal-powered** – drudgery.

**Drain** – v. 1) cause the water or other liquid in (something) to run out, leaving it empty or dry 2) deprive of strength or vitality.

**Drainage water** – noun [mass noun] the action or process of draining water.

**Drainage infrastructure** –the action or process of draining basic physical and organizational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise.

**Drip irrigation** – let fall or be so wet as to shed small drops of liquid.

**Dry land degradation** – land as opposed to the sea or another body of water the condition or process of degrading or being degraded.

**Dry river bed** – free from moisture or liquid; not wet or moist a large natural stream of water flowing in a channel to the sea, a lake, or another river way.

**Dumps** – noun 1) a site for depositing rubbish;
2) a copying of stored data to a different location, performed typically as a protection against loss.

**Effect** – 1. a change which is a result or consequence of an action or other cause;
2. the state of being or becoming operative.

**Electric motor** – a device that converts electrical energy to mechanical torque.

**Environmental problem** –the natural world and the impact of human activity's regarded as unwelcome or harmful and needing to be dealt with and overcome.

**Ephemeral** – lasting for a very short time.

**Erosion** – noun [mass noun] the process of eroding or being eroded by wind, water, or other natural agents.

**Evapotranspiration** – noun [mass noun] the process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants.

**Equilibrium** – noun a state in which opposing forces or influences are balanced.

**Fertilizer** – n. noun a chemical or natural substance added to soil or land to increase its fertility.

**Fertilizer moisture** – wet fertilizer.

**Flood** – an overflow of a large amount of water beyond its normal limits, especially over what is normally dry land.

**Floodwater harvesting** – the process or period of gathering in crops after flood.

**Form** – the visible shape or configuration of something.

**Fiber** – a thread or filament from which a vegetable tissue, mineral substance, or textile is formed.

**Fresh water** – of or found in fresh water; not of the sea.

**Fungi** – any of a group of unicellular, multicellular, or syncytial spore-producing organisms feeding on organic matter, including moulds, yeast, mushrooms, and toadstools.

**Fungicides** – a chemical that destroys fungus.

**Groundwater contamination** –obstruction of water held underground in the soil or in pores and crevices in rock.

**Gravel** – a loose aggregation of small water-worn or pounded stones.

**Hand tools** – noun a tool held in the hand and operated without electricity or other power.

**Harm** – noun [mass noun] physical injury, especially that which is deliberately inflicted.

**Harrowing** – adjective actually distressing.

**Herbicides** – noun a substance that is toxic to plants, used to destroy unwanted vegetation.

**Hoeing** – noun a long-handled gardening tool with a thin metal blade, used mainly for weeding.

**Human use** – exploitation.

**Hydrogen** – noun [mass noun] a colourless, odourless, highly flammable gas, the chemical element of atomic number 1 (Symbol: H).

**Hydrosphere** – noun (usu. the hydrosphere) all the waters on the earth's surface, such as lakes and seas, and sometimes including water over the earth's surface, such as clouds.

**Infiltrate** – enter or gain access to (an organization, place, etc.) surreptitiously and gradually, especially in order to acquire secret information.

**Insecticides** – noun a substance used for killing insects.

**Irrigation** – the use of water pumped from boreholes or diverted from rivers to assist agriculture. This makes it possible to use otherwise uncultivable land, and to produce larger and more reliable crops on land already in use.

**Lake** – noun a large area of water surrounded by land.

**Landfills** – noun [mass noun] the disposal of waste material by burying it, especially as a method of filling in and reclaiming excavated pits.

**Landscape** –all the visible features of an area of land, often considered in terms of their aesthetic appeal.

**Large-scale farming** – involving large numbers or a large area of farm culture.

**Leaching** – (with reference to a soluble chemical or mineral) drain away from soil, ash, or similar material by the action of percolating liquid, especially rainwater.

**Livestock** – noun [mass noun] farm animals regarded as an asset.

**Lithosphere** – noun the rigid outer part of the earth, consisting of the crust and upper mantle.

**Liquid** – a substance that flows freely but is of constant volume, having a consistency like that of water or oil.

**Level** – a horizontal plane or line with respect to the distance above or below a given point.

**"Loam"** – a fertile soil of clay and sand containing humus.

**Manure** – noun [mass noun] animal dung used for fertilizing land ■ any compost or artificial fertilizer.

**Mattock** – noun an agricultural tool shaped like a pickaxe, with an adze and a chisel edge as the ends of the head.

**Meanders** – verb [no obj., with adverbial of direction] (of a river or road) follow a winding course.

**Migrations** – seasonal movement of animals from one region to another.

**Mineralogical** – noun [mass noun] the scientific study of minerals.

**Nutrients** – noun a substance that provides nourishment essential for the maintenance of life and for growth.

**Optical microscope** – noun a microscope using visible light, typically viewed directly by the eye.

**Oxygen** – noun [mass noun] a colourless, odourless reactive gas, the chemical element of atomic number 8 and the life-supporting component of the air (Symbol: O).

**Pastoral** – (of land) used for the keeping or grazing of sheep or cattle.

**Pebble** – noun a small stone made smooth and round by the action of water or sand.

**Permafrost** – noun [mass noun] a thick subsurface layer of soil that remains below freezing point throughout the year, occurring chiefly in polar regions.

**Pesticides** – noun a substance used for destroying insects or other organisms harmful to cultivated plants or to animals.

**Plough** – a large farming implement with one or more blades fixed in a frame, drawn over soil to turn it over and cut furrows in preparation for the planting of seeds.

**Pollution** – noun [mass noun] the presence in or introduction into the environment of a substance which has harmful or poisonous effects.

**Porosity** – the state or condition of being porous.

**Pumping stations** – a mechanical device using suction or pressure to raise or move liquids, compress gases, or force air into inflatable objects such as tyres.

**Poverty** – the state of being extremely poor.

**Raking** – noun an implement consisting of a pole with a toothed crossbar or fine tines at the end, used especially for drawing together cut grass or smoothing loose soil or gravel.

**Rangeland** – land that naturally produces forage plants suitable for grazing but where rainfall is too low or erratic for growing crops.

**Reduce** – make smaller or less in amount, degree, or size.

**Reforestation** –an area where there used to be a forest is planting trees over it.

**Reservoir** – a large natural or artificial lake used as a source of water supply.

**Resistivity** – noun [mass noun] a measure of the resisting power of a specified material to the flow of an electric current.

**Ridge** – a long, narrow hilltop, mountain range, or watershed.

**Rill** – noun a small stream ■ a shallow channel cut in the surface of soil or rocks by running water ■ variant spelling of rille.

**Roads** – noun a wide way leading from one place to another, especially one with a specially prepared surface which vehicles can use.

**Rock** – [mass noun] the solid mineral material forming part of the surface of the earth and other similar planets, exposed on the surface or underlying the soil

## English-Uzbek GLOSSARY

**Acid rain** – kislotali yomg'ir
**Agitation** – qorishma, aralashma
**Aggregate** – v. bir joyga to'planmoq, n.jami
**Aeration** – gazlanish
**Artificially raising** – sun'iy ko'tarilish
**Atmosphere** – atmosfera (havo qobig'i)
**Automation** – avtomatizatsiya, avtomatika

**Base** – asos**,** tub, baza, tayanch (punkt)
**Bedrock** – asl nasl
**Biocides** – biologik yo'nilg'i
**Biofuel** – bio-yonilg'i
**Biodiversity** – bio-rang-baranglik
**Biological activity** – biologik harakat
**Biosphere** – biosfera
**Boulder** – valun (tog' jinslarining bo'laklari, katta tosh)
**Bulk** – kattalashtirish, oshirish, yuk, asosiy qism

**Cable-type traveler** – kabelsimon yo`ldosh
**Carbon** – uglerod
**Carbon capture** – uglerod saqlovchi
**Carbonates** - karbonat
**Caution exchange capacity** – ehtiyotkorlik choralari
**Center pivot irrigation** – markaziy  sug'orish
**Cattle** – hayvon, qoramol
**Central locations** – markaziy joylashuvlar
**Chemically active** – kimyoviy faol
**Chemical conditions** – kimyoviy holatlat
**Clay** – loy
**Climate change** – ob- havo o'zgarishi
**Coat particles** – teri bo'laklari
**Colour-commercial greenhouse** – tijoraviy oranjereya
**Consistency** – konsistensiya (suyuq eritma, suyuq jismlarda yumshoqliq, zichlik)
**Crop rotation** – hosil aylanishi
**Cultivation** – ekish, o'stirish

**Density** – qalinlik, quyuqlik, zichlik
**Destroyed** – buzilgan
**Depth of a soil profile** – yon tomondan ko'rinadigan qumning chuqurligi
**Defined** – aniqlangan

**Desalinated water** – sho'rlangan suv
**Destruction** – buzilish
**Dig** – kovlamoq, qazmoq
**Disease** – kasallik
**Disintegration** – tarkibiy qismlarga ajratish
**Dissolved** – eritmoq, qormoq, bekor qilmoq, buzmoq
**Displaced soil** – aralashma tuproq
**Domesticated** – ekib o'stirmoq, yetishtirmoq (qo'lga o'rgatmoq)
**Draft-animal-powered** – jonivor mehnatidan foydalanish
**Drain** – v. drenaj qilmoq, zaxni qochirmoq, quritmoq (tuproqni); zovur, drenaj nayi
**Drainage water** – drenaj suvi
**Drainage infrastructure** – drenaj infratuzilmasi
**Drip irrigation** – tomchilatib sug'orish
**Dry land degradation** – quruq yer tanazzuli
**D ry river bed** – quruq daryo yo'li
**Dumps** – axlat uyumlari; axlatxona(lar)

**Ecological collapse**— ekologik tanazzul
**Ecological crises** – ekologik inqiroz
**Effect** – ta'sir ko'rsatmoq
**Electric motor -** elektro-motor, elektrik motor
**Environmental problem** – atrof-muhit muammosi
**Ephemeral** – vaqtinchalik
**Erosion** – yemirilish
**Evaporation** – changlanish
**Evapotranspiration** – bug'lanish
**Equilibrium** – muvozanat

**Fertilizer** – n. o'git, v. o'g'itlash
**Fertilizer moisture** – nam o'g'it
**First plant** – birinchi o'simlik
**Flood** – suv toshqini
**Floodwater harvesting** – suv toshqini hosili
**Form** – shakl
**Fiber** – tola, ipak tolasi
**Fiber tillage** – yerdan olinadigan tola
**Fresh water** – toza suv
**Fungi** – zamburug'lar
**Fungicides -** fungitsid

**Glacial till** – muzlagan yerni haydash

**Groundwater contamination** – yer osti suvining ifloslanishi
**Gravel** – shag'al
**Gravelly sandy loam** – shag'alli, tuproqli bo'lak

**Hand tools** – qo`l asboblari
**Harm** – zarar ko'rmoq
**Harrowing** – molalamoq
**Herbicides** – gerbitsid
**Higher pressure** – yuqori bosim
**High salt content** – sho'rlanish yuqori bo'lgan tarkib
**High-pressure sprinklers** – yuqori bosimli purkachlar
**Hoeing** – chopish, yumshatish
**Human use** – insonning ishlatishi, ekspluatatsiyasi
**Hydrogen** – vodorod (gaz)
**Hydrosphere** – gidrosfera
**Hydraulic systems** – gidravlik tizimlar

**Industrial applications** – sanoatda qo'llaniladigan vositalar
**Infiltrate** – suzgichdan o'tkazmoq
**Insecticides** – hasharotlarga qarshi dori
**Intensive tillage** – kuchli yer haydash
**Irrigation** – sug'orish
**Irrigation systems** – sug'orish tizimlari
**Irrigation techniques** – sug'orish texnikasi
**Irrigation water sources** – sug'orish suv manbalari
**Iron oxides** – temir oksidi

**Kinds of soil particles** – tuproq parchalari turlari

**Lake** – ko'l
**Landfills** – axlatxona(lar)
**Landscape** – manzara, landshaft
**Large-scale farming** – katta fermer xo'jaligi
**Leaching** – sho`r yuvish
**Livestock** – mavjudot (hayvon)
**Lithosphere** – litosfera
**Liquid** – suyuqlik
**Level** – daraja
**"Loam"** – kislorodli yer
**Localized irrigation –** mahalliy irrigatsiya
**Loose rock material** – yo'qolgan to'g' materiali
**Lucrative irrigation** – serdaromad sug'orish

**Marginalization** – ajratish, alohida qilish; minimallashtirish, cheklash
**Manure** – chiqindi , go`ng
**Mattock** – motiga, dastaki so`ka (ketmonsimon asbob)
**Meanders** – egri-bugri joylar
**Migrations** – bir joydan ikkinchi joyga ko'chish
**Mineral constituents** – mineral unsurlar
**Mineralogical** – minerologik
**Mineral fraction** – mineral bo'laklar
**Modern irrigation projects** – zamonaviy sug'orish loyihalari
**Moving platforms** – harakatlanadigan perron

**Nutrients** – vitaminlar
**Non-conventional sources** – noodatiy manbalar

**Optical microscope** – mikroskop
**Organic constituent humus** – organik unsurli go`ng, gumus
**Organic matter content** – organik moddaning tarkibiy qismi
**Over-harvesting** – yuqori darajali hosildorlik
**Oxygen** – kislorod

**Past soil evolution** – oldingi tuproq evolutsiyasi
**Pastoral** – cho`ponlarcha, cho`ponlarga oid
**Pebble** – shag'al, mayda tosh
**Permanent grasslands** – doimiy o'tloq yer
**Permafrost** – doimiy muzlagan
**Pesticides** – pestitsid, zararkunandalarga qarshi vosita
**Physical properties of soils** – tuproqning tabiiy xusisiyatlari
**Plough** – yer haydamoq
**Pollution** – zaharlanish
**Pore spaces** – g'ovaklar
**Porosity** – g'ovaksimon
**Position of roots** – ildiz joylashishi
**Potted plants** – tuvakka o'sadigan o'simlik
**Primarily quartz particles** – boshlang'ich kvarts parchalari
**Pumping stations** – nasos stansiyalari
**Poverty** – kambag'allik

**Raking** – xaskashlardan tozalamoq
**Rangeland** – qator yer tobalari
**Rainwater harvesting** – yog'ingarchilik hosili
**Reduce** – qisqarmoq

**Reforestation** – o’rmonlashtirish
**Relative proportion** – bir-biriga mos keladigan hissalar
**Reservoir** – sun’iy hovuz
**Resistivity** – chidamli, bardosh beradigan
**River** – daryo
**Ridge** – tog’ tizmasi, qirra
**River valleys** – daryo vodiylari
**Rill** -
**Roads** – yo’llar
**Rock** – qoyalar
**rock fragments**
**Roller** – rolik, g’ildirakcha
**Root zone** – Ildiz joyi
**Row crop** – qator o’simliklar
**Runoff water** – irmoqcha, buloq

**Salinity control** – sho’rlanish nazorati
**Sand** – tuproq
**Sand seas** – tuproqli dengiz
**Seed** – urug’
**Sedimentation** – loyqa, cho’kindi
**Several segments of pipe** – kanalning ba`zi segmentlari
**Silica** – kremnezyon, kvars
**Silt** – loyqa, balchiq
**Sizes** – o’lchamlar
**Soill horizons** – tuproq garizoni
**'Solid geology'** – geologiya
**Soil volume** – tuproq hajmi
**Soil "separates"** – tuproq ajratmalari
**Soil behavior** – tuproq holati
**Soil degradation** – tuproqning yomonlashuvi
**Soil layer** – tuproq qobig’i
**Spate irrigation** – birdanniga oshirib sug’orish
**Srinkler or overhead irrigation** – yomg`irlatib sug`orish
**Specific surface area** – maxsus yer maydoni yuzasi
**Stable secondary structures** – barqaror boshlang’ich qism
**Stored animal manure** – qayta tiklangan hayvon o’g’iti
**Subsurface** – yuza
**Surface-water-clay** – suvli loy yuzasi

**Temperature** – harorat
**Terrace** – pog’ona-pog’ona bo’lib turadigan tog’ yonbag’irlari

**Texture** – tuzilish
**Three-state system** – uch bosqichli (aspektli) tizim
**Till** – yerga ishlov bermoq, yer haydamoq
**Tillage** – yer haydash
**Traction** – yuk tortuvchi kuch
**Trickle irrigation** – tomchilatib sug'orish
**Treated wastewater** – qayta ishlangan chiqindi suv
**Topsoil** – yuqori tuproq

**Unbalanced ionic charges** – balanslashmagan oin zaryadlari
**Urban sprawl** – shahargacha cho'zilmoq
**Utilization** – qo'llash, foydalanish

**Vegetation** – o'simlik dunyosi

**Waste water** – chiqindi suv
**Water** – soluble plant
**Water sources** – suv manbalari
**Water pollution** – suv zaharlanishi
**Water-efficient method** – samarali suv metodi
**Weathering** – ob-havo ta'sirida o'zgarmoq
**Wells** – quduqlar
**Wheel line irrigation** – yumalab bir chiziq bo'ylab sug'orish
**Wildlife** – yovvoyi dunyo

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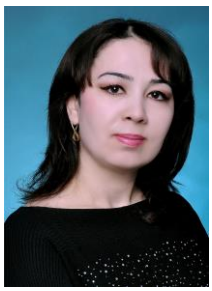
***Today the role of teaching English for Specific Purposes (ESP) in modern teaching and didactics is especially underlined. The given methodology had already come not only into the system of higher education, but also to the specialized secondary education and promoted increase of knowing activity of learners. On the basis of this it is possible to assume that the purpose of studying and training of English language in Hydromelioration branch – is the professional training on learners` specialty and direction, interests and activities; also developing their abilities to show and demonstrate writing, reading, listening and speaking skills in English. This manual is created for decision and solving of the given problem in higher educational system of irrigation and melioration.***



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