GreenTech

Greentech is an echo-village , in Greentech village , we are going to practice our life without hurting the environment , and also we will solve the problems and the challenges that may face us , especially we will focus on solving the energy consumption problem.

What is the Greentech?

It is an echo-village where people will have modern technology in their life without hurting the environment and they will work in many basic fields in the village such as :

1- Agriculture and farming

to suffice the needs of food to the people in echo-village and to sell crops outside the village So that we earn income for the village.

2-Water desalination:

To provide the village with water resources , because there is a wates shortage.

3-Generating renewable energy :

In the echo-village people will use modern technology (in work field and in their homes) depending on renewable sources of energy not to hurt the environment.

What is the goal of Greentech?

The goal of Greentech is providing a decent life and work for the people who live in it , spreading awareness about the environment problems , contributing of the villagers together to solve the environment problems. It is the first step to save the environment , if the idea reached many places and applied in more than one country , it will be a great begaining to a Green Earth.

What are the problems that Greentech will solve?

The main goal of Greentech is to focus on solving the energy consumption problem to operate the technology in the village without hurting the environment , but also greentech will solve another problems in agriculture, farming and water shortage .

Agriculture and farming in GreenTech :

Agriculture is the art and science of cultivating the soil, growing crops and raising livestock. Agriculture is one of the important programs in the echo village to feed people they'll live in. Plants are from the important resources to get food for animals and humans such as crops, vegetables, fruits and grass.

Animals are the main source of proteins so we've to raise them and feed them such as cows ,sheep ,goats (that can get milk from) and some types of birds (that can give us eggs) . We've to make fish farms and care about it very carefully.

To grow plants with optimum conditions we need :

sun, a place with a temperate climate, clean water and carbon dioxide gas with an average quantity to make photosynthesis process.

Challenges that will face agriculture and farming & how can we beat them :

1. Desertification

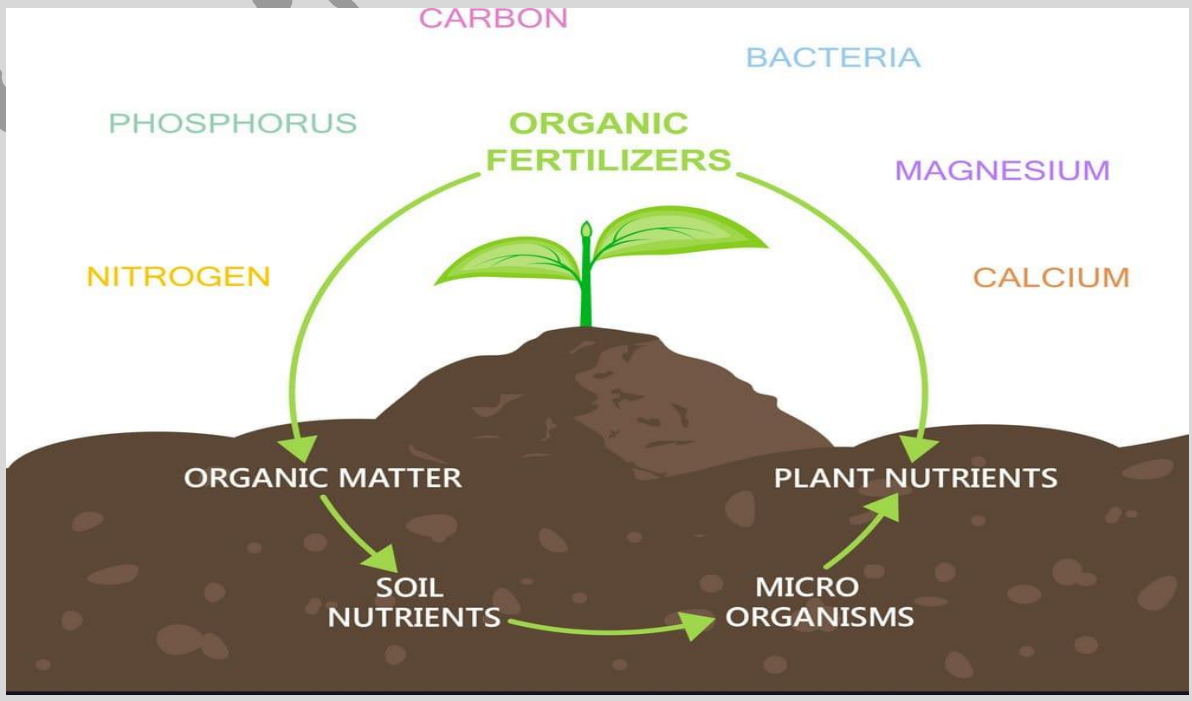
it is a natural disaster represented by the encroachment of sand on agricultural lands and the lack of watering of the fields.

Solution :

watering the fields at the normal rate and not in an excessive or less than required way. Using the modern methods of irrigation instead of primitive irrigation methods. Changing the farming tractors that hurt the environment by ones that work by electricity to be more safe and clean.

2. Soil Fertility

If the farmers kept the fertility of soil , we will avoid the occurrence of desertification. The fertility of soil is one of the important conditions to provide essential nutrients to plants, while supporting a diverse and active biotic community that helps the soil resist environmental degradation.



3. Animals' wastes :

Animals' wastes hurt the environment as they produce methane gas which is a greenhouse gas that causes global warming .

Solution :

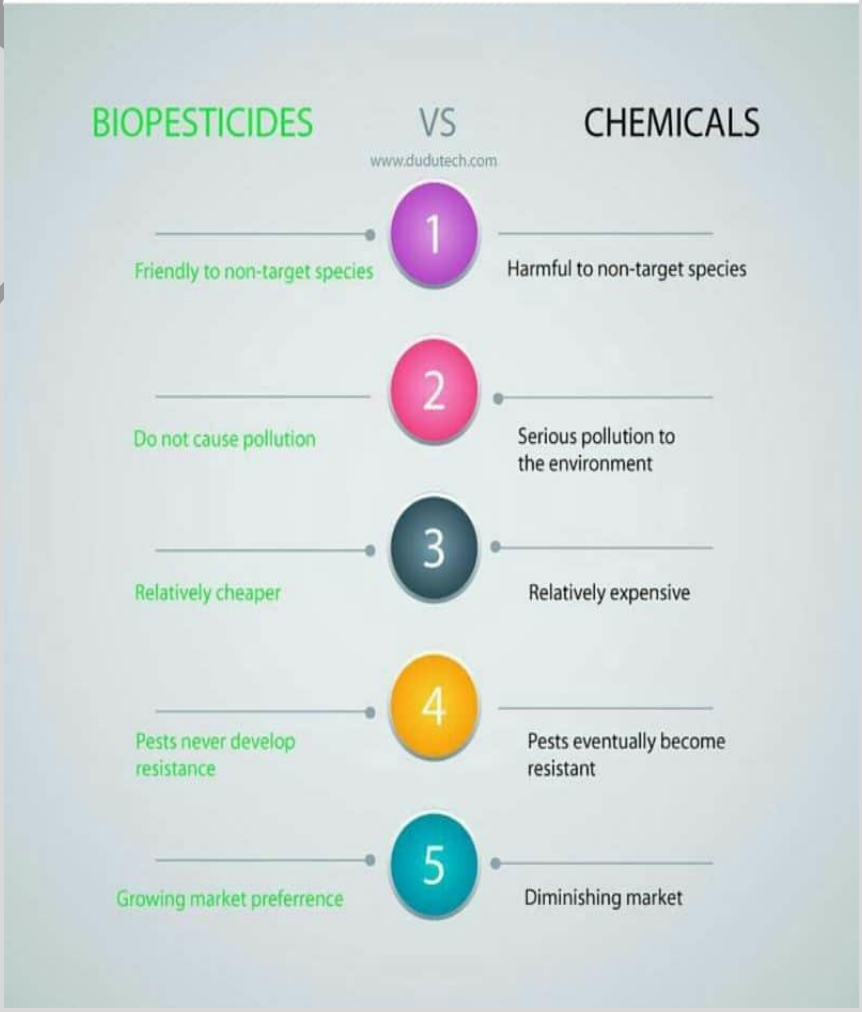
Farmers should enhance the soil inherent fertility by Crop rotation and tillage practices. Also to make plants grow and keep the soil fertility you shoud fertilize it. We can make organic fertilizers from animals' wastes so we can get rid of animals' wastes, methane gas and fertilize the soil at the same time. Also we can fertilize the soil by using organic fertilizations from human food waste as : eggshells and banana peels , and at the same time we are getting rid of these wastes without hurting the environment .

4. Chemical pesticides

Using chemical pesticides pollute the soil, water, turf, and other vegetation. Although chemical pesticides kill harmful insects and weeds , but they are also toxic to other organisms as birds , fish and beneficial insects .

Solution :

Using biopesticides instead of chemical ones , biopesticides are certain types of pesticides derived from such natural materials as animals, plants, bacteria, and certain minerals. For example, canola oil and baking soda have pesticidal applications and are considered biopesticides. They are inherently less toxic than conventional pesticides and they affect only the target pest and closely related organisms .

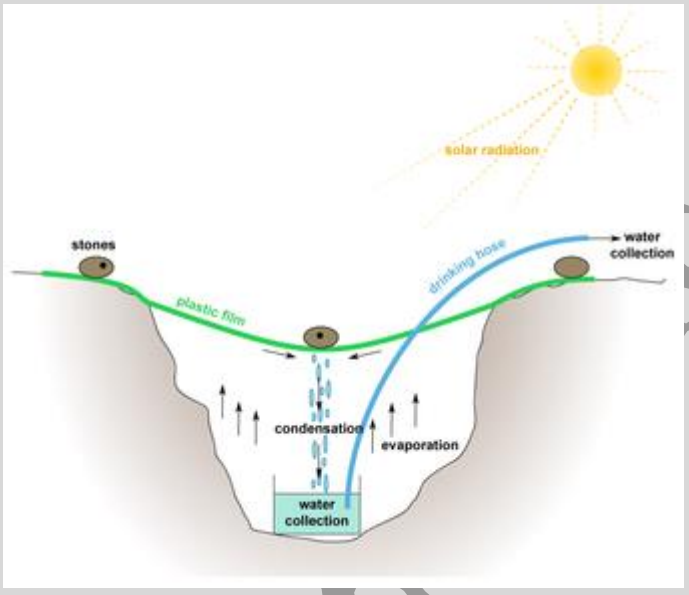


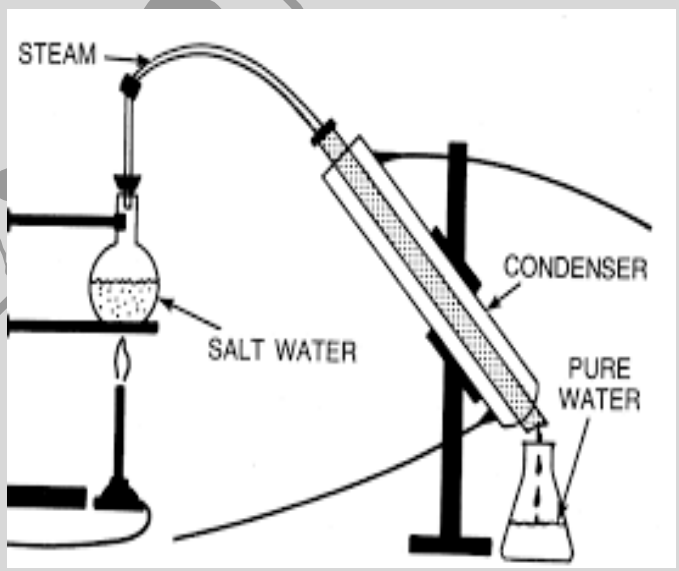
Water desalination in GreenTech :

Desalination is any process that removes excess salts and other minerals from water. In most desalination processes, feed water is treated and two streams of water are produced: Treated fresh water that has low concentrations of salts and minerals Concentrate or brine, which has salt and mineral concentrations higher than that of the feed water.

Two distillation technologies are used primarily around the world for desalination:

Thermal distillation and membrane distillation. Thermal distillation technologies are widely used in the Middle East, primarily because the region's petroleum reserves keep energy costs low. Another thermal method, solar distillation, is typically used for very small production rates. This process is useful because it is done by solar energy and doesn't hurt the environment .

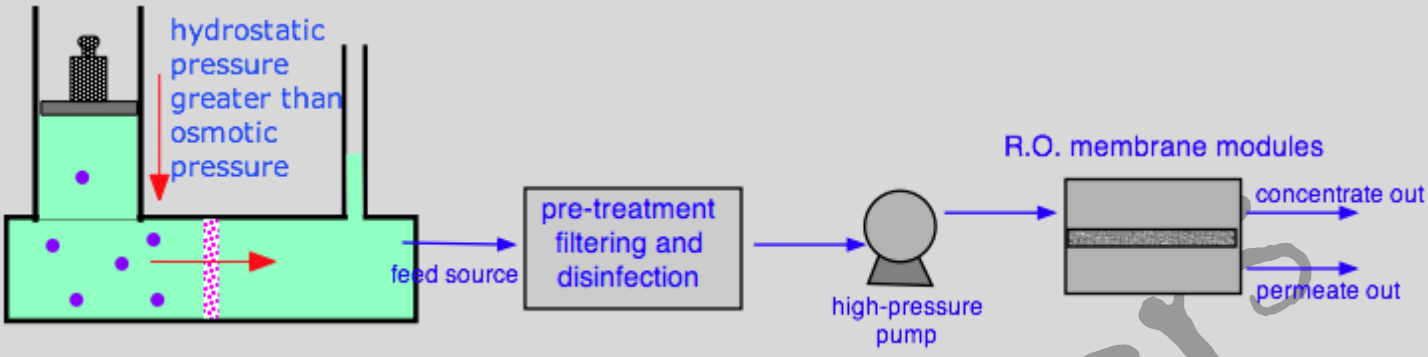




Membrane distillation technologies are primarily used in the United States. These systems treat the feed water by using a pressure gradient to forcefeed the water through membranes. From the major membrane processes there is one called reverse osmosis (RO).

Reverse osmosis is the process of purifying water through a semi-permeable membrane to remove unwanted contaminants and molecules. In regular osmosis freshwater and salt (or sugar) water are separated by a semi-permeable membrane. The water migrates through the membrane from the weak to the strong solution until the water is equally salty (or sugary) on both sides. This process can be reversed if pressure is applied to the stronger solution. When that happens, water migrates through the semi- permeable membrane away from the dissolved solids. It is this process that is used in reverse osmosis to separate dissolved salts and minerals from your feed water. It's more effective than using inline filter

cartridges (which usually use carbon as filter media) and results in up to 98% rejection of dissolved contaminants. Mostly this process is done by using non-renewable source of energy .



Callenges that face water desalination

& how to solve them :

1. Water brine

Desalination industry produces water for drinking and for agriculture in the world's arid coastal regions. But it leaves behind a waste product a lot of highly concentrated brine, which is usually disposed of by dumping it back into the sea, a process that requires costly pumping systems and that must be managed carefully to prevent damage to marine ecosystems.

Solution :

In a new study, through a fairly simple process the waste material can be converted into useful chemicals — including ones that can make the desalination process itself more efficient. The approach can be used to produce sodium hydroxide, among other products. Otherwise known as caustic soda, sodium hydroxide can be used to pretreat seawater going into the desalination plant. This changes the acidity of the water, which helps to prevent fouling of the membranes used to filter out the salty water — a major cause of interruptions and failures in typical reverse osmosis desalination plants.

Consumption of energy

In GreenTech the focus will be on the problem of energy consumption at the most .

The simplest definition of energy is "the ability to do work". Energy is how things change and move We need energy in every detail of our lives Energy is the capacity of a physical system to perform work. Energy exists in several forms such as heat , kinetic or mechanical energy, light, potential energy , electrical, or other forms.

Our main consumption of energy comes from non-renewable resources and this has many disadvantages affecting the environment negatively. Because of this, scientists are investing their efforts into exploiting renewable resources like solar energy and geothermal energy, hydropower, biomass, geothermal resources, and biofuels and hydrogen. A new method that scientists are still developing is using the human's body and actions to produce energy.

Generating energy from renewable sources

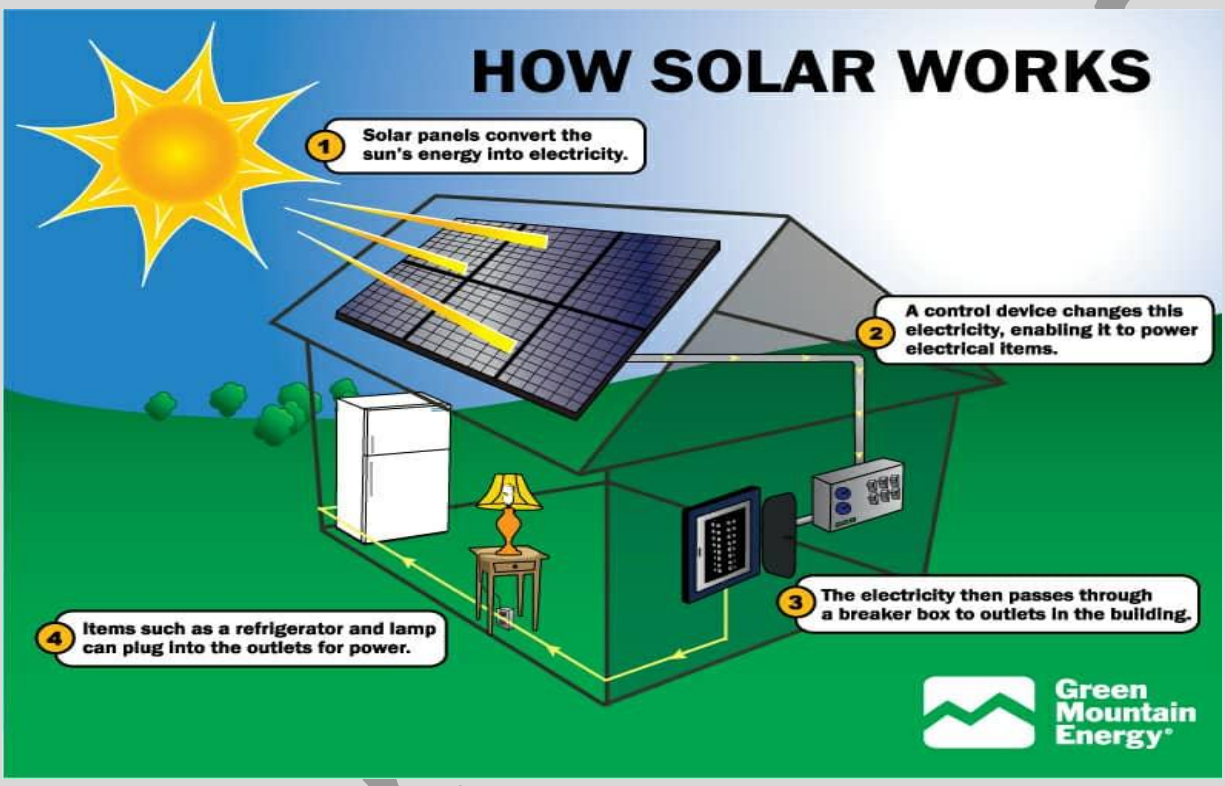
Solar energy :

Sun is the primary source of energy. Sunlight is a clean, renewable source of energy. It is a sustainable resource, meaning it doesn't run out, but can be maintained because the sun shinesalmost every day.

Solar energy is captured in a variety of ways, the most common of which is with photovoltaic solar panels that convert the sun's rays into usable electricity. Aside from using photovoltaics to generate electricity, solar energy is commonly used in thermal applications to heat indoor spaces or fluids. Residential and commercial property owners can install solar hot water systems and design their buildings with passive solar heating in mind to fully take advantage of the sun's energy with solar technology.

Solar technologies can harness this energy for a variety of uses, including generating electricity, providing light or a comfortable interior environment, and heating water for domestic, commercial, or industrial use.

As a result , we can capture energy from the sun and change the energy to the form that we need (as electric , thermal ..etc) ,and we can operate technologies using solar energy without hurting the environment .



Energy from humans activities :

Human power used to be all the rage. 150 years ago, products that relied on human energy such as the bicycle, pedal-powered The bicycle is a great way of using human power in a way that allows us to exercise, transport ourselves and save on the consumption of conventional energy at same time. For example, London-based company Electric Pedals is using the pedal-powered technology to generate electricity for events such as outdoor cinemas, educational workshops and music stages.

Generating power from people's normal activities such as walking is known as parasitic harvesting. One example of this in action is the nPowerPEG, a handheld tube-shaped device that clips to your belt and backpack and generates electricity as you move around, using a

magnet weight, spring, and inductive coil. This doesn't produce enough power for high wattage electronics such as laptops and tablet computers, but better energy efficiency and battery technologies mean the concept has great potential.

Resources :

1- https://eorganic.org

2- http://www.regional.org.au

3- https://agriculture.gov.tt

4-https://www.epa.gov/

5- https://www.nationalgeographic.org

6-https://www.ncbi.nlm.nih.gov › articles › PMC2984095

7- https:// news. mit.edu

8- https:// aquacure.co.uk

9- https:// agrilifeextension.tamu.edu

10- https:// weforum.org

11- https://seia.org

12- https://energy.gov