Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 2, 2021, Pages. 1002 - 1007
Received 20 January 2021; Accepted 08 February 2021.

Implementation of Hydroponics as a Twin Support for Electric Power

H. Mary Henrietta[1], Megavathi Mohanraj[2]
[1]Assistant Professor, Department of Mathematics, Saveetha Engineering College, Chennai, Tamilnadu 602105, India.
[2]U.G SCHOLAR, Department of Agriculture, Saveetha Engineering College, Chennai, Tamilnadu 602105, India

ABSTRACT

Electricity is something that is connected to fixed or moving costs. Many researchers have developed machines based on graphene and silica to produce electricity from stagnant or stagnant water. In this paper we propose to plant hydroponics plants using these devices. Hydroponics is a type of horticulture and a subset of hydroculture. It is a biological process where plants are grown without soil but where water and nutrients and minerals are added. In this way, the app is used in two ways. To find a more satisfying relationship between society and its environment, timely arrangements need to be made for changes in human activities and competition for the use of resources to reduce potential conflicts.

Keywords:
hydroponics market, electricity, landless culture

1.Introduction

Soil is a mixture of organisms, minerals, gases, liquids together to support plant health. Soil contains many microorganisms, which take in organic matter from the soil and extract minerals from the soil. They feed on oxygen and release carbon dioxide. Nature affects the soil as the nutrients dry out. Cultivation has the potential to damage soil structure and make the soil more susceptible to other types of erosion, such as erosion. Improper use of the plant can have the following effects: It can be reduced in soil organisms and therefore a decrease in soil structure. in such cases underground cultivation such as hydroponics causes objects to fall into place. To save resources for future use, certain ideas must be adopted. another such concept is the combination of hydroponics with electrical energy. Water is needed to grow hydroponic plants. The concept of hydroponics reduces the need for soil, nutrients and minerals. Still, it is healthy and ready for human consumption. It has a much higher nutrient content than plants grown in soil.
Hydroponics reduces the use of many natural resources such as soil, water, etc. The water demand for hydroponics plants is lower than for plants grown in the soil and thus conserve many natural resources. In addition to these resources, electrical energy can be generated from water used for the growth of hydroponics plants. Graphene - silk-based devices that can be used to generate electricity from stagnant or flowing water.

2. Hydroponics

Plants grow through a process called photosynthesis, in which they use sunlight and the chemical inside their leaves called chlorophyll to convert carbon dioxide and water into sugars (a type of sugar) and oxygen. Write that chemically and find the figure:

$$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$$

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 2, 2021, Pages. 1002 - 1007
Received 20 January 2021; Accepted 08 February 2021.

Figure.1: Hydroponics Model

There is no mention of “soil” anywhere - and that is all the evidence you need that plants can grow without it. What they need is water and nutrients, both of which are readily available in the soil. But if they can find these things elsewhere - say, by standing with their roots in a nutrient-rich solution - they can live without soil completely. This is the basic premise of hydroponics. In theory, the term "hydroponics" refers to the growth of plants in water (from two Greek words meaning "water" and "toil"), but because you can grow plants without standing in water, many people define the term as plant growth without using soil [2].

2.1 Benefits of Hydroponics

Although the benefits of hydroponics have sometimes been questioned, it seems that there are many benefits to growing out of the soil. Some hydroponic growers have found that they often reap bountifully when they leave conventional methods. Because aquatic plants attach their roots directly to rich nutrient solutions, they get what they need more easily than soil-grown plants, so they require much less root systems and can convert more energy into leaf and plant growth. With smaller roots, you can plant more plants in the same area and get a higher yield on the same amount of soil (which is great news especially if you grow in a limited area such as a greenhouse or balcony or window inside). Hydroponic plants also grow fast. Most insects are transmitted to the soil, so doing so without them often gives you a hygienic growing system with fewer disease problems. Since hydroponics is ready to grow indoors, you can use it to grow plants all year round. Automatic time-controlled systems and computers make everything airy.

With normal growth, you can sometimes have a lot of control over how you treat plants and, if the weather and other conditions are close to you, your plants will still grow. But hydroponics is more scientific and plants are much under your control. You need to check them regularly to make sure they are growing right in the conditions they need (or automated systems, such as lighting times, make things easier).

2.2 Effectiveness of Hydroponics

Aquatic plants especially need rich nutrient solutions. The nutrient-rich solution stands in a plastic hole where plants are grown. In general, aquatic plants have more nutrients and benefits than soil-grown plants. Nutrient is like a type of moving band that transports fluids by sliding past the roots and bringing to them the beauty they need. Alternatively, you can plant the plants with their roots supported by a nutrient-rich environment such as rock wool, sand, or vermiculite, which acts as part of the barren soil.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 2, 2021, Pages. 1002 - 1007
Received 20 January 2021; Accepted 08 February 2021.

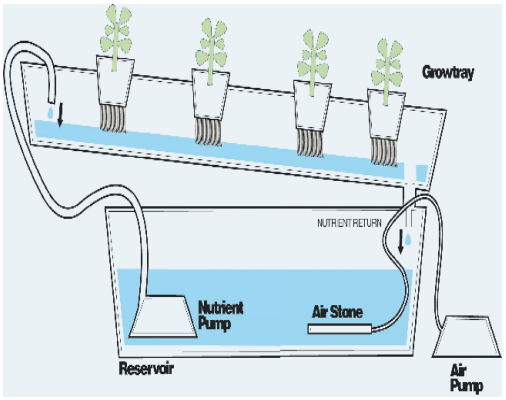

Figure.2: Working Setup

2.3 The Growth Cycle of Plants

Hydroponic systems should provide all the nutrients needed for plant growth and thus maintain their life cycle
Natural light i.e. sunlight provides much needed energy for plant growth
Minerals, oxygen and water are the roots
Lack of soil eliminates concern about pests, eliminating the need for pesticides
Plants are carefully monitored and thus maintain a good growth rate
Because each plant can be supplied with advanced nutrients that differ from its needs, hydroponics-grown plants often produce more than those grown in traditional ways. However, it is important that the system is constantly monitored to ensure that the plants are fed and that the pollution does not come from the water.

3. Electricity

Electricity is a set of physical conditions associated with the presence and movement of matter through electrical charges. Electricity is defined as the electrical charge that allows the work to be done. Payment is the subject matter - such as quantity, volume, or density. It is measured. The movement of charged particles by telephone or other means is called current or electricity. Just as you can calculate how much an item weighs, you can also estimate how much it costs. The key to the charge is that it can come in two forms: positive (+) or negative (-).
To make money we need charging carriers, and this is where our knowledge of atomic particles - especially electrons and protons - is most helpful. Electrons always carry a negative charge, while protons are always well charged. Neutrons (as they are called) are neutral, innocent. Both electrons and protons carry the same amount of charge, just a different type.

3.1 Types of electricity

Electricity is one of the best inventions in our lives. Everything and everything we see works in some form or another. Electricity is an idea that many do not know. The electricity for such people to turn on the button, the tool starts working, you turn off the button and that's all. Significance depends on the size of the reaction on the electricity supply.
There are two types of electricity, static and electric current.
Static Electricity - Produced by rubbing two or more objects due to the performance of the fighting force.
Current Electricity - A flow of electricity bills through a conductor across the electric field.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 2, 2021, Pages. 1002 - 1007
Received 20 January 2021; Accepted 08 February 2021.

There are basic types of resources used to generate electricity and are divided into two categories; renewable, non-renewable resources.
Fuels Fuels 67% (Non-Renewable Source): Coal 41%, Natural Gas 21% and Oil 5.1%
Renewable Energy 16%
Especially Hydroelectric 92%: Air 6%, Geothermal 1%, Solar 1%
Nuclear power 13%
3% Other Sources (Biofuels, Biomass and other unknown information)

3.1.1 Hydroelectric Power

Hydro electricity is made using hydroelectric power. It is made at large power stations using the same basic principle of a small grist mill currently on a very large and advanced scale for efficient operation. Electric generators are attached to large generators that rotate at high speeds because of the water running through them.
Micro-Hydro Electricity Power is produced to supply electricity to rural areas of Nepal, Vietnam and China. The technology was introduced in India by Pradhan Mantri Gram Vidyut Yojna by Prime Minister Narendra Modi. Micro-Hydro is believed to speed up the installation of electricity. Currently, 95% of India's villages need electricity. To install electricity in 1 Lakh villages, 1-2GW of electricity should be made. Amidst these problems, our Atomberg Fan promises you to consume a very small amount of energy and a complete game changer.

3.1.2 Electricity - Standing Water

Electricity is produced without gasoline or any raw material or not from running water than standing water. It is possible to generate energy or electricity from stagnant water by installing graphene and silica-based devices [4]. It is possible to improve its energy efficiency by changing the width and number of silica phases, as well as the pH of the water flow. Although devices produce small volumes, they are a step closer to building a secure and reliable alternative power source that can ultimately reduce the load on a single grid.

4 .Natural Resources

It is used by any physical organism that is part of the Earth that people need and value. Natural resources are a source of value. Some resources are limited, while others can be filled to varying degrees. However, people need to estimate short-term use rates compared to long-term availability to ensure a sustainable future. Natural resources are resources available without any human action. This includes all valuable features such as magnetic field, gravitational force, electrical power and energy, etc. Natural resources include oil, coal, natural gas, metals, stone, and sand. Air, sunlight, soil, and water are other natural resources. Stabilizing human pressure and reducing human consumption of non-renewable resources are key steps towards global sustainability. The permanent device has an endless supply. Other examples of sustainable resources include solar power, ocean power, and wind power. Other examples are salt, stone, magnesium and diamonds.
Some of the factors that contribute to the provision of resources include re-use, as well as the availability of suitable spaces for that content. Non-renewable resources cannot be renewed. For example, oil, minerals, and other non-renewable resources cannot be recycled.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 2, 2021, Pages. 1002 - 1007
Received 20 January 2021; Accepted 08 February 2021.

4.1 Usage of resources

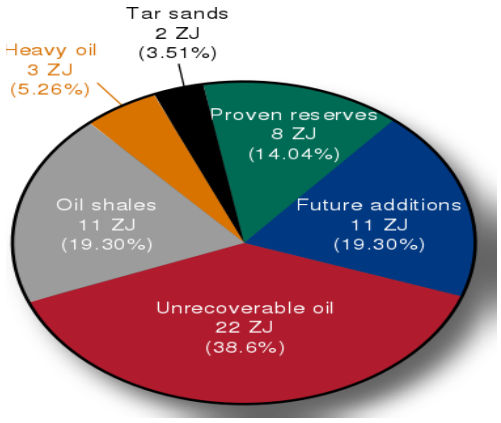

Figure.3: Remains of Oil in the Planet

Power is the most important foundation, while a reliable concept is focused on the long-term survival of communities. Strength and stability had to be measured. Environmental research includes the effect of resource utilization and technology programs must continue to be sustainable. Energy can be divided into renewable and non-renewable energy. Sustainability has become a major issue with the current global issue. The energy is vital and vital to the continued growth and economic development of the country. But the most important issue is how technology can help find a solution to ultimately sustainability. Energy efficiency, basic energy use and storage, and energy quality are important factors when it comes to energy resources. Apart from that other energy sources such as hot springs and hydroelectric and nuclear power plants are consumed by the nation. Energy efficiency, good planning, and energy efficiency are needed to keep energy in the world stable. In addition, most importantly renewable energy sources must be developed and developed. On the other hand, consideration should be given to the side effects of energy use such as resource depletion, waste management, and environmental degradation.

Primary energy production mainly comes from fossil fuels, unrestricted access to fuel can be exploited by converting it into a viable energy supply and for human consumption. The price of equipment that considers the cost of integration when the depleted resources are depleted can see very different approaches to energy policy. Equipment used for coal production, natural gas, crude oil, nuclear power, hydropower and hydroelectric gas. The efficient use of limited resources is important because it can reduce carbon dioxide emissions and greenhouse gases, both of which are potential threats to the stability of the biosphere.

4.2 Availability of Resources

Natural resources are available all over the world, where people use existing resources or reserve them for another service, or trade with another country to get the service. Some resources are hard to come by, so people are sometimes forced to have them (for example, oil resources). Therefore, we need to protect our resources from pollution. For example, when they do not have access to clean water, people can become ill; if there is not enough wood, the trees will be cut down and the forest will disappear over time (deforestation); if there were not enough fish in the ocean, people would starve to death. Other examples of renewable resources are wood, solar energy, trees, wind, hydropower, fish and sunlight. Therefore, people should start conserving their natural resources. Otherwise, everything will be lost and human survival is questioned.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 2, 2021, Pages. 1002 - 1007
Received 20 January 2021; Accepted 08 February 2021.

4.3 Environmental Effects

The way we use resources triggers irreversible environmental changes. Extrusion and processing of non-renewable materials are often energy works that involve significant environmental and water balance and lead to air, soil and water pollution. Even the extraction and production of renewable resources often involves the massive use of energy, equipment, chemicals and other water; and all this translates into filth. Greenfields are often converted to arable land and, in some cases, the entire environment is destroyed in this process. In short, greenhouse gas emissions and recycling have always had an impact on the environment, leading to the occurrence of soil degradation, water shortages, loss of biodiversity, damage to ecosystem functions and increased global warming. Consumption of products made from recyclable materials almost always leads to emissions, pollution, environmental damage and / or loss of biodiversity. Products need energy and water, as well as land for shipping, marketing and consumption. Improper use of the product creates harmful emissions that can end up in our water, soil and air. The infrastructure elements that we take for granted as our homes, let alone the many daily activities, often involve the use of resources and lead to greenfield land, environmental degradation and environmental degradation and ultimately the purchase of property, environmental damage is inevitable. For example, recycling requires energy, the use of energy waste produces greenhouse gases and other pollutants, and Greenfield land remains permanently in landfill sites.

5. Conclusion

To find a more satisfying relationship between society and its environment, timely arrangements should be made for changes in human activities and competition for the use of resources to reduce potential conflicts. Therefore, the utilization of operational resources is already beyond the capacity of the earth's renewable energy because non-renewable natural resources are depleted and their quality is often in the middle. Increasing pressure on natural resources caused by sustainable global population growth could create competition for other potential uses.

References

[1] https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.citycrop.io%2Fwhy-citycorp-uses-hydroponics%2F&psig=AOvVaw2aTNuGYxV6no8h7o_HwCxz&ust=1598185769465000&source=images&cd=vfe&ved=0CAIQjRxqFwoTCKjS9ZDorusCFQAAAAAdAAAAABAD
[2] https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.academia.edu%2F6934808%2FA_REVIEW_ON_PLANT_WITHOUT_SOIL_HYDROPONICS&psig=AOvVaw0oKZZnd1y9_Tova4I9qZ7&ust=1598181732097000&source=images&cd=vfe&ved=0CAMQjB1qFwoTCJiX6ofZrusCFQAAAAAdAAAAABAS
[3] https://www.urbanvine.co/blog/how-do-hydroponics-work
[4] https://www.natureasia.com/en/nindia/article/10.1038/nindia.2020.4#:~:text=Researchers%20from%20the%20Indian%20Institute,from%20stagnant%20and%20flowing%20water.
[5] https://en.wikipedia.org/wiki/World_energy_resources
[6] https://hydrilla.in/knowledge/2019/01/05/major-differences-between-soil-and-soil-less-crop production/#:~:text=Water%20use%20in%20hydroponics%20and,lower%20than%20in%20soil%20production.&text=The%20water%20used%20is%20the,from%20the%20soil%2Dless%20media