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En. Science – 2018

Write a detail notes on alternatives resources.

Introduction:

Alternative energy resources also known as Renewable energy sources that are replenished naturally and are considered to be environmentally friendly. These sources are becoming increasingly important as the world seeks to reduce the dependence on fossil fuels. There are infinit and have a negative impact on the environment. There are some energy resources of renewable. These include solar system, wind and Hydro energy. All these are depicted in book "Environmental Science: working with Earth by G. Tyler Miller, JR."

→ Renewable Energy Resources

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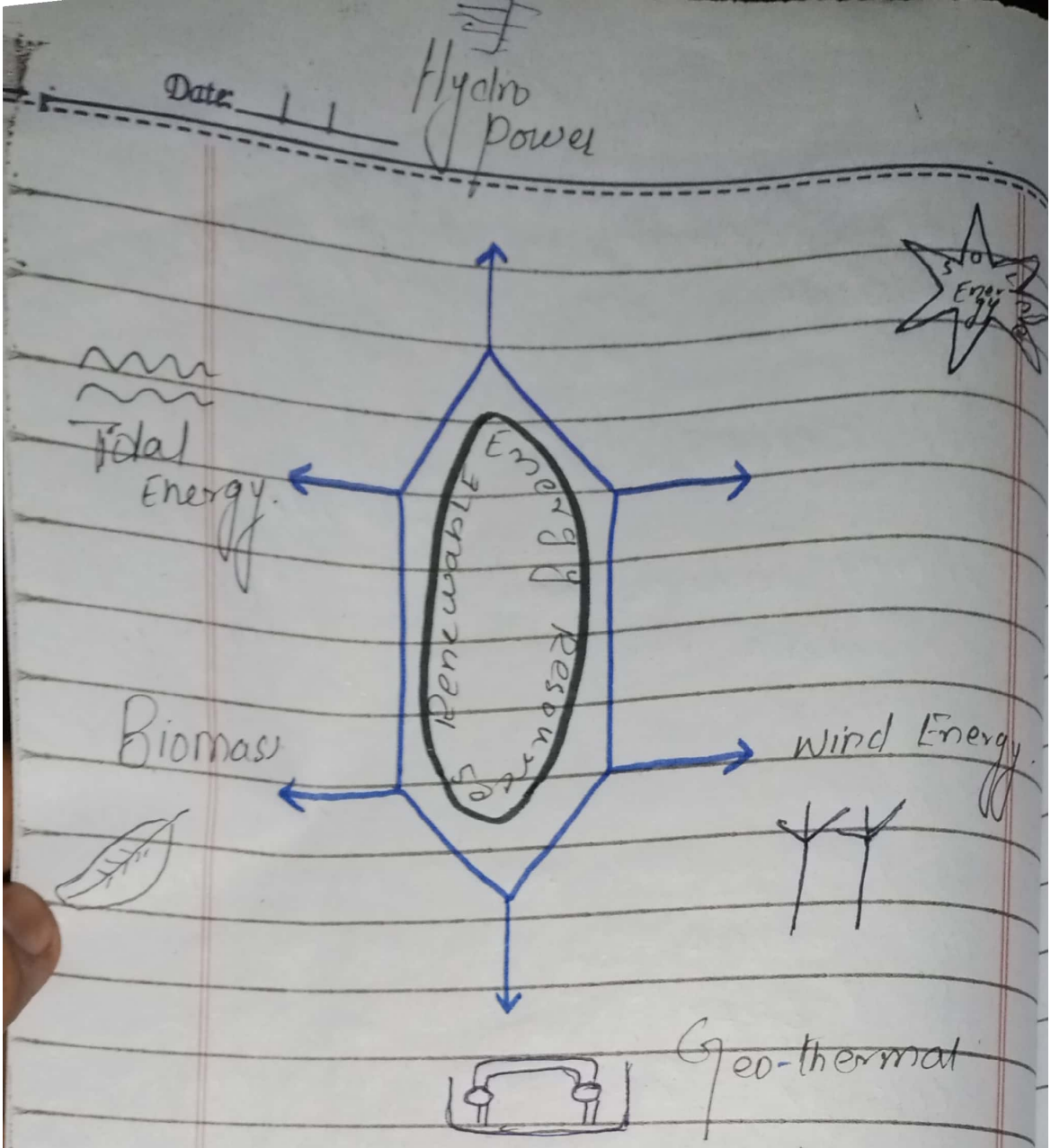
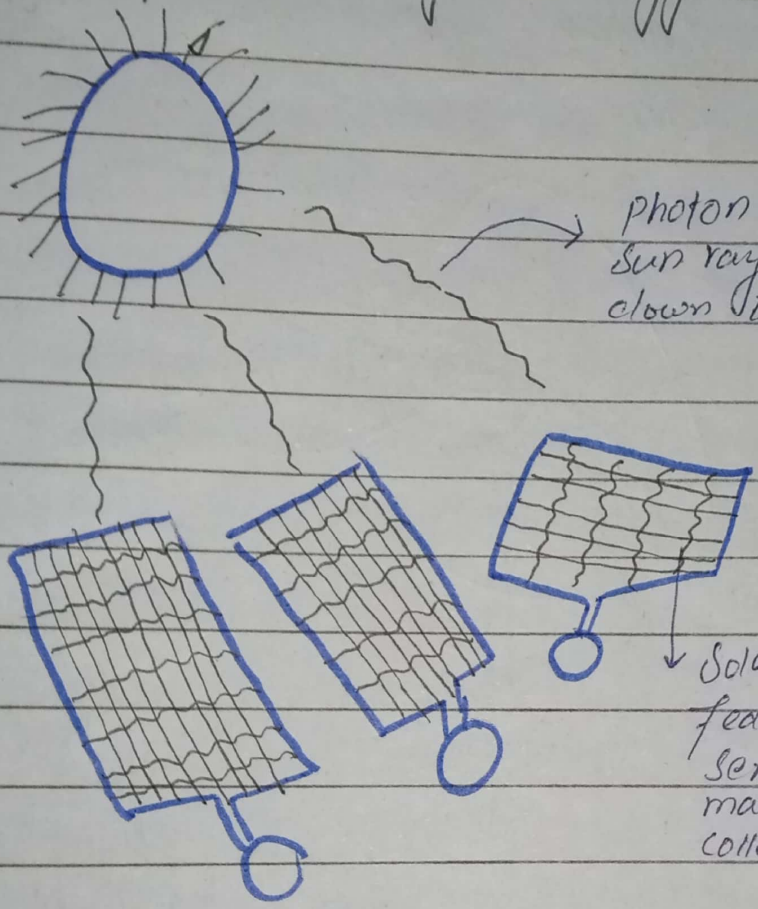


1. Solar Energy : The Freely Avaible Energy Source

Sunlight is one of our planet's most abandent. the amount of solar energy that reaches the earth's surface in one hour is more than planet's total energy required them. Although it sounds like a perfect renewable energy. The amount of solar energy we can use

Date: / /

according to the time of the day. In United Kingdom, solar is an increasingly populer way to suppliment your energy usage.



2- Wind Energy

wind is a plentiful sourse of clean energy. Wind farms are increasingly familier sight in the ~~UK~~ UK with wind power making an ever increasing contribution to national grid. To harness electricity from wind energy, turbines are used to

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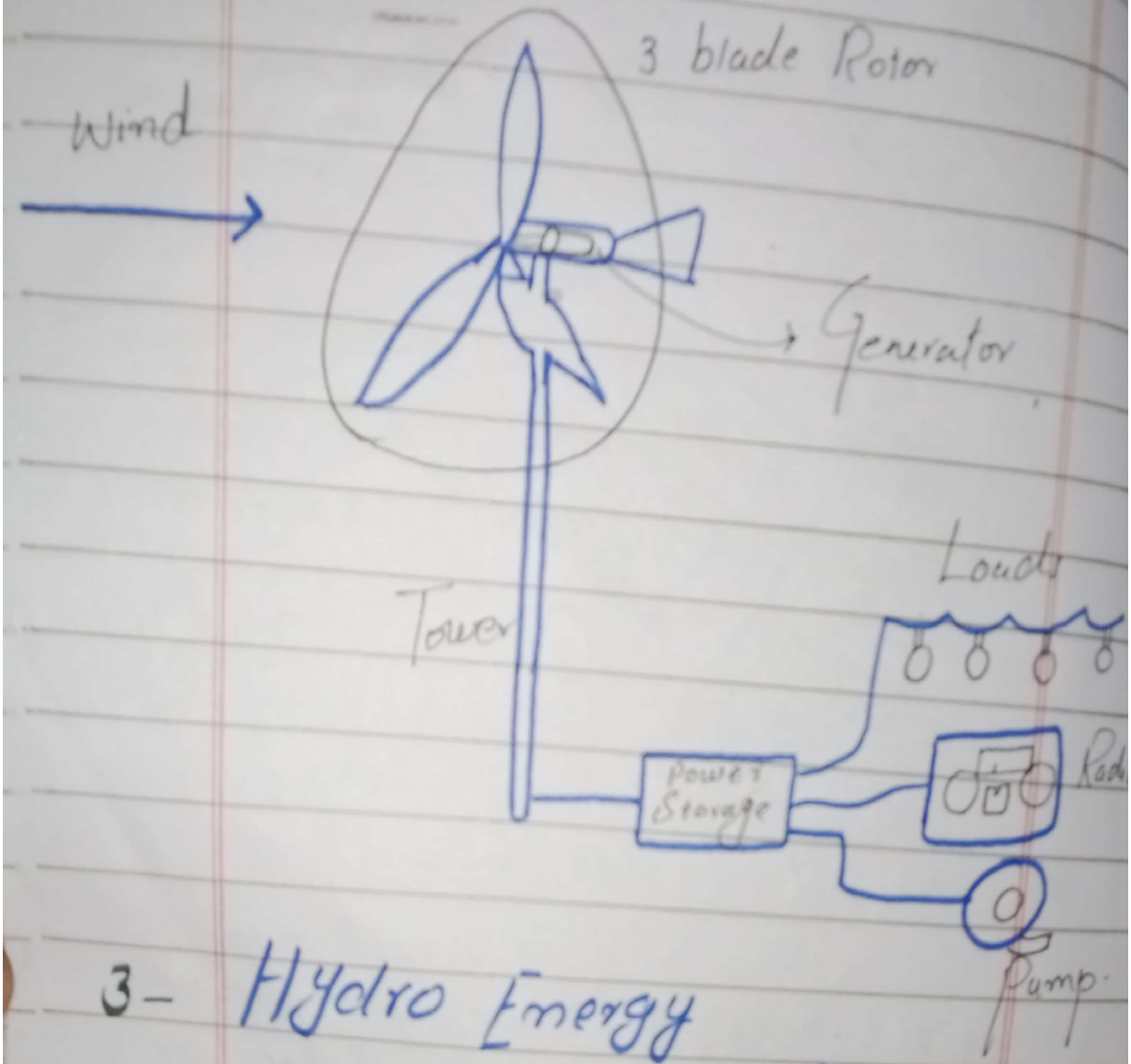
drive generators which then feed electricity into the national grid. Although domestic generation systems are available, not every property is suitable for domestic wind turbine.



3- Hydro Energy

As a renewable energy resource, hydro-power is one of the most commercial developed. By building the dams or barrier, a large reservoir can be used to create a controlled flow of water

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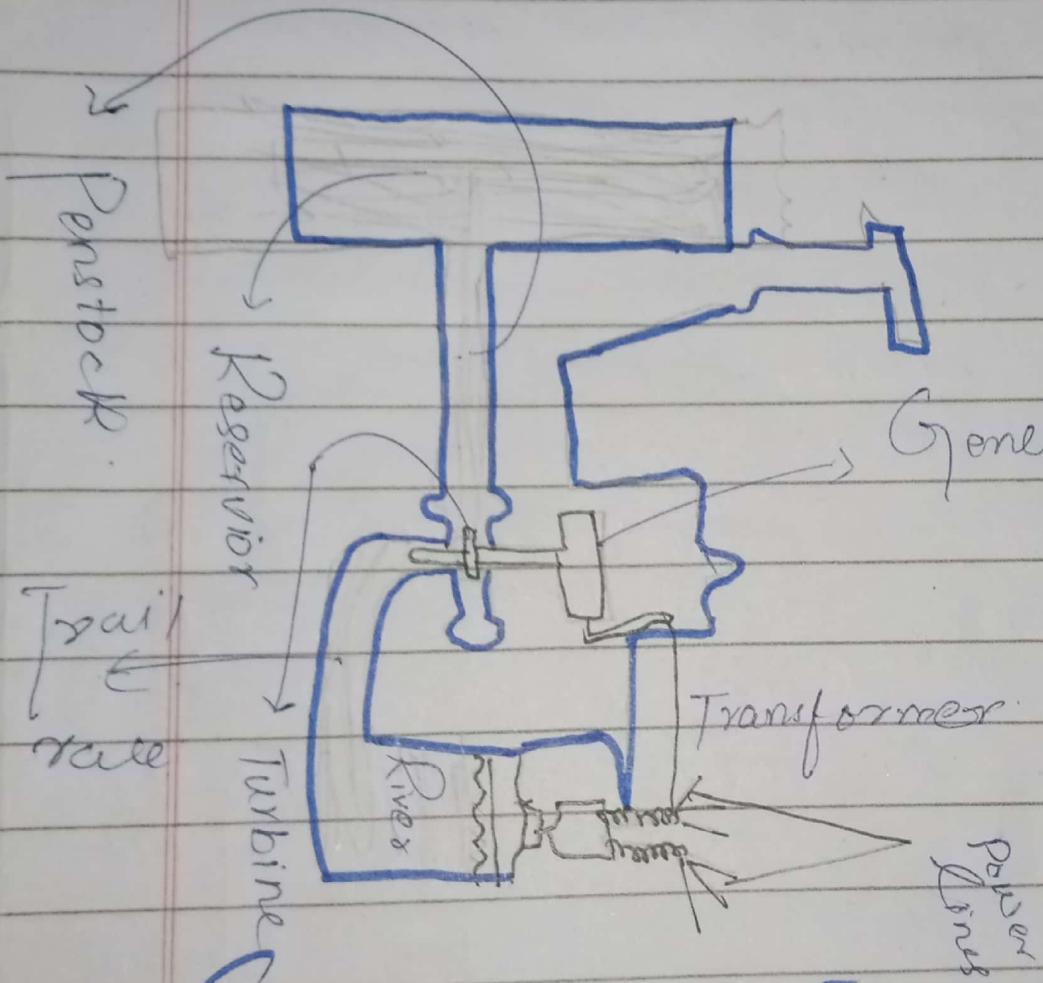
Hydro power reservoirs often have multiple uses:

(i) Providing drinking wates.
(ii) wates for irrigation
(iii) flood and drought control
(iv) navigation & sevices.



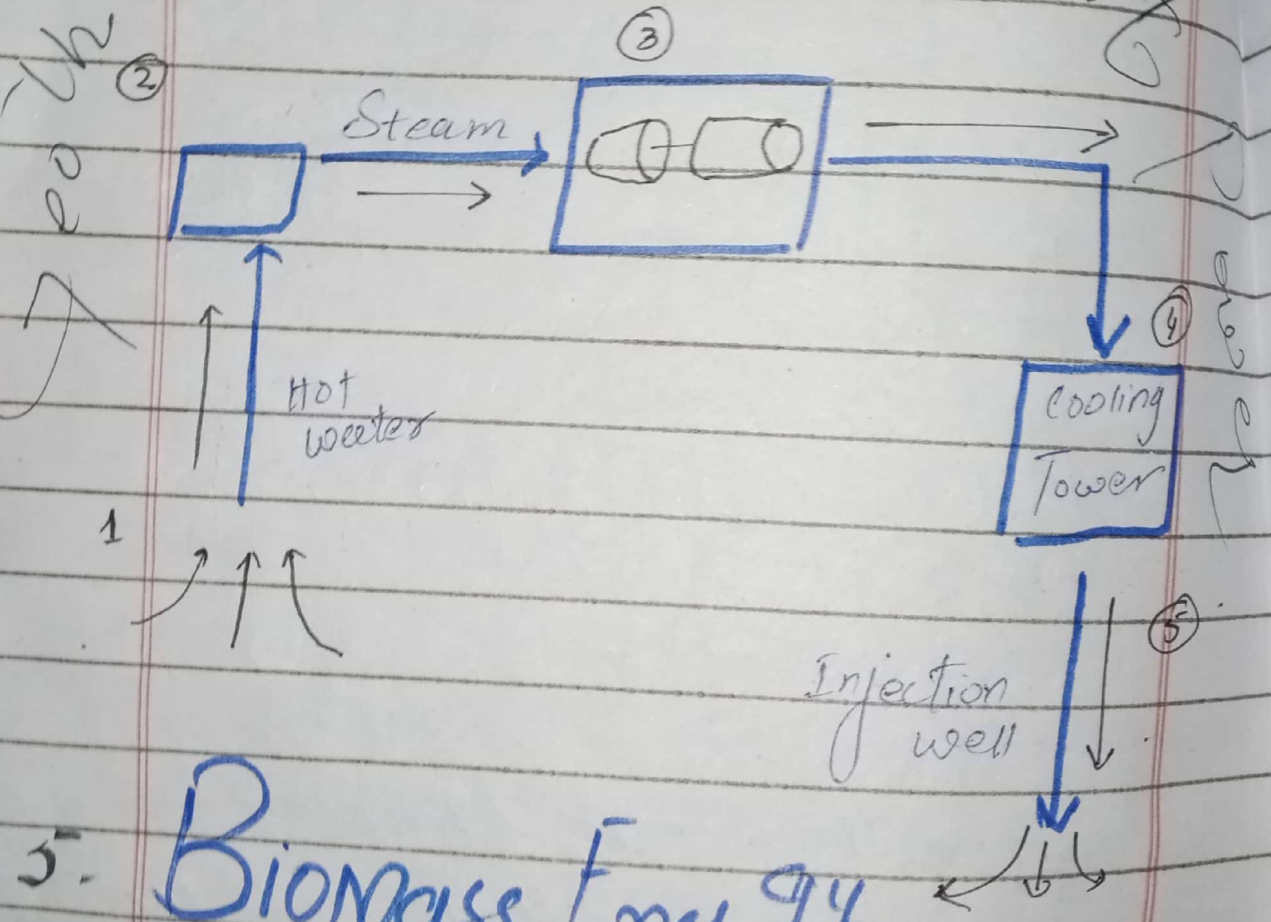
4. Geothermal Energy.

It utilizes the accessible thermal energy from Earth's interior. Heat is extracted from geothermal reservoirs using wells or other means.

reservoirs that are naturally sufficient hot and pressurized are called hydro thermal reservoirs.

The technology for electricity generation from hydro thermal reservoirs is mature and reliable and has been operating for more than 100 years.

Geothermal Plant



5. Biomass Energy

Biomass is produced from a variety of organic materials such as wood and charcoal dung and agricultural residues.

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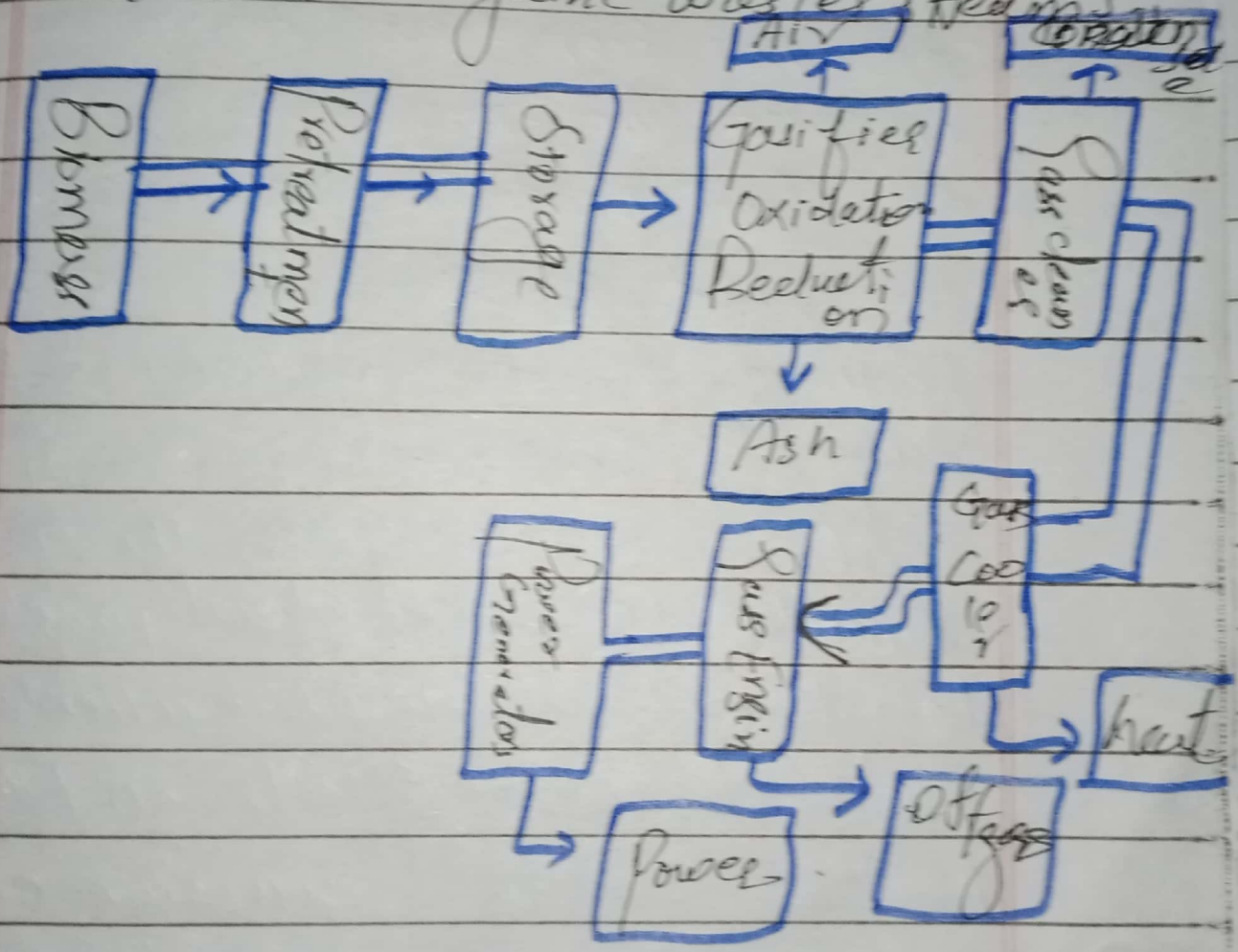
most bioenergy used in rural energy for cooking, lighting and space heating.

Modern biomass system include dedicated crops or trees, residues from agriculture and forestry and various organic wastes (thermal



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(B) What are the Environmental Impacts on production of food?

Introduction

Basics of Environmental Science by Michael Allaby demonstrates that Food production is essential for the survival of human, but also has significant environmental impacts. The environmental impact of food production refers to the effects of growing processing, packing, transporting and disposing of food on air, water and soil. In recent years, the environmental impacts of food production has gained considerable attention due to its adverse effects on Planet's health. In this discussion, one will discuss the environmental impacts on food production.

[Environmental Impacts]

1- Intensive Farming Practices Leading to Soil Erosion

Intensive farming practices such tilling and over grazing lead to soil erosion which causes the loss of fertility. Soil erosion can also impact water quality by carring sediments to rivers, lakes and oceans.

2- Water Consumption Lead to reduction of Food Resources

Food production is also a major consumer of water resources. Irrigation for crops amount for 70% of global fresh water use. This can lead to depletion of acquifers and rivers as well as increase salinization and pollution.

3- Biodiversity Loss

The conversion of natural habitats into agricultural land can result in the biodiversity

Date: / /

loss and ecosystem services. For example, the conversion of grasslands into croplands has led to declines in bird population.

4- Landfills Emission Ends up

1. Food waste ends up in Landfill Emission.

Food waste that ends up in landfill contributes to greenhouse gass emissions through production of Methane (CH_4). Methan is Potent Greenhouse gas that is 25 times more effective at trapping heat than Carbon dioxide.

5- Genetic Modification

Genetically modified crops are often used in Agriculture to increase yield or improve resistance to Pests are diseases. However, there are concerns about the Potential impacts on biodiversity and human health

Date: / /

Conclusion

In conclusion, the production of food has a significant environmental impacts including deforestation, water pollution, and soil degradation. Sustainable farming practices and reducing food wastes can mitigate these impacts.

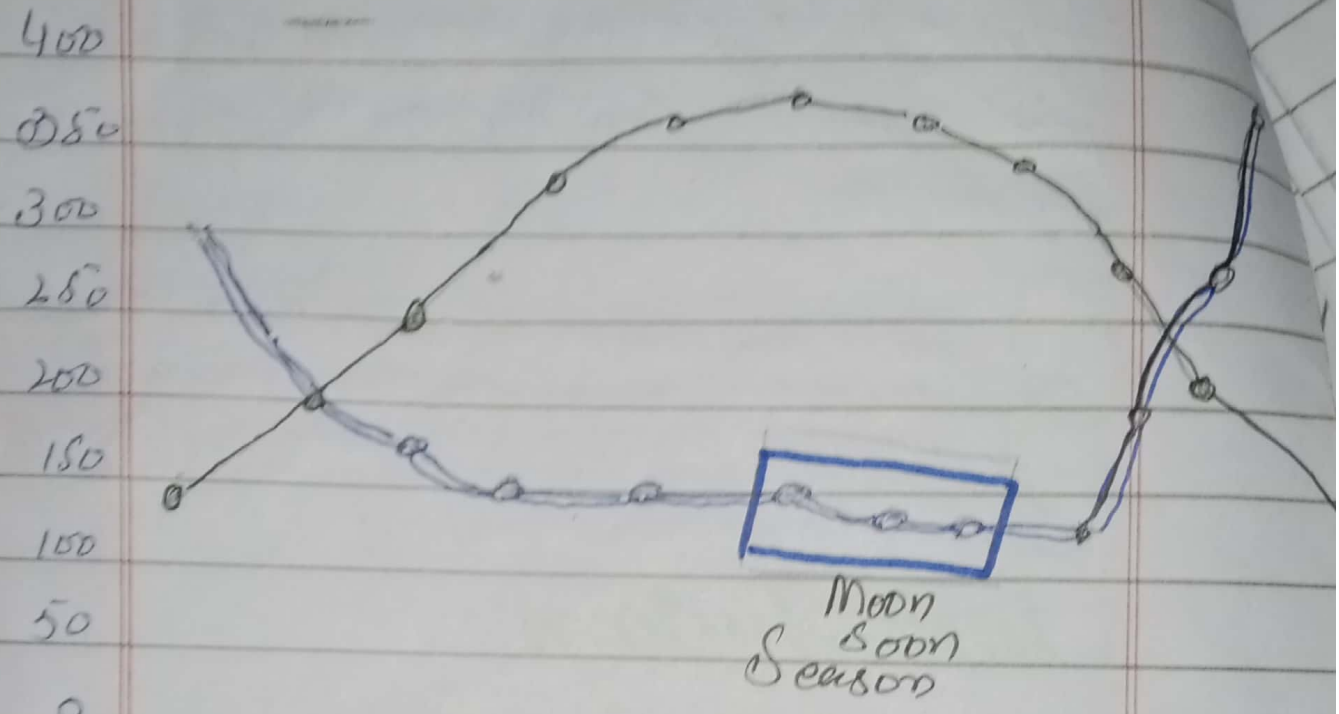
Q 4

what are meant by smog? Explain the main causes of smog in Punjab Sumerize the effect of key meterological factors on dispersion of pollutants in the atmosphere.

Introduction

According to Food and Agricultural Organization, smog is a type of air Pollution that is the mixture of smoke and fog. It is formed when Pollutants such as nitrogen oxides, sulphor oxides and Particulate matter react with sunlight and heat. The resulting mixture can be harmful to human health and the environment.

Similarly, there are several causes of smog in Punjab. These includes vehicular emissions, agricultural burning and construction activities.



Causes Of Smog In Punjab

Date: / /

1. Vehicular Emission Contribute to formation OF Photochemical Smog

It is one of the major cause of smog in Punjab. The State has high number of vehicles on the roads which emit Nitrogen oxide and VOCs that contribute to formation of Photochemical smog. The use of old vehicles with outdated technologies contribute to air pollution.

2. Industrial Emission Contribute to Smog.

Industrial emissions from factories another major cause of smog specially in Faisalabad. The State has large number of Industrial units that emit pollutants such as sulpher dioxide, nitrogen oxide and particulate matter. The use of outdated technology and lack of proper pollution

Date: / /

control measures also contribute to air pollution.

3- Agricultural Burning

Farmers burn crops residues after the harvest season, which releases a large amount of particulate matter and other pollutants into the air. This practice is common and contributes significantly to the air pollution.

4- Construction Activities

Construction activities also contribute to air pollution in Punjab. The use of heavy machinery and construction material such as cement and sand releases particulate matter. Dust from construction sites can also contributes to construction the formation of smog.

Date: / /

→ Meterological Factors Affecting Dispersion of Pollutants:

1- Temperature:

Temperature also affects the dispersion of pollutants in the atmosphere. High temperatures lead to faster chemical reactions that breakdown pollutants into less harmful substances. Low temperatures can lead to accumulation of pollutants in the air.

2- Humidity:

It is another important factor that affect the dispersion of pollutants. High humidity lead to formation of fog, which can trap pollutant close to ground. Low

humidity triggers to foster dispersion of Pollutants.

3. Atmospheric Stability

It refers to tendency of air to rise or sink. Stable atmospheric conditions can trap Pollutants close to ground, while, unstable condition conditions lead to foster dispersion of Pollutants.

4. Urban Heat Island Effect

It refers to the phenomenon where urban areas are warmer than surrounding rural areas due to human activities such as construction and transportation. This triggers the situation more worse such as accumulation of pollutants in urban areas and contribute to the formation of to smog.

Date: 11

Conclusion

In Conclusion, Smog is serious environmental issue that affects the quality of air and can cause health problems for human and animal. These includes Vehicular emission, industrial emission and agricultural burning. The dispersion of Pollutants in the atmosphere is affected by several materological factors such as Temperature, humidity and atmospheric Stability.

Q @What are the key factors of National Climate change policy 2012?

Introduction

Environmental Science: a Global Concern by William P. Cunningham elucidates that National Climate change Policies are essential aspects of addressing the global challenge of Climate

Date 1 1

Change. In 2012, several countries implemented policies aimed at mitigating the impact of Climate Change. These Policies were designed to reduce the Greenhouse gases emission and promote renewable energy resources. This article will discuss key factors of national Climate Change Policy 2012.

Factors OF National Climate Change Policy 2012

1- **Carbon Pricing To discourage their Production and Encourage the Use of Cleaner alternatives**

One of the most significant factor in national climate change Policy is carbon

Pricing. This policy involves placing a price on carbon emission to discourage their production and encourage the use of clean alternatives. For example, European Union Trading system is a carbon pricing policy that sets a cap on emissions and allows companies to trade allowances.

2. Promoting The Use of Renewable Energy Sources

The renewable resources such as wind, solar and hydroelectric power. Countries are adopting policies that incentives investment in renewable energy technologies to reduce reliance on fossil fuels. For Instance, Germany's Renewable energy act provides incentives for renewable energy projects.

3. Improving Energy Efficiency

Governments are promoting and implementing policies that encourage businesses and households to adopt more efficient technologies and practices. For example, Japan's Top Runner program sets energy efficiency standards for appliances and encourages manufacturers to produce more efficient model.

4. Forest Conservation

Forests play an important to mitigating the Climate change. National Climate Change policies are promoting forest conservation and reforestation efforts to reduce greenhouse gases.

For Example; Brazil's Forests code requires landowners to maintain certain percentage of their land as forest.

5. Sustainable Agriculture

Sustainable development is another sector that contribute to greenhouse gass emisions. In 2012, National climate change policy has promoted sustainable agriculture such as reduing fertilizers use and promoting conservation agriculture.

Conclusion.

In conclusion, in 2012, the United States government implemented a national climate change policy that aimed to reduce green house emission. The Key factors of policy included: Pricing carbon, Improving energy efficiency and forest conservation.

Date: / / (B)

Q Write a note on National Drinking water Policy 2009.

Introduction

The National Water Drinking Policy was established in 2009 with the aim of providing safe, clean and accessible drinking water to all citizens. The NWDP is a comprensive document that outlines the strategies and actions required to ensure access to safe drinking water for all. There are some Policy guidlines such as increasing access, Protection and Conservation of water resources and water treatment and safety.

Understanding the Phenomenan

Drinking water as refers to in the Policy means that wates use for domestic

Date: 1 1

Purpose including cooking, hygiene and other domestic uses.

Goal and Objectives

1. Provide access to protection and safe drinking water
2. Ensure conservation of water resources
3. Promote intersectoral collaboration.
4. Promote cost-effective and appropriate technology options.

Policy Principles

∵ Access to safe drinking water as a basic human right of every citizens.

∵ water allocation for

drinking purposes.

∴ Responsibilities and resp... will be delegated to local authorities.

→ Policy Guidlines

1- Increasing Acces

(i) The new drinking supply system will be established

(ii) Priority will be accorded To un-served and under-served areas.

(iii) All Public "intermitant" water distribution will be upgraded

2- Protection and Conservation of water Resources

∴ Measures will be taken to conserve ground water resources as well as coastal water.

∴ Ambiant water quality Standard will be developed.

∴ Rain water harvesting at house will be promoted.

Date: / /

3- Capacity development
4- Emergency preparedness and Responses.
5- Public - Private Partenership.
6- Appropriate technologies and standardization.
7- Public awareness.

Conclusion

In conclusion, National Drinking water Policy 2009 was a comprehensive framework that aimed to access of clean and drinking water for all. Its implementation requires sustained efforts from all stakeholders to address the challenges related to water quality and quantity in the country.

Q Elaborate the concept of green house effect and its importance to global climate.

(a)

Introduction

Basics of Environmental Science by Michael Allaby demonstrator that greenhouse effect is a natural process that occure on Earth and is vital to planets climate. It is a process by which certain gases trap heat from the sun and keep the planet warm enough to sustain life. However, human activities have increased the concentration of these gases, leading to an enhanced Greenhouse effect. and causing Global warming.

The Green House Effect

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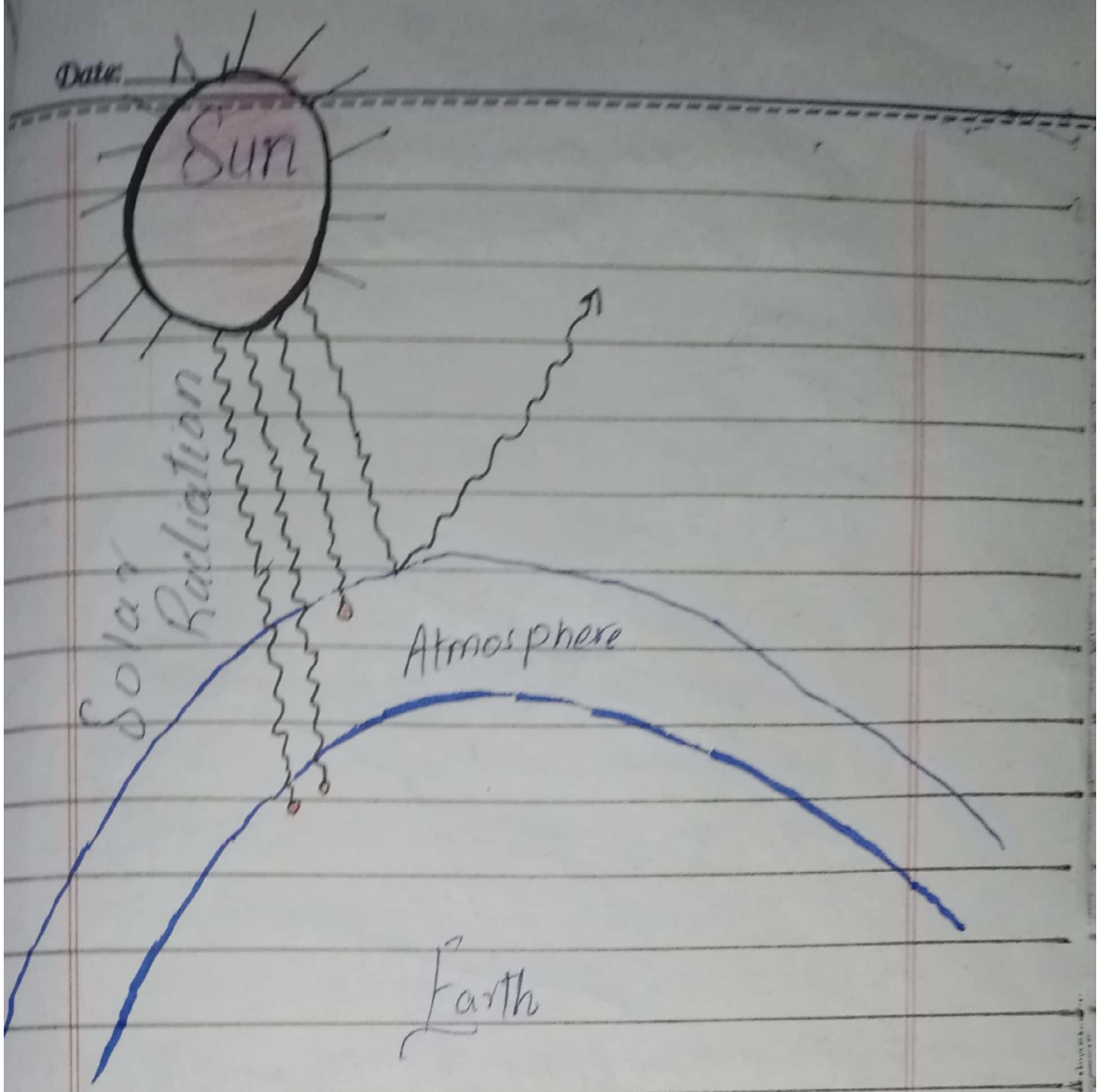


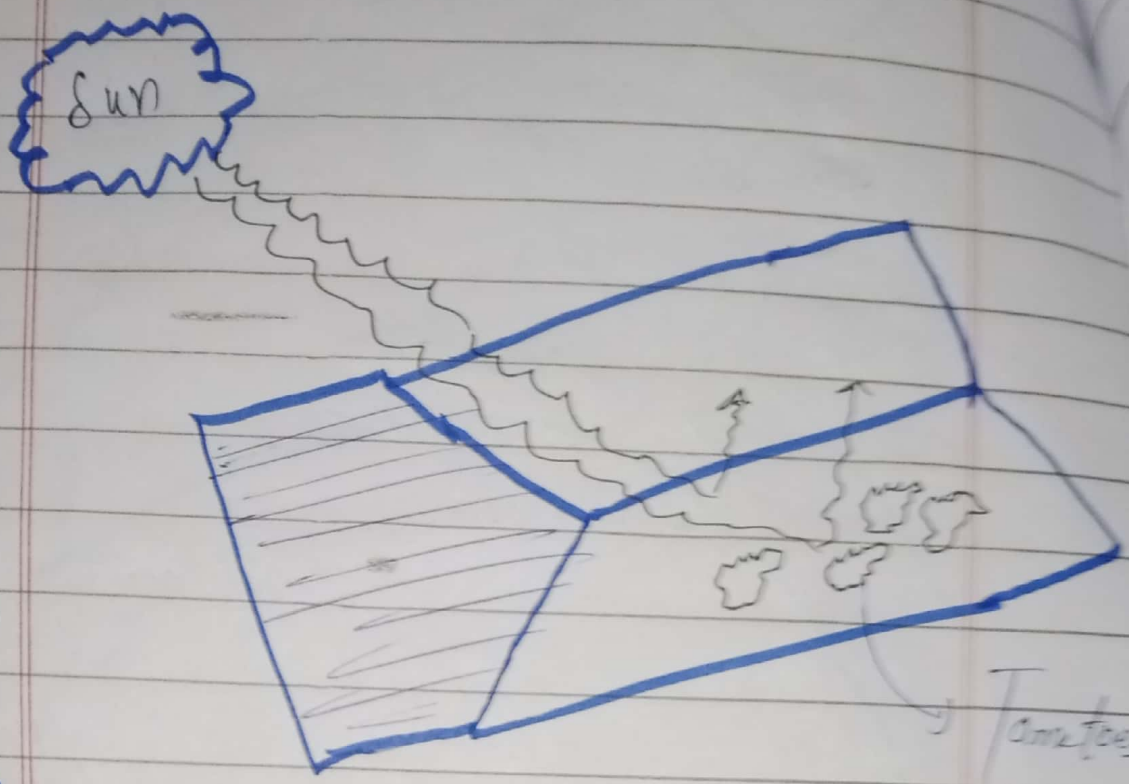
:> The Diagram is taken from Captain John Smith's Chesapeak.

How does the Green House Effect work?

As we might expect from the name, the green house effect work -- like a green house. For Example, A greenhouse is a building with glass walls and a glass roof.

Date: 1 1

Greenhouse are used to grow plants such as tomatoes



⇒ A greenhouse stays inside, even during the winter. In the daytime, sunlight shines into greenhouse and warms the plants and air inside. At night time, it is colder outside but greenhouse stays warm inside. That is why, the glass walls of greenhouse trap the sun's heat.

The greenhouse effect works much the same way on Earth. Gases in atmosphere such as Carbon dioxide, trap heat similar to

Date: 1 1

to glass roof of greenhouse, these heat-trapping gases are called Greenhouse gases.

How are humans Impacting the Greenhouse Effect

Human activities are changing Earth's natural greenhouse effect. Burning fossils fuels like coal and oil puts more carbon dioxide into our atmosphere.

⇒ NASA has observed increases in the amount of CO_2 and some other greenhouse gases in our atmosphere.

Conclusion

In conclusion, the greenhouse effect is a crucial process that maintains the Earth's temperature within habitable range. However, Human activities have disrupted their natural balance. It is imperative that we can take urgent action

to reduce greenhouse gas emissions and mitigate the negative impacts of climate change.

(b) Q: What are drivers and indicators of climate change and how they effect the natural and societal system.

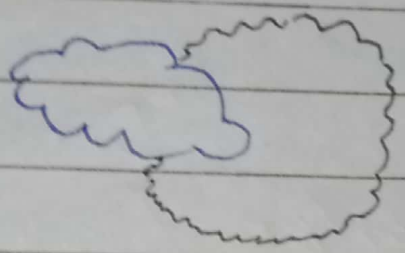
Introduction

Climate change is significant issue that the world is facing today. It is increasing at an unprecedented pace and caused by various drivers and indicators including human activities and natural processes. Furthermore, climate change has far-reaching impacts on both social and natural system. These include agriculture, water resources and biodiversity.

Drivers and Indicators of Climate Change

1. Green House gases

Greenhouse gas is the primary drivers of climate change. These gases such as carbon dioxide, methane (CH_4) and Nitrous oxide (N_2O), trap heat in the atmosphere, leading to rise in temperature.



→ EPA's indicators trap emissions of these gases and their warming effects.

2. Weather and Climate

Climate change can alter precipitation patterns, leading to droughts and floods in some regions. Similarly, long-term changes in temperature and extreme weather events such as heat waves, hurricans and floods.

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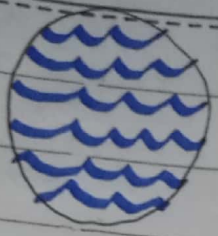

3- Oceans

Examine the warming of world's Oceans along with changes in Sea level, coastal flooding and acidity.

4- Snow and Ice

Discover trends in the Earth's frozen features including snow, ice sheets, glaciers Peirmo frost, freezing and thawing of oceans and lakes.

→ How They Effect The Natural and Societal System.

1- Temperature Rise

Global temperatures have risen by 1°c since Pre-Industrial times, and this trend is expected to continue. Rising temperatures have resulted in melting ice caps, rising sea levels and more frequent extreme weather events.

2- Biocliversity Loss

Climate change is causing habitate loss and fragmentation, which is leading to decline in biodiversity. This has negative consequences for ecosystem services such as pollination, Pest control and nutrient cycling.

3- Effecting Agricultural Productivity

Climate Change is affecting agricultural productivity due to changes in temperature

Date: / /

Precipitation Patterns and extreme weather events. This has led to food insecurity and increased food prices.

Conclusion

In conclusion, the drivers and indicators of climate change have significant impact on both social and natural system. It is crucial that we can take action to reduce greenhouse emissions and mitigate the impacts of climate change to protect our planet's ecosystem and societies.