

## Q#2

### 1- Introduction

Climate change is becoming an existential threat to mankind. As it is leading to changes in the earth temperature, precipitation, weather pattern etc. All of this has compounded drastic changes in the existing pattern of Earth. Like, rising sea level, floods, heatwaves are becoming more frequent and severe than ever. Similarly, in Pakistan the situation is quite perplexing as 2022 floods completely ravaged the country economically and socially. Moreover, the effects and manifestation of climate change is not limited to any specific region. As it is impacting all states unequivocally. Hence, it is high time that the global community come together and deal with this threat collectively to save Planet Earth.

### 2- Overview of climate change

Climate change refer to long term alteration in the average weather

pattern and temperature on Earth. It is being manifest at local and global level in the form of rising global warming <sup>also</sup> climate change has been exacerbated due to human induced activities. As global emission have led to changes in the composition of atmosphere. Moreover, as per research there has been an increase of  $0.7^{\circ}\text{C}$  since 1901. Thus, Human induced industrialization has unequivocally impacted the global environment whose manifestation is climate change today.

### 3- Drivers of climate change

#### 3.1- Industrialization

Rapid industrialization is the main reason of climate change. As human induced industrialization has given impetus to changing climate dynamics

#### 3.2- Deforestation

It is another cause of climate change. As deforestation led to low carbon

sink forest

### 3.3- Population

Population is another cause of climate change. As <sup>high</sup> unsustainable population mean more reliance on resources than more industrialization.

### 3.4- Increased Green house Gases

It is another cause of climate change as increased GHGs, entrapped carbon in the atmosphere which increases climate change phenomena.

## 4- Possibilities to counter climate change

### 4.1- Technology advancement

The use of Artificial intelligence can help alleviate the phenomena of climate change. For instance, Direct carbon capture technology can be effectively used to capture excess carbon in environ.

### 4.2- Afforestation/Reforestation

Both phenomena are effective in countering climate change. For instance, In Pakistan Billion tree tsunami

Project was an effective policy to counter emerging climate threat.

### 4.3 - International Treaties

Similarly, international treaties are formal agreement which can be a binding force on all states to counter climate threat. For instance, Paris Agreement 2014 is one example which is a hope for a better climate regulation.

### 4.4 - Global Awareness and Collaboration

Global awareness of climate related threats and its emerging issues can play a role of collaboration for all state. As states will be compelled to counter climate change to save their citizen.

## 5 - Hindrances in Climate Governance

### 5.1 - Economic Interest

As all developed world economies run on consuming fuel. Thus, they will never forgo their self-interest for collective wellbeing. Moreover economic expediency trump climate in global governance.

## 5.2 - Political interest

Another threat which is detrimental <sup>countering</sup> for the climate change is the political infighting among states.

For instance, USA left Paris agreement to please its political economic interest. Moreover, <sup>deadlock</sup> ~~dialogue~~ over climate issues is another contention between state.

## 5.3 - International disparities

Similarly, the issue among developed and developing economies have become gain construction. As developed world is not willing to pay for the climate damages happened in global south. Like, 2022 floods in Pakistan calls for climate reparation but global North is in denial to pay.

## 5.4 - climate denial

Climate denial is a serious concern.

As many famous scientist, politicians, donot believe in climate change.

They are skeptic of climate change.

Thus, climate propaganda is in.

Swing to reduce it to mere regular talk.

### 5-5- Lack of enforcement

Another threat is the lack of enforcement of climate policies. Like, UNFCCC, Kyoto Protocol fail to achieve the desired outcome because of lack of enforcement in those bindings.

### 6- conclusion

In conclusion, it can be said that climate change is an apocalypse. As it will bring unimaginable consequences for Earth and for all species living in it. The hindrances in countering climate change are many as stated earlier but man has a duty to fulfill to environment and if it/she fail it will render irreversible losses to all.

(B)

# Disaster Risk Management

Definition: It is a systematic approach to identify, evaluate, reduce, predict, and control of damages caused by disaster.

Effective DRM is crucial for minimizing the impact of natural and man made disaster.

## Steps of DRM Strategy

### 1 - Pre-Disaster management

It refer to early preparedness in this step. Information data collection happens, survey is taken of the area before any disaster happen.

Similarly, Baseline data collection happens at this stage

→ Technical feasibility also happen in this stage

### 2 - Post-Disaster management

In this stage loss of infrastructure estimation is done. Moreover, remote sensing is also done to evaluate the extent of disaster

### 3 - Rehabilitation

In this stage, infrastructure development happens, people are given ~~against~~ monetary incentives of the damages being done similarly, community empowerment and mitigation happens at this stage

## DRM opportunities

### 1 - Early warning systems

DRM enable the development of early warning system. As data collection and technology transfer improve the capacity to help communities pass such calamities in the future.

### 2 - Community resilience

Education, awareness, and local capacity building empower local community resilience against disaster.

### 3 - Innovative financing mechanism

Similarly, DRM provide a nation chance to set its priorities in the right direction. For instance, Green bonds establishment was one example of that.



## 2- Regional collaboration

DAM provides the states to regionally interconnect with other other state on matter of mutual concern.

For instance, China can help Pakistan build its DRM strategy.

## Challenges associated to DRM

### 1- Climate change

Climate change is becoming severe and deadlier day by day. Its intensity is increasing which is making DRM strategy ineffective in Pakistan as witnessed in 2022 floods.

### 2- Limited resource

DRM require massive spending, while Pakistan do not have that cash flow. Moreover, the 2022 floods have exposed limitation of resource.

### 3- Absence of correct Data

Insufficient data, mapping is hindering risk assessment and possible intervention to counter climate threat.

### 4- Natural hazard

It is another reason why DRM

is facing a severe challenge because heatwaves, floods, droughts are becoming more repetitive hence not possible to <sup>counter</sup> cater each and every single threat

Q # 4  
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## EIA

Definition "EIA is a formal process to identify, to evaluate, to predict, to avoid or to reduce the environmental effect caused by any project or activity"

objectives of EIA

- ① Ensure Environmental Protection
- ② Promotion of Sustainable development
- ③ Improving efficiency in the

Use of natural resources.

## Steps of EIA

### Step 1

- Also known as Project screening
- Establishment of Project Proposal

In this stage

\* Location of project.

\* Estimated cost of project

\* Time of Project is undertaken

National Environmental standards develop in this stage.

### Step 2

- Also known as Project scoping.

→ In this stage futuristic lens is taken.

→ Social cost associated to project are explored. Like, whether it will lead to poverty alleviation in the future etc.

### Step-3

In this stage Base line data

collection i.e Survey of areas

Population, Topography, Archeological

Sites happen

#### Step-4

In this stage, environmental lens is taken. Possible questions are taken into consideration about the project i.e. will it lead to deforestation, environ. pollution, Eutrophication, migration etc.

#### Step-5

Also known as Impact Prediction

In this stage questions are explored on the severity of problem. Like, what impact will this project make in the long term.

#### Step-6

Also known as Mitigation measured. If the project can lead to environ. deterioration mitigation measures can be recommended at this stage to avoid the negative spillover effect.

#### Step 7

In this stage, Public participation in the project is ensured.

so that conflict of interest can be catered. Thus, public notice is issued to know public opinion about a project

### Step 8

This stage is known as environmental monitoring. It can happen during the project <sup>stage</sup> ~~start~~ to know compliance and give recommendation on the project.

### Step 9

This stage is known as environmental audit stage. This happens after the project is completed. It is done to know whether implementation happened in letter and spirit.

## Benefits of EIA

- ① Identify environmental problem
- ② help in environmental prediction
- ③ help in mitigation measures
- ④ opportunity to modify and design project

- ⑤ control global warming and climate change.
- ⑥ Improve healthy living.
- ⑦ avoid national and international violation of environment standard.
- ⑧ Promote environment awareness and education.

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## Food Insecurity

Food insecurity refer to a condition where an individual lack access to safe, nutritious food to maintain healthy lifestyle.

Food insecurity is a multifaceted problem that can have significant economic, social, physical and psychological effect on an individual.

## Threat to Global Food security From Global Warming

① Low yield

Global warming is directly impacting the agricultural sector output

production. For instance, in 2022 flood, ~~2.5~~<sup>2.7</sup> million acre standing crops were destroyed in Pakistan, which led to low yield production.

### ② Loss of Livestock

Global warming is leading to loss of live stock. As increased heat waves and floods are making difficult for animals to cope sudden climate change. As per NDMA, nearly 70 million animals died in the 2022 floods.

### ③ Water scarcity

Global warming is changing the weather pattern cycle, thus leading to more drought in African nation where drought and famine is becoming more endemic.

### ④ Extreme heat waves

Extreme heat waves is yet another manifestation of Global warming. As heat waves is degenerating the crop cycle because most

crops are sensitive to temperature.

### ⑤ Weather Pattern changes

Similarly, weather pattern changes are another manifestation of global warming. As monsoon season is becoming more chaotic and is rendering heavy losses.

## Mitigation step

### 1- Invest in Renewable sector

Heavy investment is needed in the renewable sector of Pakistan. For instance, operating Tubewell on solar or wind power can reduce carbon foot print.

### 2- Diversified Cropping at same time

Diversification and rotation of crop can reduced climate vulnerability.

### 3- Improved water management

Effective irrigation system can help farmer manage changing pattern in climate.

### 4- Establishing Early warning system

Early warning system can help



alleviate extreme weather event.  
5- Farmer education and capacity building

Prior information to farmers can help them allay the climate vulnerabilities and will help them in adapting to new condition.

## Q#8

### (1) Water Pollution

Water pollution refer to contamination of water bodies such as lake, groundwater, ocean due to the harmful pollutant released in the water.

#### Types of water Pollution

##### 1- chemical Pollution

This due to the release of chemical like mercury, <sup>Cadmium</sup>~~Cobalt~~, Arsenic into water bodies.

##### 2- Biological Pollution

This is due to the presence of

g) harmful microorganism like bacteria, pathogen, viruses in water bodies

### 3) Physical Pollution

when water is polluted due to the presence of sediments which disturb aquatic life.

### Effects of water Pollution

#### 1- Diseases

water pollution lead to water borne diseases like T.B, cholera.

#### 2- Loss of biodiversity

water pollution can lead to loss of biodiversity. As it will disturb the aquatic life in water.

#### 3- Agricultural impact

water pollution can lead to poor crop production damaging soil fertility.

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### Remote sensing

It is a technology to gather information about object through

Sensor satellite

Remote sensing is used in environ. monitoring, natural resource management, agriculture, urban planning, disaster management

The data collected from sensors is effectively used to gain information, formulate strategy and policy response

(5)

SEA

It stand for Strategic environ Assessment

“It is a set of analytical and participatory process for the incorporation of environmental consideration at the early stages of decision making into the policies and program that may affect the natural environ”

Objectives

① Promoting sustainable development.

- ② Strengthening EIA
- ③ controlling exploitation.

### Work Scheme of SEA

#### ① Identification of Priorities

In this stage output and outcomes are identified. Moreover, priorities are defined about the goal.

#### ② Information sharing

Similarly, communication b/w institutions and relevant stake holder happened at this stage.

#### ③ Recommendation of stakeholder

Recommendation about the program are given to relevant stakeholder.

#### ④ Trade off

In this stage, trade off happens in term of whether the project is feasible. Will it lead to proposed outcome achievement or not.

### SEA Pre-requisite

- ① Tolerant society.
- ② Institutional capacity.
- ③ Competence of Policy makers.