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QUESTION No.2

INTRODUCTION

Pakistan is facing a plethora of environmental problems. Air pollution has held its urban centers hostage and slowly it's engulfing the rural ones too. The causes of air pollution and deteriorating air quality are many which range from urban sprawl, deforestation, and industrialization.

There is no easy fix to this as it requires a multi-level policy that addresses down to the community level and the top of the policy paradigm. Air pollution is so bad that in 2023, the biggest cities of Pakistan had the worse air quality.

Top 100 Polluted Cities

- a) Lahore - 05
- b) Karachi - 91
- c) Faisalabad - 34

PHENOMENON OF DETERIORATING AIR QUALITY

P.T. 0

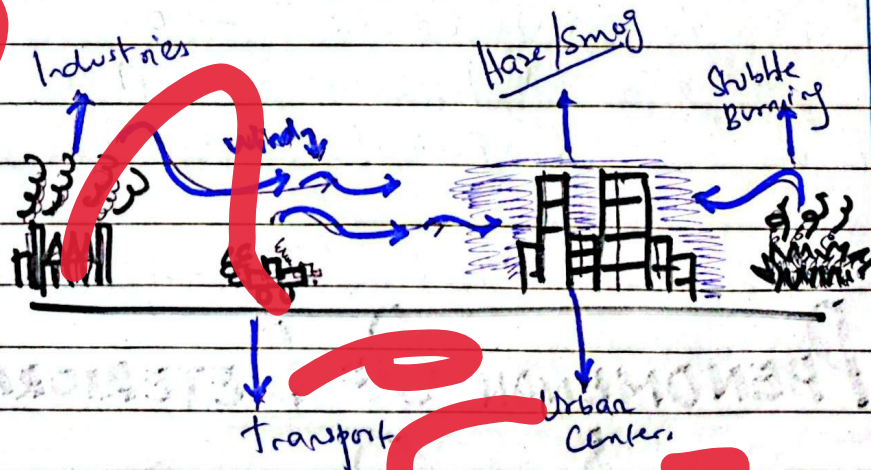
Increased levels of particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and ozone (O₃).

2. Higher concentrations of toxic gases like carbon monoxide (CO), volatile organic compounds (VOCs), and ammonia (NH₃).

3. Reduced visibility due to haze, smog, or fog.

4. Unpleasant odors, taste or irritation in the eyes, nose, throat or lungs.

The deteriorating air quality can be linked to the rising levels of air pollution. It is defined as "contamination of indoor or outdoor air/environments by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere" (WHO).
Due to air pollution, the phenomenon is caused, namely smog. Smog is the process which occurs when chemical pollutants mainly from human activities are released into the air. These chemical compounds react in the presence of sunlight and form compounds which linger on in the atmosphere.



Fog!

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Causes of Deteriorating Air Quality

The causes of deteriorating air quality are given below

- a) Transport Emissions
- b) Stubble / Waste Crop Burning
- c) Waste Burning
- d) Industrial Emissions
- e) Domestic Emissions (Burning of coal, wood for heating purposes)
- f) Brick kilns
- g) Deforestation
- h) Urbanization

Effects of Deteriorating Air Quality

Increase in Respiratory illness

Respiratory illness such as asthma, lung cancer and sore throats / coughing are more prevalent when the air quality deteriorates.
As per the WHO...

'Air pollution contributes to 29% lung cancer deaths' - (WHO)

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Shortening of Life Expectancy

Due to bad air quality, the life span of people living in those areas lose 3-4 years of their life. In a research by State of Global Air, it found poor air quality led to reduction 1.8 years in a person's life and in South Asia.

'Air pollution cuts life expectancy by 5 years per person in South Asia' - Al Jazeera

Increase in Acid Rain and other ^{phenomena} ~~phenomena~~

Due to smog and poor air quality caused by emissions, acid rain is a major effect that destroys crops, buildings and trees.

The emissions might be placed some place else but due to wind patterns the rain might fall somewhere else.

Degradation of Plant life and animal life

Smog causes the plants to develop various diseases such as chlorosis and discoloration.

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of the leaves. This may cause the plant's chlorophyll to decrease which eventually leads to the death of the plant itself. Similarly, animals are also affected by this as it weakens their immune system and are more prone to lung/respiratory diseases.

Decrease in Productivity due to Closure of Schools/workplaces

Due to the high levels of pollutants in the air, workplaces/schools have to be shut down so as to protect those working and studying there.

! The Punjab Government had to announce a 4-day holiday due to the deteriorating air quality. (The News)

This leads to a loss of productivity as this cannot be recovered once again.

'Air pollution makes up total of \$ 47.8 Billion in economic burden.' (World Bank)

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MEASURES TO COMBAT DETERIORATING AIR QUALITY

Controlling Urban Sprawl of Cities

Pakistan's cities have grown rapidly and haphazardly. They are contributing to the sprawl and degradation of agricultural lands. Effective city plans to limit city growth need to be put in place. Furthermore, development of mixed use, vertical developments needs to take place.

Congestion Charging and Making City Centers Pedestrian Only

Congestion charging is a phenomenon that has been recently implemented in London, Beijing, Barcelona and so on. Vehicles are charged to enter city centers and during certain times of the day, vehicles are completely banned from entering the city centers.

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Imposing^a Penalty on Polluting Industrial Units and Vehicles

Imposition of penalties on polluting industrial units and vehicles is the need of the hour. The EPA is empowered to do so under PEPA Act, 1997. This would create a sense of responsibility within owners of those entities. Moreover, vehicles owners must have their vehicles inspected to see whether they are in line with NEQS.

Introduction of Mass Transit System

Transport contributes the highest percentage of emissions in a city. For Lahore, it is 83% of the total emissions of the city (Urban Unit). Of those 83%, more than 70% are constituted by motorcycles. This is a policy failure as people are opting for motorbike for their journeys. To curb these single journeys, an expanded network of mass transit needs to be laid out.

Afforestation and Reforestation

Due to rapid urbanization, the green cover of our cities have totally been lost. Lahore is the most impacted because of

You could divide it into individual, community, organizational, governmental, technological levels

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Smog and is the most affected due to deforestation.

' Lahore has 70% of its green cover from 2010 to 2020' - Ministry of Climate Change)

International cooperation could be added

Initiatives like BTRPI (Billion tree Tsunami Pakistan) are commendable but these need to be brought on the urban scale and these initiatives need to be started in cities too. Afforestation of ^{useless} land and reforestation of empty land help the fight of smog and poor air quality.

CONCLUSION

Air quality quality is major problem in Pakistan. It costs both in time and money. However, combating it needs a multi sectoral approach with all the stakeholders on board. Without consultation of stakeholders, building policy can the public do more harm than good.

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Question No 4

INTRODUCTION

EIA or Environmental Impact Assessment is a process that is used to the impact of a project on the environment. It is used to identify the potential threats/impacts, evaluate and predict the damage that may be caused from those impacts; and suggest measures to either avoid or avoid those damages.

As per E-EPA Act 1997, public participation is an important process in the whole EIA study. It allows for community engagement and a platform for them to address their grievances/concerns.

EIA and SEA are both studies conducted during the life span of the project. However, the time at which they are conducted varies between them.

First explain

EIA

PUBLIC PARTICIPATION IN EIA PROCESS

Public participation is a process that is

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mandated by the law. As per the P-EPA act of 1997

"Every review of an environmental assessment impact shall be carried out with public participation."
(P-EA, (1997))

By public participation, it is meant the process of engaging with the community or general public, or those who are being affected by a decision. The principle of public participation also holds that these people have a right to be involved in the planning process.

Public participation is not allowed in EIA process in the following cases

- a) Strategic reasons that could harm the security, relations or law and order of the country
- b) matters which are subjudice or covered by legal privilege
- c) Public disclosure might harm the proponent's project position competitively.

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IMPORTANCE OF PUBLIC PARTICIPATION IN EIA

Community Representation^{ation} is Guaranteed

Projects proponents often overlook the people who are going to be affected most by their projects. These participatory forums allow the communities to air their concerns and have their voices be heard. Moreover, their representation is guaranteed in the planning process.

Inclusive Planning and Development

Planning becomes a process that is not imposed by the planner, but rather accommodates and works with the people. The community is not left on the whim and mercy of the planner and has a say in the plan too. This allows the development to be inclusive rather than exclusive.

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Incorporation of Local Knowledge

The locals know the stralā better than anyone. As they have spent their entire lives growing up and earning from that land. Local feedback can enhance the projects cost-effectiveness and allow for a better informed decision. Furthermore, potential hazards that might have been overlooked can also be covered through the public participation.

Enhanced Transparency and Public Trust

Through public consultations, proponents can ensure that they gain the public's trust and acceptance for the project. At the end of the day, the public will be at the forefront of damages caused by the project. Furthermore, scrutiny of the planning process can also be achieved through this. The public may scrutinize the project and point out discrepancies that may increase the transparency of the project.

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Improved Project Design and Implementation

By incorporating the feedback received from this consultative process, design can be amended and improved upon. Better designs can lead to enhanced mitigation of risks, reduction in costs, less damage to the environment. Local knowledge can also ensure that vital material substitutes are used locally, thereby blending the project with the local environment.

EIA AND SEM - INTRODUCTION

EIA (Environmental Impact Assessment)

An EIA as per P-EPA (1997) is defined as

“an environmental study comprising of:

- a) collection of data
- b) prediction of qualitative and quantitative impacts
- c) comparison of alternatives
- d) Evaluation of measures
- e) formulation of environmental management plans and arrangements
- f) framing of recommendations”

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The process of EIA is given below.

Project Screening



Project Scoping



Baseline Data
Collection



Identification
of Env. Problems



Impact Prediction



Mitigation Measures



Public Consultation



Env. Monitoring



Env. Audit.

SEA (Strategic Environmental Assessment)

SEA is process which is defined as the following

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1 An organized procedure for evaluation of the environmental impacts of a proposed project and propose means for them to appropriately address them at the earliest stage of planning

The process of sSEA is given below

Project Screening



Scoping



Base line Assessments



Impacts Assessments



Mitigation



Revision/Completion
of Plan

DIFFERENCES BETWEEN SEA AND EIA

The biggest difference is at what phase of planning both occur. SEA occurs during the early phases (design) of the project.

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While EIA occurs after the design phase and during the/ before the implementation phase. SEA is a proactive approach to the planning process and gives an early warning of the potential risks and impacts that can be incorporated later on.

Lastly, the approach of both is slightly changed as SEA focuses on 'do no harm' while EIA focuses on 'do least/no harm'. SEA focuses on meeting environmental goals while EIA focuses on mitigating the risks of the project.

Conclusion

EIA, SEA are both important pieces of planning that can be used as per the project requirements. Both at the end, are protecting the environment with different approaches. They also incorporate public participation which makes the planning and development of the project inclusive and community driven.

Address all parts of your question

In a note

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QUESTION No. 8

(a) Disaster Risk Management - Introduction

Disaster risk management is a systematic approach to identify, evaluate, predict, avoid and reduce the damage caused by any disaster. Disaster risk management is made up of 3 words

- a) Disaster: Either natural/artificial
- | | |
|---------------|-------------------|
| 1) Earthquake | 1) Fire |
| 2) Tsunami | 2) Civil disorder |
| 3) wild fire | 3) Crime |
| 4) Floods | 4) Terrorism |

It is mostly concerned with natural disasters.

b) Risk: It is the likelihood of the damage caused by the natural disasters

c) management: Managing any situation which society remains unable to cope.

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Stages of DRM

DRM is divided into 2 subsections:

DRM

Pre-DRM

1) Data Collection & Information is collected about the potential disasters and their impacts on the population.

2) Controlling/Mitigation Measures

Relevant measures are put in place to avoid the risk of a disaster ever happening or reduce the destruction that may be caused by it.

Post-DRM

1) Data Collection Information collected about the loss of life, infrastructure and overall damage caused by the disaster

2) Policy Recommendation Advice and proposals are put for the rehabilitation of those areas.

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CONCLUSION

DRM is a technique that is adopted widely by the world and is used to mitigate the risks and propose rehabilitation of disaster hit areas. The relevant component of DRM are the government functionaries, fiscal side and the relevant authorities tasked with carrying out DRM.

36) Convention on Bio Diversity

Genesis: 1992 (Earth Summit)

Objectives and Scope:

The objective of the document is to protect, preserve biological diversity worldwide. This includes biological species (plants, animals and genetic variations of them).

Sustainable Use of Bio diversity

This treaty, as per Art. 5 and (a), aims to promote responsible use and sustainable utilization of biological resources. It encourages practices that maintain biological and ecological balance.

Equitable Sharing of Benefits

Article 11(c) of the treaty envisages that

'Sharing of Benefits will be on an equal basis.'

The benefits gained from the biological world are not confined to some countries, race or ethnicity. The treaty envisages a fair and equitable distribution of resources (genetic). It ensures that all can benefit from biodiversity related activities.

CONCLUSION

A convention brought forward at the Earth Summit of 1992. It aims to conserve biodiversity all around the world and ensure a sustainable, and equitable use/distribution of the biological resources of the world.