

Factors affecting vulnerabilities; except

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Several factors

key factors are:-

1. Socio economic factors :-

→ Poverty - Poor communities often lack resources & infrastructure to withstand and recover from disasters.

→ Education & awareness - Lack of education & awareness about hazards, their potential impacts, & appropriate response measures can increase vulnerability.

→ Social inequality - Marginalized and disadvantaged groups, such as women, children, the elderly and people with disabilities, may face additional challenges and have reduced access to resources, making them more vulnerable.

2. Physical & environmental factors :-

→ Location - Communities situated in hazard-prone areas, are inherently more vulnerable.

→ Geographical Condition - Factors like steep slopes, unstable soil, or proximity to rivers or bodies of water can increase vulnerability to landslides, erosion or flooding.

→ Climate Conditions - Regions experiencing extreme weather events, such as droughts or other climate-related changes may face increased vulnerabilities.

3) Infrastructure & built environment :-

→ Building standards - Poorly constructed buildings & inadequate infrastructure, such as roads, bridges, & drainage system can increase vulnerability to hazards.



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•) Land-use planning :- Inappropriate land-use practices such as constructing settlements in high-risk areas can escalate (increase) vulnerabilities.

4) Governance & institutional factors :-

•) Disaster Management policies :-

The presence of comprehensive & well-implemented disaster management policies, including early warning systems, emergency response plans, & capacity building measures, can reduce vulnerability.

•) Coordination and Cooperation :- Collaboration b/w government agencies, non-governmental organisations, & community groups in disaster preparedness can enhance resilience & reduce vulnerability.

•) Decision-making processes :- Inclusive decision-making processes that involve local communities & consider their knowledge, needs & priorities can lead to more effective risk reduction & response measures.

* Vulnerabilities differential impacts :-

When a hazard or disaster occurs, different individuals or groups may experience the impacts in different ways.

for e.g., During a flood, those living in higher areas may face minimal damage or inconveniences, while those in low-lying areas may experience severe flooding, property damage, or displacement.

•) Socio-economic disparities :- Those with greater financial resources & may have better access to insurance, alternative housing options, or resources to recover quickly, while those with limited means may struggle to recover or rebuild.

2) Accessibility & infrastructure: People with disabilities or limited mobility may face greater challenges in evacuating or accessing emergency services during disaster

3) Social support network: - Strong social support networks can help individuals cope with and recover from disasters more effectively, while those with limited support may experience prolonged or severe impacts.

4) Location: - People living in low-land areas & coastal belts are most prone to affected by disasters such as cyclones, floods, tsunami's. Whereas the population living in zone II

Whereas those who living in high areas may experience less or minimal damages than low-land areas, people.

* Impacts of development projects such as dams, embankments, changes in land use :-

Development projects such as dams, embankments, and changes in land use, can have various impacts on the environment, ecosystems & communities.

Points :-

Impact of

1) Dams: - Dams are structures built across rivers to store water for various purposes, such as hydroelectric power generation, irrigation & water supply. While dams can provide benefits, they can also have negative impacts:-

Displacement: - Construction of dams often leads to the displacement of communities living in the reservoir area, resulting in the loss of homes, livelihoods & cultural heritage.

•) Ecological impact :- Dams alter natural river flows, which can disrupt ecosystems and impact fish migrations.

•) Downstream effects :- Dams can affect downstream water availability and sediment flow impacting the health of ecosystems, agriculture & livelihoods.

Impact of

2) Embankments :- Embankments are raised structures built along rivers or coastlines to control water levels and prevent flooding.

It has positive and negative impacts :-

•) Flood protection :- Embankments can provide protection against floods, safeguarding human lives & infrastructure.

•) Displacement of water :- Embankments can redirect water and increase the risk of flooding in other areas, as they restrict the natural flow and floodplain connectivity of rivers.

•) Ecological consequences :- Construction of embankments can alter natural river processes, impact wetland & floodplain habitats, affect the biodiversity and ecological balance of the area.

3) Impact of changes in landuse

Land use changes involve converting natural landscapes for various purposes, such as agriculture, urbanization or industrial development. These changes can have following impacts:-

•) Habitat loss :- Clearing natural vegetation for agriculture or development can lead to the loss of habitats for wildlife, resulting in biodiversity decline and ecosystem disruptions.

• Soil erosion :- Improper land use practices, such as deforestation or unsustainable farming methods, can lead to soil erosion, reducing soil fertility & increasing the risk of landslides.

• Water resources :- Changes in land use can impact water availability & quality, affecting ecosystems, water supply for communities & agricultural productivity.

• Climate change adaptation :-

- Climate change adaptation refers to the actions & strategies implemented to reduce the risks & impacts of climate change on human & natural system.

Here is an explanation of climate change adaptation :-

i) Understanding climate change impacts :- Adapting to climate change starts with understanding the specific impacts it brings to a region or system. This include studying the projected ~~sea~~ changes occur in climate such as changes in temper



(ii) Assessing Vulnerabilities :- Identifying the vulnerabilities of different sectors, communities, and ecosystems to climate change is crucial.

This involves understanding their sensitivity to climate impacts & their capacity to adapt.

(iii) Building resilience :- Adaptation focuses on building resilience, which is the ability of system or community to recover from climate impacts.

This include improving infrastructure, enhancing ecosystems, & strengthening social system.

(iv) ~~Developing adaptation strategies~~: Developing adaptation strategies involve preparing ~~formulating~~ plans, policies & measures to address climate change impacts.

These strategies can be water management, agriculture or ~~etc~~ urban planning, etc.

V) Implementing adaptive measures: Implementing adaptation measures involves putting adaptation strategies into action.

This can include implementing early warning systems, constructing climate-resilient infrastructure, promoting sustainable agriculture practices, etc.

* Relevance of Indigenous knowledge, appropriate technology & local resources:

1) Indigenous Knowledge: It is also called local knowledge.

It is rooted in the specific culture and environmental contexts of local communities.

It offers unique ~~first~~ practices, knowledge & wisdom that have been accumulated over generations.

Appropriate technology: Appropriate technology refers to technologies & practices that are suitable, accessible & sustainable for a given context environment.

Local resources: Local resources refer to the natural, human & social assets that exist within a community or region.

Mitigation :-

It refers to the reduction in the impact of climate change by preventing or reducing the emission of greenhouse gases in the atmosphere.

Mitigation means making the impact of climate change less severe by preventing or reducing the emission of greenhouse gases (GHG) into the atmosphere.

It aims at stabilizing greenhouse gas level, such that the ecosystems can adapt naturally to climate change.

Mitigation can achieve through:-

- Use of renewable sources of energy like solar, wind power, geothermal energy, etc.
- Introduce better building codes.
- Investments in clean energy.
- Promote the use of sustainable transport like buses.
- Afforestation.

Sustainable development & its role in disaster mitigation

• It refers to a complete approach that seeks to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.

• It involves balancing social, economic & environmental considerations to create a more equitable & resilient society.

Role in disaster mitigation :-

Risk Reduction: Sustainable development focuses on reducing risks and vulnerabilities. It emphasizes proactive measures to

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of climate change

identify and address underlying factors that contribute to disaster risks, such as poverty, inequality, & environmental degradation.

-) Resilience building - Sustainable development aims to enhance the resilience of communities & systems to withstand and recover from disasters.
-) Environmental management & Sustainable development emphasizes the protection & sustainable management of ecosystems. Healthy ecosystems can act as natural buffers against disasters, such as wetlands absorbing floods, or forests reducing the impact of landslides.
-) Adaptation to climate change - Sustainable development recognizes the need to address climate change impacts. It promotes strategies and practices that help communities adapt to changing climatic conditions.

* Roles & Responsibility of community :-

Communities have important roles & responsibilities in disaster management.

1) Preparedness :-

-) Awareness and education - Communities should actively seek information about potential hazards, participate in training programs, and disseminate about disaster risks.

-) Planning & organizing - Communities can develop preparedness plans, establish early warning systems & coordinate resources & response efforts within the community.

This includes identifying safe evacuation routes, designated shelters, and emergency communication channels.

resilience refers to the ability of individuals, communities, systems or ecosystems to withstand, recover, adapt ~~the disaster~~ in the face of shocks, stresses or disturbances.

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2) Response :-

•) Emergency communication :- Communities play a crucial role in disseminating warnings, alerts and emergency instructions to community members through various communication channels.

•) Evacuation & Sheltering :

Communities should assist in the safe evacuation of community members to designated shelters or safer locations when necessary.

•) Search and rescue :-

Community members participate in search & rescue operations by gathering information about missing individuals & utilizing local knowledge of the area to aid in locating & rescuing affected individual.

3) Recovery :-

•) Support & assistance :- Communities should come together to provide support, comfort, & assistance to affected individuals & families during the recovery phase.

•) Rebuilding & rehabilitation : Communities have a responsibility to actively participate in the rebuilding & rehabilitation of affected area. This may involve contributing labor, resources or expertise.

•) Advocacy & coordination : Communities can advocate for their needs & priorities in the recovery process by engaging with local authorities, NGOs and other stakeholders.