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Subject : Environmental Science.

Question No1.

Discuss the impact of climate change on human migration and displacement, including the effects of sea-level rise, droughts, and extreme weather events. Suggest measures to address the challenges of climate-induced migration.

Introduction

Climate change is a pressing global issue that affects not only the environment but also human societies. Rising global temperatures are altering ecosystems, disrupting economies, and affecting human livelihoods. The consequences of climate change are far-reaching, from devastating natural disasters to displacing communities and threatening human security.

Human migration and displacement are increasingly recognized as significant consequences of climate change. The World Bank estimates that climate change could displace up to 143 million people by 2050. The International Organization for Migration (IOM) recognizes climate change as a major driver of migration. Climate change is a complex issue that requires a comprehensive approach to address its impacts on human migration and displacement.

⇒ The Impact of climate change on Human Migration and Displacement:

① Rising Global Temperature:

Rising global temperatures are a pivotal aspect of climate change, with far-reaching consequences for human migration and displacement. The

global temperature has risen by approximately 1°C since the late 19th century, primarily due to human activities such as burning fossil fuels, deforestation, and land-use changes.

The temperature increase is altering ecosystems, disrupting economies, and affecting human livelihoods, ultimately forcing people to migrate. Rising temperatures are melting glaciers, raising sea levels, and altering precipitation patterns, leading to more frequent and severe heatwaves, droughts, and extreme weather events.

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Sea-Level Rise:-

Sea-level rise is a catastrophic consequence of climate change threatening the very existence of coastal communities and low-lying areas worldwide. As global temperature rise, melting glaciers and ice sheets are causing sea levels to increase at an

alarming rate, with an estimated 15-20 cm rise in the past century alone. This relentless rise in sea levels is leading to coastal erosion, flooding, and saltwater intrusion into freshwater sources, devastating agriculture, infrastructure, and human settlements.

③ Droughts and its Impacts:

As global temperature rise, changing precipitation patterns and increased evaporation are leading to prolonged and severe droughts, devastating crops and livestock. The consequences are far-reaching, from food and water ~~scarcity~~ scarcity to economic instability, social unrest, and human migration. The World Bank estimated that droughts could displace up to 24 million people by 2030, with the most vulnerable regions being arid and semi-arid areas, where climate change is exacerbating existing water scarcity.

Challenges

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Extreme Weather Events:-

Extreme Weather Events, such as storms, hurricanes, wildfires, and floods, are a devastating consequence of climate change, causing widespread destruction, displacement, and loss of life. As global temperature rise, the frequency and intensity of extreme weather events are increasing, with catastrophic effects on human settlements, infrastructure, and livelihoods. The World Meteorological Organization (WMO) reports that extreme weather events have caused over 2 million deaths and \$3.5 trillion in economic losses since 1970.

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Human Migration and Displacement:-

Human migration and displacement are increasingly recognized as significant.

Consequences of climate change, with millions of people forced to flee their homes due to rising sea levels, droughts, droughts, and extreme weather events. As climate change alters ecosystems, disrupts economies, and affects human livelihoods, people are being forced to migrate to seek safety, food, and shelter. The World Bank estimates that climate change could displace up to 143 million people by 2050, with the most vulnerable regions being low-lying coastal areas, small island nations, and arid regions.

⑥ Vulnerable Populations:-

Vulnerable Populations, including the poor, women, children, indigenous communities, and people with disabilities are disproportionately affected by climate change. They lack resources and infrastructure, making them susceptible to displacement, poverty, and hunger.

Climate change exacerbates existing inequalities, pushing them further to the margins.

⑦ Climate change and Conflict:-

Climate change and conflict are closely linked, with rising temperatures and extreme weather events exacerbating social, economic, and political tensions. This leads to competition over scarce resources, displacement, and instability, creating an environment conducive to conflict. The UN estimates a 50% increase in conflict by 2050, making it crucial to address the root causes of climate-related conflicts.

⑧ International Cooperation:-

International cooperation is vital to address the global climate change threat. The Paris Agreement is a key example, aiming to limit global warming.

Cooperation enables countries to share knowledge, technologies, and best practices, mobilize climate finance, and promote global climate governance.

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Climate change Adaptation:-

Climate change adaptation involves adjusting to the impacts of climate change to minimize harm and exploit benefits. This can include strategies such as sea walls to protect against rising sea levels, drought-resistant crops to ensure food security, and early warning systems to prepare for extreme weather events.

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Climate change Mitigation:-

Climate change mitigation involves reducing greenhouse gas emissions to slow the rate of global warming. This can be achieved through strategies

Such as transitioning to renewable energy sources, increasing energy efficiency, sources, ~~promoting~~ electrifying transportation, and protecting natural carbon sinks like forests. Effective mitigation measures can help limit global warming to 1.5°C above pre-industrial levels, avoiding the most catastrophic impacts of climate change and creating a more sustainable future.

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Human Rights and Social Protection:-

Human rights and social protection are essential for vulnerable populations to adapt to climate change. This includes ensuring access to basic needs like food, water, shelter, and healthcare, as well as protecting rights to education, livelihoods, and social security.

⑫

Climate change and Sustainable Agriculture:-

Climate change and sustainable agriculture are deeply interconnected. Rising temperatures, changing precipitation patterns, and increased frequency of extreme weather events impact agricultural productivity, food security, and rural livelihoods. Sustainable agriculture practices, such as agroforestry, conservation agriculture, and organic farming, can enhance resilience, improve soil health, and reduce greenhouse gas emissions, ultimately contributing to more climate-resilient food systems.

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Role of International Organizations:-

International organizations play a vital role in addressing global challenges, including climate change. Organizations such as the United Nations, the World Bank, and the International Monetary Fund provide a platform for countries to collaborate, share

knowledge, and coordinate efforts to mitigate and adapt to climate change. They also provide financial and technical assistance to support countries in implementing climate-resilient development strategies, promoting sustainable development, and achieving the Paris Agreement goals.

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Critical Analysis:-

A critical examination of climate change reveals a complex web of social, economic, and environmental factors. While international agreements and international organizations play a crucial role in addressing this global challenge, their effectiveness is often hindered by conflicting national interests, inadequate funding, and insufficient political will.

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Conclusion:-

Climate change is a pressing global issue that requires immediate

attention and collective action. Its far-reaching impacts on human rights, sustainable agriculture, and international cooperation underscore the need for a comprehensive and inclusive approach to mitigation and adaptation. By working together, governments, international organizations, and civil society can reduce greenhouse gas emissions, promote sustainable development, and ensure a climate-resilient future for all.
