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Q11 What policy actions should Pakistan exercise to effectively address its vulnerability to the phenomenon of Global Warming?

(A) Introduction:-

Pakistan stands vulnerable facing a myriad of challenges in handling the phenomenon of Global Warming. As the impacts of this phenomenon are exacerbating, the need for nuanced and decisive policy actions becomes evident.

In this scenario, Pakistan should tailor a holistic set of strategies to address its vulnerability to the far-reaching effects of Global Warming. For this purpose, Pakistan adopted the National Climate Change Policy (NCCP) in 2012. Its goal is;

“To ensure that climate change is mainstreamed in the economically and socially vulnerable sectors of the economy and to steer Pakistan towards

climate compatible development."

In addition to this, many other policies, if adopted, will not only mitigate the immediate threats posed by global warming but also fosters sustainable development of Pakistan.

(B) Pakistan's vulnerability to Global Warming Threats:-

The important threats to Pakistan from Global Warming are:

(i) Considerable Increase in Extreme Weather Events:-

One of the major threats to Pakistan from Global Warming is the considerable increase in the frequency and intensity of extreme weather events. Moreover, the increase in weather events is also coupled with erratic monsoon rains which cause frequent and intense floods and droughts in the country.

According to International Monetary Fund (IMF), recent floods of 2022 in Pakistan have caused extensive human and material damage. Thirty three million people (14% of population) in half of districts were adversely affected. Over 1700 people were confirmed death. The above report by IMF shows that Pakistan is highly vulnerable to global warming.

(ii) Projected Recession of Hindu Kush - Karakoram - Himalayan (MKH) Glaciers :-

The other major threat to Pakistan is the projected recession of Hindu Kush - Karakoram Himalayan (MKH) glaciers due to Global Warming. According to Al-Jazeera Report, Himalayan Glaciers will lose 75 percent of ice by 2100. This melting of glaciers will cause dangerous flooding and water shortages for nearly 2 billion people who live downstream.

of rivers that originate in the Himalayas, report says. So, Pakistan is on the high risk due to glaciers melting.

iii) Increased Siltation of Major Dams:-

The other considerable threat to Pakistan from global warming is the increased siltation of major dams. This siltation is caused by more frequent and intense rains in the catchment areas and subsequent floods. As per Hydrographic Survey 2017, the water storage capacity of Tarbela Dam has been reduced by over 40 percent due to silting in the reservoir. So it is obvious that siltation disrupts the storage capacity of major dams thereby affecting the country.

(iv) Reduction in Agricultural Productivity:-

One of the main threats to Pakistan from global warming is the reduction in agricultural productivity. This is caused by rising temperatures which result in enhanced heat and water-stressed conditions particularly in arid and semi-arid regions which leads to reduced agricultural productivity. As per World Bank Report, Pakistan, as an agricultural country, provides employment to roughly 25 million people and is the main income source for Pakistani people. Now if agricultural productivity will decline due to high or irregular temperatures, then it will cause a big threat to Pakistan socially as well as economically.

iv) Increased Intrusion of Saline Water in Indus

Delta :-

The major threat to Pakistan due to

Global Warming is also of increased intrusion of saline water in the Indus Delta.

It adversely affects the coastal agriculture, mangroves, and breeding grounds of fish. As about 97% of mangrove forests of Pakistan are located near Indus Delta, according to Global Change Impact Studies Centre.

They all are at danger due to intrusion ^{of saline water} of Arabian Sea in Indus Delta which is a big threat to Pakistan.

(vi) Increased Health Risks and climate change induced migration:-

One of the other threats to Pakistan from Global Warming is also the increased health risks associated with the disturbance in mental abilities, respiratory and cardiovascular diseases, and water-borne diseases as well.

Moreover, people have to leave their homes permanently or temporarily which affects their livelihood. In this way, Pakistan is highly vulnerable to global warming.

In a nutshell, for past 20 years, Pakistan is ranked among top ten most vulnerable countries on the Climate Risk Index. The above rank of Pakistan shows that the country has to face vulnerable threats due to increased phenomenon of global warming. So, it needs to take some policy actions to address this phenomenon.

(c) Policy Actions of Pakistan to address the Vulnerability of Global Warming:-
 Pakistan needs to take the policy actions to

address the vulnerability of Global Warming in following areas.

Policy Measures of Pakistan to address the vulnerability of Global Warming

1- Climate change Adoption Measures

2- Climate change Mitigation Measures

3- Capacity Building and Institutional Strengthening

4- Raising Awareness Among Public

5- International and Regional Cooperation

6- Ensuring Sufficient Funds to Institutions

7- Technology Transfer and Policy Implementation Mechanism

1) Climate change Adaptation Measures:-

Pakistan should adopt some policy measures to address the vulnerability of Global Warming. The policy measures include:

i) Water Storage and Conservation Strategies:-

Pakistan should assess and address the needs for additional water storage and distribution infrastructure. Moreover, it should also develop multi-purpose small dams for storage of flood water. In addition to water storage capacities, Pakistan should also ensure water conservation at all levels to reduce irrigation system losses, and provide incentives for adoption of more efficient irrigation techniques. For this purpose, Pakistan has also developed its first ever National Water Policy in 2018, which addresses the

various issues driving from water.

(ii) Development in Agriculture and Livestock:-

Pakistan should develop appropriate simulation models for assessment of climate change impacts on physical, chemical, biological and financial aspects of agricultural production systems in agro-ecological zones. Moreover, the country should introduce better breeds of livestock with higher milk and meat productivity. More specifically, these breeds should be less prone to heat stress. For this purpose, Pakistan has also launched National Food Security Policy 2018 to make agriculture more productive, profitable, and climate resilient.

(iii) Appropriate measures to address health

issues:-

Pakistan should ensure that appropriate measures to address health related global warming issues are incorporated into national health plans.

The country should also ensure preventive measures and resources such as vaccines, good quality medication and clean drinking water are available to the general public. These resources should also be cost effective particularly during climate related extreme events.

2) Climate Change Mitigation Measures:-

Pakistan should adopt some mitigation measures in order to address the vulnerability of Global Warming.

Some of the mitigation measures are discussed below:

(i) Development in Energy Sector:-

Pakistan needs to develop its energy sector in order to address the vulnerability of climate change. The country should promote renewable energy resources and technologies like solar, wind, geo-thermal, off-shore renewables and bio-energy.

Moreover, Pakistan should also ensure to create a conducive environment for the sustainable growth of the Alternate and Renewable Energy (ARE) sector as envisioned and laid down in Alternate and Renewable Energy Policy - 2019. These policy actions would save Pakistan from vulnerable threats of Global Warming.

(ii) Managing Emissions

in Transport Sector:-

In order to mitigate the vulnerabilities of Global Warming, Pakistan has to manage emissions in transport sector. The country should sensitize the public to the importance of proper vehicle maintenance for fuel efficiency and reduction of emissions. And the government should ensure the provision of a fuel efficient public transport system in the country. Moreover, suitable policy actions should also be taken in aviation, railways, and inland waterways transport.

(iii) Promotion of Economic Incentives to promote Emission-Reduction in Industries:-

Pakistan should incorporate economic incentives to promote emission-reduction by upgrading

industrial processes and technologies. The country should encourage industrial sector to have periodic 'Energy Efficiency Audits'. And develop the capacity to monitor and estimate emissions locally for each industry.

3) Capacity Building and Institutional Strengthening:-

Pakistan is hardly prepared to meet the 21st Century's biggest challenge of Global Warming as well as human resources and institutional capacities are concerned. So, Pakistan should adopt policy actions for capacity enhancement by developing global warming professionals. It could be done by sending young scientists and students to reputable institutions abroad for higher studies. Moreover, the

country should introduce curriculum on environmental planning with particular emphasis on Disaster Risk Reduction (DRR). To make the policies be implemented,

Pakistan should establish Climate Change Cells in sectoral federal and provincial ministries. It should also develop and strengthen a Monitoring, Reporting and Verification (MRV) system for evaluation of emission reductions. In this way, Pakistan can address the threats by global warming.

4) Raising Awareness

Among Public:-

Public education and outreach are vitally important to create broad awareness of climate change issues and its impacts. So, Pakistan should conduct nationwide surveys to gauge opinions and capabilities of

key stakeholders. Moreover, the country should develop national climate change awareness program involving communities. Such steps can reduce the threats of global warming in Pakistan.

5) International and Regional Cooperation:-

As global warming is a global concern, so Pakistan should undertake appropriate consultations to develop its stand on global warming related international policy issues.

As per World Bank report, Pakistan only contributes less than 1% in global emissions. The above data shows that despite being a non-contributor to global emissions, Pakistan is still highly vulnerable to it. Moreover, the country should also

continue its attendance at the UNFCCC Conference of Parties and other related meetings. In this way, by presenting itself, Pakistan can reduce threats of Global Warming through international cooperation.

6) Ensuring of Sufficient Funds for Institutions:-

As a signatory to many conventions, Pakistan should ensure that it must have sufficient funds that are always available for institutions. For example, the country should have funds for National Disaster Risk Management Fund (NDRMF) to cater the emergencies caused by natural disasters.

Moreover, the country should continue to assess how best ~~to~~ to position Pakistan vis-a-vis other

groups of developing countries in order to secure adaptation funding. In this way, Pakistan can reduce the threats of global warming.

(D) Conclusion:-

Pakistan faced many challenges due to be highly vulnerable to Global Warming. However, significant policy actions if taken by Pakistan would represent a crucial step towards sustainable environmental management.
