DAILY MAINS ANSWER WRITING
14/06/2024
(MODEL ANSWER)

Q. **Analyse the impact of natural disasters on the socio-economic aspects of a region, with a specific focus on heavy rainfall and landslides. Discuss the role of disaster management in such scenarios and suggest measures for improvement.**

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Answer Template:
Introduction:
- Natural disasters are sudden and extreme events caused by environmental factors that injure people and damage property.
- According to the **United Nations Office for Disaster Risk Reduction**, between 2000 and 2019, there were over 7,348 major recorded disaster events claiming 1.23 million lives, affecting 4.2 billion people resulting in approximately US$2.97 trillion in global economic losses.
- The recent landslides and heavy rainfall in Sikkim and North Bengal, which resulted in the loss of six lives and left around 1,500 tourists stranded, is a stark reminder of the havoc that natural disasters can wreak.

Body:
- **Impact on Socio-Economic Aspects**
  - Loss of Life:
    - The most immediate and tragic impact of such disasters is the loss of human life.
      - *2018 Kerala floods led to over 400 deaths and displaced millions of people from their homes.*
  - Displacement of People:
    - Natural disasters often lead to people losing their homes and being displaced.
      - *In the recent Sikkim incident, a relief camp was set up at Pakshep for the displaced people.*
  - Damage to Infrastructure:
    - Infrastructure like roads, bridges, and houses are often damaged or destroyed.
      - *A newly-constructed bailey bridge at Sangkalang collapsed due to the landslides.*
      - *The 2017 landslide in Sierra Leone destroyed homes and infrastructure, leaving thousands homeless and exacerbating existing socio-economic challenges.*
  - Economic Loss:
    - The economic loss from the destruction of property and infrastructure, and the disruption of economic activities can be substantial due to damage to agricultural land, loss of crops etc.

- *2016 landslides in Bangladesh's Chittagong Hill Tracts caused significant damage to crops and infrastructure, leading to economic hardship for affected communities.*
  - Communication Disruption:
    - Mobile network services will be affected mostly, highlighting the impact on communication infrastructure.
  - Environmental Degradation:
    - Landslides and heavy rainfall contribute to environmental degradation, including soil erosion, deforestation, and loss of biodiversity.
    - Impact on Tourism sector.
- **Role of Disaster Management**
  - Immediate Response: The State and District authorities will hold a meeting with officials and coordinates with **NDMA** (National Disaster Management Authority) and **SDMA** (State Disaster Management Authority) to carry out rescue and relief work such as:
    - Early Warning Systems:
      - To alert communities about potential hazards, such as landslides and heavy rainfall.
        - *Use of weather forecasting and monitoring technology can provide timely information to at-risk populations, enabling them to take preventive measures and evacuate if necessary.*
    - Risk Assessment and Preparedness:
      - To identify vulnerable areas and populations at risk of landslides and heavy rainfall.
      - Preparedness measures, such as land-use planning, infrastructure improvements, and community training.
    - Response and Recovery:
      - Coordinating emergency response efforts and providing assistance to affected communities in the aftermath of landslides and heavy rainfall.
      - Timely provision of emergency shelter, food, water, and medical aid is essential for addressing immediate needs and facilitating the recovery process.
    - Capacity Building:
      - Strengthening the capacity of local communities, government agencies, and non-governmental organizations (NGOs).
      - Training programs, public awareness campaigns, and community-based disaster risk reduction initiatives.
    - Relief Measures: A relief camp was set up at Pakshep for the displaced people.
    - Restoration Efforts: The Mangan district administration of Sikkim started working with several agencies to construct a bridge at Phidang to restore connectivity after the recent disaster.
    - Tourist Advisory: Authorities instructs stranded tourists to stay in safe zones until rescue measures are set up.

- **Suggested Measures for Improvement**
  - Early Warning Systems: Replacing conventional early warning systems with advanced **AI (Artificial Intelligence)** & **Mobile App** based systems can help in timely evacuation and preparation. –
    - *Google Earthquake Warning system*
  - Infrastructure Resilience:
    - Building infrastructure that can withstand natural disasters can reduce the impact.
    - **Investment in Infrastructure**: Governments should prioritize investment in resilient infrastructure, including roads, bridges, and drainage systems, retrofitting existing infrastructure & incorporating disaster-resistant design principles.
  - Community Awareness Programs:
    - Community Participation: Engaging local communities in disaster management planning & decision-making processes. Community-based early warning systems, disaster preparedness training, & participatory risk assessments.
  - Effective Coordination: Ensuring effective coordination between various departments can expedite the response and recovery process.
  - Post-Disaster Rehabilitation: Focus should be on long-term rehabilitation, including psychological support to the victims.
  - Ecosystem-based Approaches: Reforestation, watershed management, and soil conservation, can help mitigate the risk of landslides and heavy rainfall by enhancing natural resilience and reducing soil erosion.
  - International Cooperation: Enhancing international cooperation and collaboration is crucial for addressing the transboundary nature of natural disasters, such as landslides and heavy rainfall. Sharing best practices, technical expertise, and resources can support capacity-building efforts and improve disaster response and recovery efforts globally.

Conclusion
- The recent landslides and heavy rainfall in Sikkim and North Bengal underline the need for effective disaster management strategies.
- While immediate relief and rescue operations are crucial, long-term measures focusing on infrastructure resilience, community awareness, and post-disaster rehabilitation are equally important.
- As we move forward, it is imperative to learn from these incidents and strengthen our disaster management mechanisms to safeguard lives and livelihoods. The government and all stakeholders must work together to build a resilient nation that can withstand and bounce back from such disasters. This will not only save lives but also protect the socio-economic fabric of our society.