FLOOD MITIGATION MEASURES - GS III MAINS

Q. Indian Cities were facing the miseries of urban floods one after the another. Why does urban floods more disastrous in metropolitan cities? Elucidate (10 marks, 150 words)

News: *Floods wreak havoc in Chennai*

What is in the news?

- Some environmentalists question the Disaster Management practices of the government.

Causes of urban flooding:

- **Climate Change:** Changing weather patterns and increased intensity of rainfall events due to climate change can lead to more frequent and severe urban floods. This can overwhelm the existing drainage infrastructure.
- **Deforestation and Loss of Green Spaces:** The destruction of forests, wetlands and green spaces reduces the ability of the land to absorb water. Without natural vegetation to capture and slow down rainfall, water runs off quickly and accumulates in urban areas, causing floods.
- **Solid Waste and Debris**: Improper disposal of solid waste, including plastics and other non-biodegradable materials, can clog drains and obstruct the flow of water, leading to waterlogging and flooding.
- **Lack of Public Awareness and Preparedness:** Inadequate awareness among the public about proper waste management, responsible construction practices, and flood preparedness contributes to flooding in urban areas. It hampers the implementation of preventive measures and timely response to flood situations.
- **Inadequate Drainage Systems**: Many cities in India have outdated or insufficient drainage systems that are unable to handle heavy rainfall. This leads to waterlogging and subsequent flooding.
- **Encroachment of Natural Drainage Channels**: Unplanned urbanization and encroachment on natural drainage channels such as rivers, streams, and lakes disrupt the natural flow of water. Construction on floodplains and the blocking of waterways exacerbate the problem.
- **Poor Urban Planning:** Rapid urbanization without proper urban planning can result in the construction of buildings, roads and other infrastructure without considering their impact on the natural drainage system. This hinders the natural flow of water and contributes to flooding.

Impacts:

- **Loss of Lives and Injuries:** Urban flooding often results in the loss of human lives and injuries. People can get trapped in submerged areas or swept away by the strong currents, leading to fatalities and injuries.
- **Damage to Property and Infrastructure:** Floodwaters can cause extensive damage to buildings, roads, bridges and other infrastructure. Houses, businesses and public facilities may be flooded or even destroyed, resulting in significant financial losses for individuals, communities and the government.
- **Displacement and Homelessness:** Urban flooding can force people to evacuate their homes and seek temporary shelter. Displaced individuals often face difficulties in finding adequate accommodation and suffer from the loss of personal belongings.
- **Disruption of Essential Services:** Floods can disrupt essential services such as electricity, water supply and communication networks. This can lead to further hardships for affected communities and hinder rescue and relief operations.
- **Spread of Waterborne Diseases:** Floodwaters often become contaminated with sewage and other pollutants, increasing the risk of waterborne diseases such as cholera, typhoid and diarrhea.
- **Environmental Degradation:** It leads to soil erosion, water pollution and damage to ecosystems. Floodwaters carry pollutants and debris, impacting water quality and harming aquatic life.
- **Economic Consequences:** Businesses may suffer losses due to damage to their premises and disruption of operations. Additionally, the government incurs costs for rescue and relief efforts, infrastructure repair, and rehabilitation.

WAY FORWARD:

- **Working and Clean Drainage:** Installing a good drainage system and maintaining the existing channels to create alternative paths for water to flow throughout the city.
- **Sponge city concept:** China launched the Sponge City Initiative in 2015, investing in projects that can absorb floodwater. They are building these projects in 30 cities, including Shanghai, Wuhan, and Xiamen. By 2020, China aims to have 80% of its urban areas capable of absorbing and reusing at least 70% of rainwater.
- **Solid Waste Management:** Implementing a proper system for managing solid waste to prevent it from entering the drainage systems in urban areas.
- **Strict implementation of Laws and Regulations:** Control any unauthorized constructions in natural drainage areas.
- Incorporate robust flood mitigation plans into the master plan of each city.
- **Response Readiness:** Ensure prompt, well-coordinated, and effective response to urban floods to minimize casualties, and property damage, and facilitate quick recovery.