Big data to Mitigate the Impact of Disasters

According to the report by the **UN's Asia-Pacific social agency,** technological innovations like **big data** can better predict **disasters** in the Asia-Pacific region and help to reduce its impact.

- The report stated that, since 1970, natural disasters in the Asia-Pacific region have killed **two million people i.e. 59% of the global death toll.**
- **Rising global temperatures and climate change** have increased the frequency and intensity of floods, cyclones and droughts in the region.
- Further, disasters also cause **more damage in Asia and the Pacific,** measured as a percentage of GDP, than the rest of the world, and this gap has been widening.
- In this context, technologies intervention caused by big data can help **identify and locate those most at risk, to warn people ahead of a disaster,** and **deliver targeted relief afterwards.**
- This data can come from a **range of sources,** including satellite imagery, drone videos, simulations, crowdsourcing, social media and global positioning systems.
- **Application of Big Data in** Disaster Risk Reduction**:**
    - There are four main phases of disaster management i.e. **prevention, preparedness, response and recovery.**
    - A Big Data-driven sensor network can help mitigate disaster in the following ways:
        - Flood and cyclone forecasting now rely on computer simulations, **machine learning** can help predict the location and severity of floods.
        - Sensor webs and the **Internet of Things** can enable efficient earthquake early-warning systems.
        - Remote sensing via satellites and drones provide quick assessments of damage and people affected so that disaster response can be prioritized.
        - Public data like **India's digital ID system (Aadhar)** can help deliver targeted benefits to millions of small and marginal farmers affected by drought.
    - Big data applications have led to substantial reductions in mortalities and economic losses due to typhoons in the north and east Asia.

Big Data

- Big Data, broadly characterize data sets so large they cannot be stored and analysed by the traditional data storage and processing methods.
- It has three characteristics, referred to as the **three V's – Volume, Velocity and Variety,** that distinguish Big Data from other forms of data.
- The emergence of Big Data has primarily been, due to the decrease in the cost of sensory and mass digitization of systems and processes around the globe.

Source: THBL