

BIG DATA TO MITIGATE THE IMPACT OF DISASTERS

Prelims: Disaster Management

Mains: GS-III- Disaster and Disaster Management.

Why in News?

- ▶ 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:

- ▶ 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:

- ▶ 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.

