Climate Resilient Urban Planning

What is the issue?

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- Recent times have seen drastic climatic events which significantly bear the signature of climate change.
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- As the frequency of extreme weather events increases, urbanisation has to heed ecological principles.
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How is India’s climate expected to change?

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- The average monsoon rainfall in India is expected to increase initially and then reduce after a few decades.
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- Examination of daily rainfall data between 1951 and 2000, shows that there has been a significant increase in the magnitude & frequency of extreme rainfall events along with a decrease in the number of moderate events over central India.
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- These changes interacting with land-use patterns are contributing to floods and droughts simultaneously in several parts of the country.
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Why is understanding extreme climatic events necessary?

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- The main reason for understanding extreme events is to help policymakers, emergency responders and local communities to plan and prepare for them.
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- Cities could be laid out to reduce flooding by following natural contours,

drainage and tank systems.
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- Emergency responders should be well prepared to transport and care for people who may become stranded during disasters.
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Is climate change guilty?

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- According to a Special Report of the “Inter governmental Panel on Climate Change” on Extreme Events - global warming leads to changes in the frequency, intensity, spatial extent, duration & timing of extreme weather and climatic events.
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- Researchers are also trying to understand the relationship between anthropogenic climate change and extreme events.
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- **Heat/Cold Waves -** It has been found easier to correlate anthropogenic factors for severe heat and cold waves.
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- The Texas heat wave of 2011 and the Russian heat wave of 2010 were comprehensively concluded to be due to climate change.
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- **Rainfall -** Conversely, climate models cannot mimic or simulate extreme rainfall.
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- While the Chennai floods showed no traceable signature of global warming, the intensity of “Hurricane Harvey” was linked to higher sea surface temperatures by some scientists.
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What has been the impact of urbanisation on floods?

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- The although the anthropogenic origins of the excessive rains could be a subject to research, the flooding patterns in Chennai, Mumbai and Houston,

however, were due to several human-induced activities.
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- Rampant increase in built-up area across natural drainage channels, the diversion or damming of rivers upstream & coastal subsidence were all contributing factors.
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- The spread of infrastructure such as roads, highways, buildings, residential complexes, tiled or asphalt-covered land obstructs rainwater from percolating into the soil.
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- When it rains heavily and regular stream flows are blocked from proceeding into the sea by heavily built-up areas, inundated is the result.
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- For decades, in many parts of the world, urbanisation has ignored ecological principles associated with water bodies, vegetation, biodiversity and topography - which are integral to how we live and whether we prosper.
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What needs to be done?

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- Development needs to be climate-smart by preventing any further worsening of the hydrological patterns in cities.
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- Also, existing construction on lake beds and other water bodies needs to be removed or redesigned to allow flood drainage along natural water channels.
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- As the frequency of extreme weather events increases around the world, losses in rich countries are expected to be higher in terms of GDP, but in terms of human costs, it is the poor countries that will suffer the most.
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- We need to realise soon that developing a climate resilient planning is not an ecological favour to the planet but a tool for our very sustenance.
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Source: The Hindu

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