Natural Infrastructures

What is the issue?

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In order to avoid risk and damage, and to build resilience to natural disasters, natural infrastructure solutions are increasingly being considered and implemented.

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Natural Infrastructures:

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- They are planned and managed **natural or semi-natural systems,** which can provide benefits or even replace a functionality that is traditionally provided by grey infrastructures.
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- These natural or green infrastructures can be areas such as forests, agricultural lands, estuaries, coastal landscapes and wetlands.
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- These solutions comprises coastal ecosystem (mangroves, coral reefs) for coastline protection from storms; watershed restoration for water quality regulation; afforestation for carbon sequestration; habitat restoration or conservation for pollination; **phyto-remediation** to rehabilitate contaminated soil and water.
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Do we need a multi-pronged approach?

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- At the local level, NI solutions include permeable pavements, trees and rainwater harvesting systems.
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- Vegetative solutions consist of **green roofs, rain gardens, and bio-swales,** which can be used in cities and industrial parks to balance storm water

conveyance systems.
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- **Rain gardens** capture rainwater in a depression in the ground, and prevent flash floods and erosion in streams by slowing down storm water.
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- **Bioswales** are made along roadsides so that rainwater from the road flows towards them and percolates into the ground.
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- NI solutions include constructed wetlands that are used for industrial processed water and waste-water treatment, substituting traditional waste-water treatment infrastructure.
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- **Oyster reefs and seagrass beds** can decrease erosion and protect coastal areas from storms, while also filtering contaminated seawater and supporting local fisheries.
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What are the benefits?

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- A well-managed forest can **regulate water** for drinking, agriculture and energy, store carbon, support pollinators and provide recreational and tourism opportunities.
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- Further, it can **increase biodiversity and improve storm resilience.**
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- NI can help avoid water pollution that would otherwise need to pass through a conventional water treatment plant, thus reducing costs.
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- They often require **less initial capital investment** and reduced operations and maintenance costs. These solutions often require fewer human resources for oversight.
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- As more businesses invest in NI solutions, the demand for related skills will increase, resulting in new job opportunities.
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What is the significance?

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- We are now working towards achievement of several historic milestones, including the Sustainable Development Goals (SDGs) and the Paris Climate Agreement.
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- Mapping and assessing NI solutions is essential to ensure that their true values are considered in policies and decision-making across sectors.
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- Businesses can integrate disaster risk into their management practices as indicated in the recently adopted 'Sendai Framework for Disaster Risk Reduction'.
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- Decision-makers increasingly have access to tools and information such as the Natural Capital Protocol, World Bank WAVES programme, and WBCSD Natural Infrastructure for Business platform.
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What should be done?

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- There is a need to strengthen informational cooperation between cities or countries across both the developed and developing worlds.
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- Finally, it is imperative to develop and build a **collaborative environment** for public institutions and private companies for the success of these initiatives, as re-imagining ways to integrate nature with the communities will help in building resilience.
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\n**Source: The Hindu**

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