STUDY NOTES · BASIC CONCEPT

What is Green Infrastructure? How is it different from Grey Infrastructure?

Environment & Ecology

25 Dec 2019

Green Infrastructure

1. Infrastructure based on natural systems and nature-based solutions
2. Provides environmental, social and economic benefits along with development
3. Treats nature as part of the solution, not an obstacle
4. Helps in carbon sequestration and air purification
5. Reduces urban heat island effect and regulates temperature
6. Supports flood control and groundwater recharge
7. Enhances biodiversity and ecosystem services
8. Cost-effective and sustainable in the long term
9. Improves climate resilience of cities and infrastructure

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Grey Infrastructure

- Infrastructure built using concrete, steel and engineered structures
- Designed mainly for single, specific functions
- Environmental concerns are secondary or limited
- Associated with high carbon footprint and pollution
- Often increases heat stress and environmental pressure
- Focuses on rapid water drainage, sometimes increasing flood risk
- Causes loss of biodiversity and natural habitats
- Requires high maintenance and long-term costs
- More vulnerable to climate change impacts

Key Differences

1. Green Infrastructure is nature-based, while Grey Infrastructure is concrete-based
2. Green provides multiple co-benefits, Grey serves single purposes
3. Green enhances climate resilience, Grey often increases climate vulnerability
4. Green supports sustainable development, Grey represents traditional development