



## Restoring Kerala's Natural Infrastructure

### What is the issue?

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- Kerala's post-flood reconstruction programme named 'the creation of new Kerala' requires rebuilding of manmade infrastructure.
- But restoration of 'natural infrastructure' lost due to human interventions is equally pivotal to ensuring Kerala's future security.

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### How is Kerala's natural infrastructure at present?

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- **Forest cover** - When united Kerala was created in 1957, 36% of its land area constituted forests, which was reduced to 12% by 1990.
- The Kerala Government's 2016 Economic Survey claimed that it had 19,230 sq.km of forests - around 50% of the total land area.
- But out of the above, only 1,523 sq.km is classified as 'dense' forests, which is only 3.9% of the State's land area.
- Kerala is an ecologically fragile State where 75% of the land has a gradient of above 20%.
- So the loss of dense forest cover of this magnitude is an invitation to disaster.
- **Riverbeds** - Excessive sand mining, to feed constructions, has led to reduction in the water absorption/retention capacity of the river beds.

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- Based on sand audits conducted in 14 major rivers, it is found that sand extraction is up to 85 times in excess of the sand deposition.  
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- **River basins** - The entire land mass of Kerala is the catchment area or drainage basin of its 44 rivers and their 900 tributaries.  
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- Many tributaries have been done to death and thousands of flood paths consisting of small streams, rivulets, etc., have been levelled for construction.  
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- **Wetland** - Though not strictly classified as wetland, the once extensive network of 7.6 lakh hectares of paddy fields have played flood plains' role in Kerala.  
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- About 80% of this has been levelled or converted for construction and commercial cultivation, and only 1.9 lakh hectares remain.  
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- After 1980, uncontrolled tourism development has also contributed to this disruption.  
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## How did forest destruction evolve?

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- **Colonialism** - Major ecological destruction began in Kerala during the British colonial period, especially after the industrial revolution.  
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- Notably, colonialism was also a period of 'green imperialism'.  
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- Since the beginning of the 19th century, there have been attempts to clear forests.  
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- **Plantations** - Forest clearance was in line with establishing commercial plantations of coffee, cinchona and tea.  
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- Thus began the massive destruction of these structures called by the Madhav Gadgil Committee as 'water towers' of the Southern-Western Ghats.  
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- In the beginning of the 20th century, rubber arrived in Kerala and spread like a parasite through the low-lying areas of the Western Ghats and the midlands.  
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- Rubber also contributed to forest and biodiversity loss across Kerala, occupying 28% of the cropped area in the State today.  
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- **Migration** - There was large-scale internal migration from coastal and midland areas to the Western Ghats in Kerala.  
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- Beginning in the first half of the 20th century and lasting till 1980, this also contributed to forest destruction.  
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- This was widespread in the Idukki region of Travancore and Wayanad region of Malabar.  
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- **Urbanisation** - The state witnessed rapid urbanisation and is today a suburban or 'rurban' (rural + urban = rurban) State.  
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- Urbanisation made major demands on resources for construction and infrastructure projects.  
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- **Stone quarries** - The explosion of stone quarries in the State after 1980 has been phenomenal.  
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- Today, Kerala has over 5,000 quarries, out of which over 2,000 are in the Western Ghats.  
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- **Hydro-power** - Yet another factor contributing to forest destruction is the over-dependence on hydro-power.  
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- Out of the 58 small and big dams in Kerala, 35 are hydro-electric projects.  
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- Together, they have contributed to destruction of over 350 sq.km of evergreen forests in the reservoir area alone.  
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- Three major rivers have over a dozen dams each, which have altered the riverine ecosystem in many ways.  
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- Besides, in many dams commissioned before 1971, the reservoir capacity has been significantly reduced due to silting.  
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- So in extreme rain events, they are unable to hold water as per their designed capacity.  
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**How can ecological restoration happen?**

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- The first crucial step would be the adoption of the [Madhav Gadgil Committee report](#) and its implementation.

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- Kerala desperately needs a River Restoration Authority to rejuvenate the network of 44 rivers and their 900 tributaries, rivulets and countless streams.

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- In those rivers, a 'mining holiday' should be declared till the sandy riverbeds of about 12 feet each is restored in the respective rivers.

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- Sand obtained by de-silting of the dams could replace the quantity lost during this mining holiday. Pit mining should be totally banned.

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- 'Bar skimming', wherein every year only the surface two feet of the sandy riverbed is allowed to be removed manually should be legally mandated.

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- Currently, mining is done using earth-removing machines and jet pumps.

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- Restoration of the riverside flood plains lost to encroachment should be taken up.

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- This should be coupled with establishment of 'bio-shields' using local plant species, instead of cement and stone construction on the edges.

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- Equally important is the protection and preservation of Kerala's wetlands.

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- The programme to revive thousands of village ponds should be expanded to cover restoration of inland streams, canals and rivulets lost to human intervention.

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- Ecological restoration cannot prevent the recurrence of extreme rain events but can certainly ameliorate their impacts considerably.

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**Source: BusinessLine**

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