A DownToEarth ANNUAL

STATE OF INDIA'S ENVIRONMENT 2026

ANIL AGARWAL DIALOGUE 2026

State of India's Environment
Anil Agarwal Dialogue

Tribute to Anil Agarwal, CSE's founding director; journalist; environmentalist who taught us to be fact based; to report from the ground; and to connect the dots between science and politics

Tribute to SOE; reports which give you the big picture; we see changes every day, but we need the overview so that we can analyze trends; learn what is working and what needs to be done

Tribute to our colleagues – the community that drives change and the community which amplifies the message; together we build the momentum for more change

The Great Disorder

- **This is a time of great disorder, disruption and discord**

- The question is if from this great churn can the world's poor emerge stronger; more resilient and more secure

- It needs a reworking of the development model we know in our world; we need resilience and we need sustainability

- This then is the question for our present and future: what must we do differently so that we can build inclusive and so sustainable growth

Our world today
Real impacts; contradictory trends

- Climate change is real; impacts are devastating
- We also know greenhouse gas emissions are increasing
- There is global hesitancy to move ahead at the speed and scale needed
- This when RE is gaining ground over coal; this when electric vehicles in 2024 were over 20% of new cars sold
- China is leading this transition
- But China is also investing in new coal
- **What will "win"—the urgency to act in the face of mounting climate threats, or inaction driven by economic interests?**

Climate change is real; it is an urgent and existential threat

We know:

- **A. That the world has a small (and getting smaller) window to reverse damage**
- **B. That climate change impacts are devastating; half the world population is highly vulnerable to catastrophic changes; and this will get much worse.**
- **C. That the poor in the world are worst hit – they are victims, they have not contributed to the stock of greenhouse gases in the atmosphere**
- **D. That climate change related displacement – people being forced out of their villages/homes because of repeated extreme and variable weather impacts is now happening and will increase. This will increase insecurity in our world.**

Watermark of climate change
Recognize the human face

- We know climate change is not about the single event but about the increased frequency of the events
- Each year, each month extreme weather is breaking a new record
- Each region of the world is devastated; Revenge of Nature
- This is breaking the backs of the poorest who are worst impacted
- They are losing their capacities to cope with these repeated and frequent events coming on the back of existing poverty

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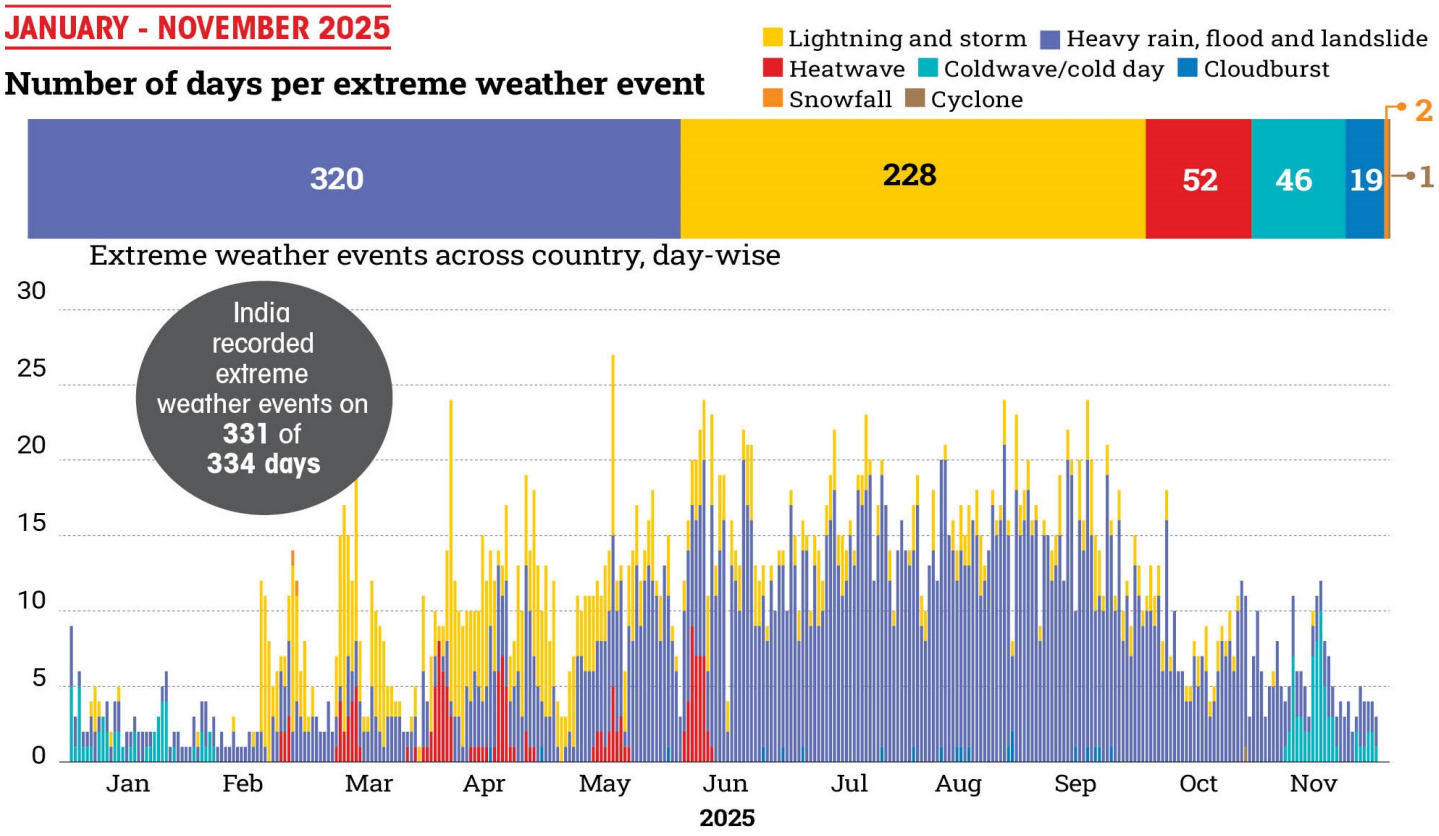
Our data: India has seen almost one extreme event a day in 2025



Source: Based on India's database of weather disasters dashboard by CSE-DTE Data Centre. Data sourced from the Disaster Management Division Union Ministry of Home Affairs, India Meteorological Department and media reports

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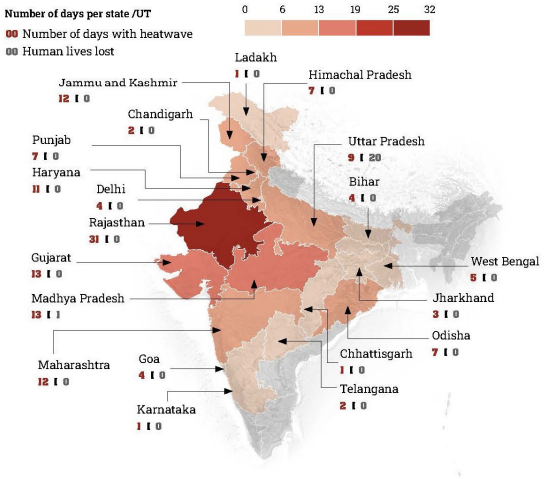
Human face of climate change: IMF assessment for India is that extreme and variable weather will damage infrastructure, add to inflationary pressures, worsen heath outcomes and reduce economic growth

This is the reality of our world; this is why climate change matters

HEATWAVE

On 52 of 273 days, India experienced heatwaves. They claimed 21 lives



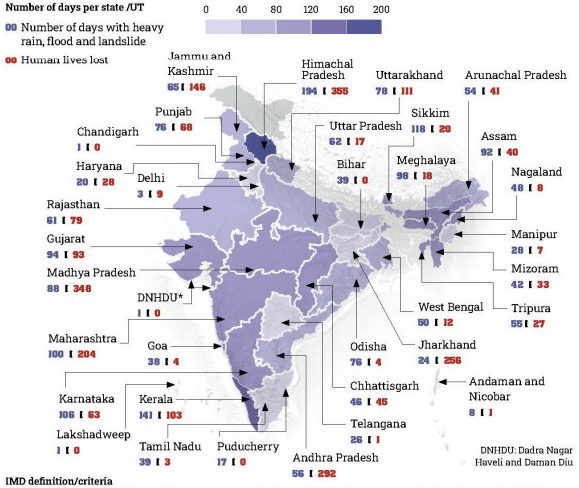
IMD definition/criteria

Heatwave conditions signify a certain amount of rise in temperature at a given place with respect to normal climatological value. The report has considered heatwaves (4.5°C to 6.4°C departure of the maximum temperature from normal), and severe heatwaves (departure of more than 6.4°C).

Note: * Data is for the period January-September 2025

HEAVY RAIN, FLOOD AND LANDSLIDE

On 259 of 273 days, India experienced the extreme weather event. They claimed 2,440 lives



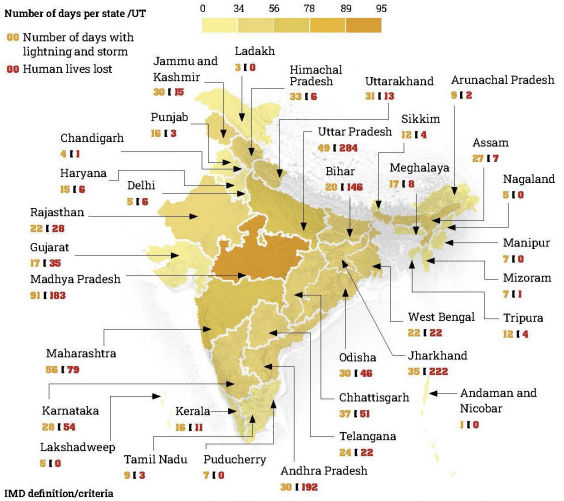
IMD definition/criteria

Heavy rainfall happens when a region receives 64.5-115.5 mm rain in 24 hours. In the case of very heavy rainfall, the threshold increases to 115.6-204.4 mm and in extremely heavy rainfall it is 204.5 mm or more. The report has considered all very heavy and extremely heavy rainfall events, and heavy rainfall events only when they have caused damages.

Note: * Data is for the period January-September 2025

LIGHTNING AND STORM

On 204 of 273 days, India experienced lightning and storms. They claimed 1,456 lives



IMD definition/criteria

Lightning is an electrical discharge caused by imbalances between storm clouds and the ground or within the clouds themselves. Storm includes duststorms (caused by thunderstorms or strong pressure gradients associated with cyclones which increase wind speed over a wide area), hailstorms (an outgrowth of a severe thunderstorm in which balls or irregularly shaped lumps of ice fall with the rain), thunderstorms and gales (a very strong wind).

Note: *Data is for the period January-September 2025

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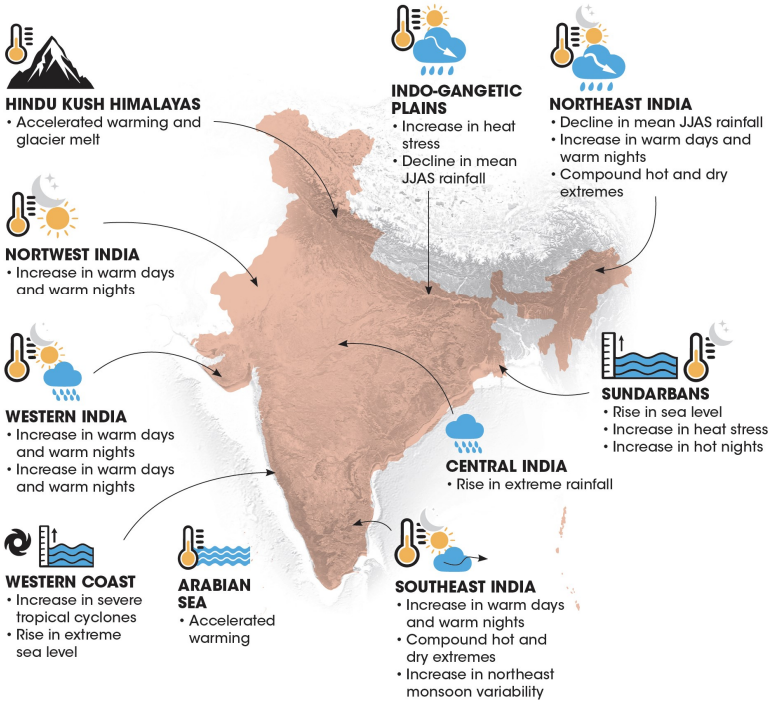
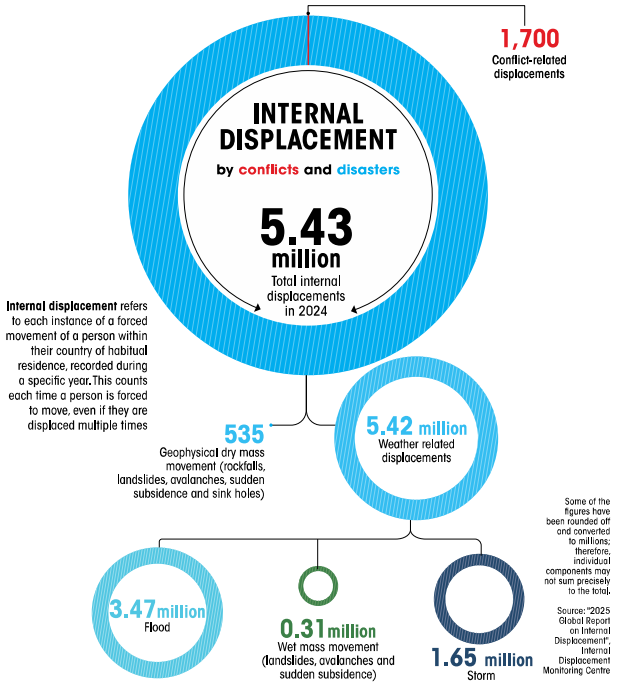
REGIONAL HOTSPOTS OF OBSERVED CLIMATE CHANGE IN INDIA



Source: A post-AR6 update on observed and projected climate change in India (2025) published in *PLOS Climate*

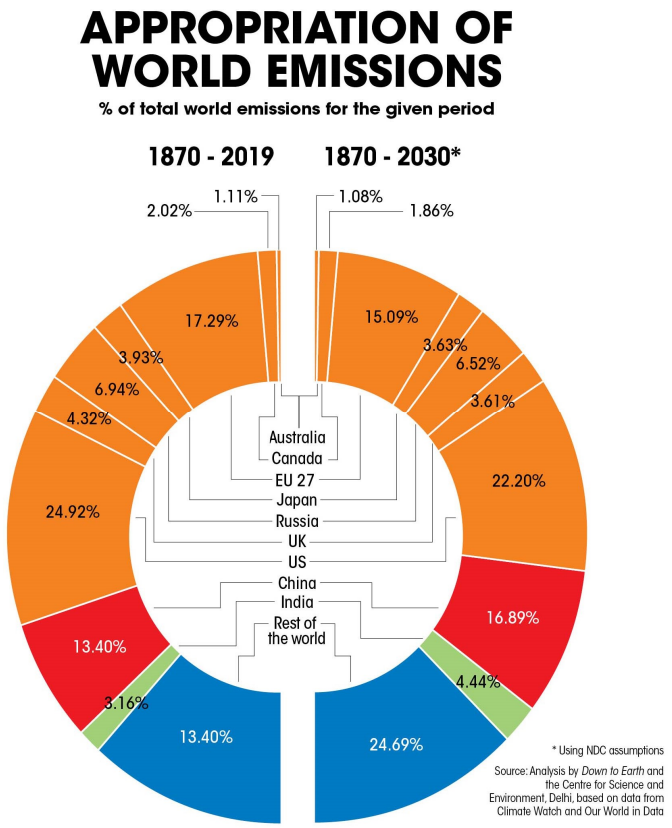
INTERNAL DISPLACEMENT

In 2024, disasters were the primary drivers of internal displacement in India, with floods accounting for 64 per cent of the movements, followed by storms at 30 per cent and landslides and other wet mass movements making up the remaining 6 per cent



Climate change: why equity matters

- Gases have long residence time in atmosphere: past matters
- CO_2 emissions are linked to economic growth as we know it today; not just about sharing atmospheric space but also growth
- The past cannot be erased; it matters because the world's poor need development space to grow; and finance to grow differently



Wars we are losing/not winning

- **War with nature: Losing badly** and heading towards existential crisis as temperatures increase
- **War with China over control over minerals, technology needed for green transition – where this will go?**
- Geopolitics about control of rare minerals – from Greenland to Ukraine.
- Geopolitics between petro and electro states; between old energy and new solar or electric vehicles.
- Will China be the leader in the move towards green transition?
- It controls supply chain for batteries; has more than half the world's lithium, cobalt and graphite; leader in solar technology; and a **trade surplus** that is making the world shiver

What do we do?

- We cannot afford to not act
- Why?
- We need to improve environmental management for our sakes; we need to reduce health burden of pollution; provide water security in time when there will be more rain in fewer rainy days; provide livelihood security to farmers so that they grow food without losing soil fertility and add to cost…
- We need to act
- For us, climate mitigation is not the objective -- it is the added benefit. **This is the co-benefit approach**

Air Pollution: co-benefit solutions

- The air we breathe is a **public health emergency** across India
- We cannot have livable cities; we cannot attract business and trade without improving the quality of air
- We know sources are related to fuel and combustion
- **It is about**:
- Vehicles: numbers and emission standards
- Industry and thermal power plants: fuel and emission control
- Household: biomass burning
- Waste: open burning

Way ahead: transport for local-global

Reinvent mobility: move people and not vehicles

Today, fuel used in vehicles is cleaner; emission standards are tighter, but we are not getting clean air benefits because of explosive motorisation

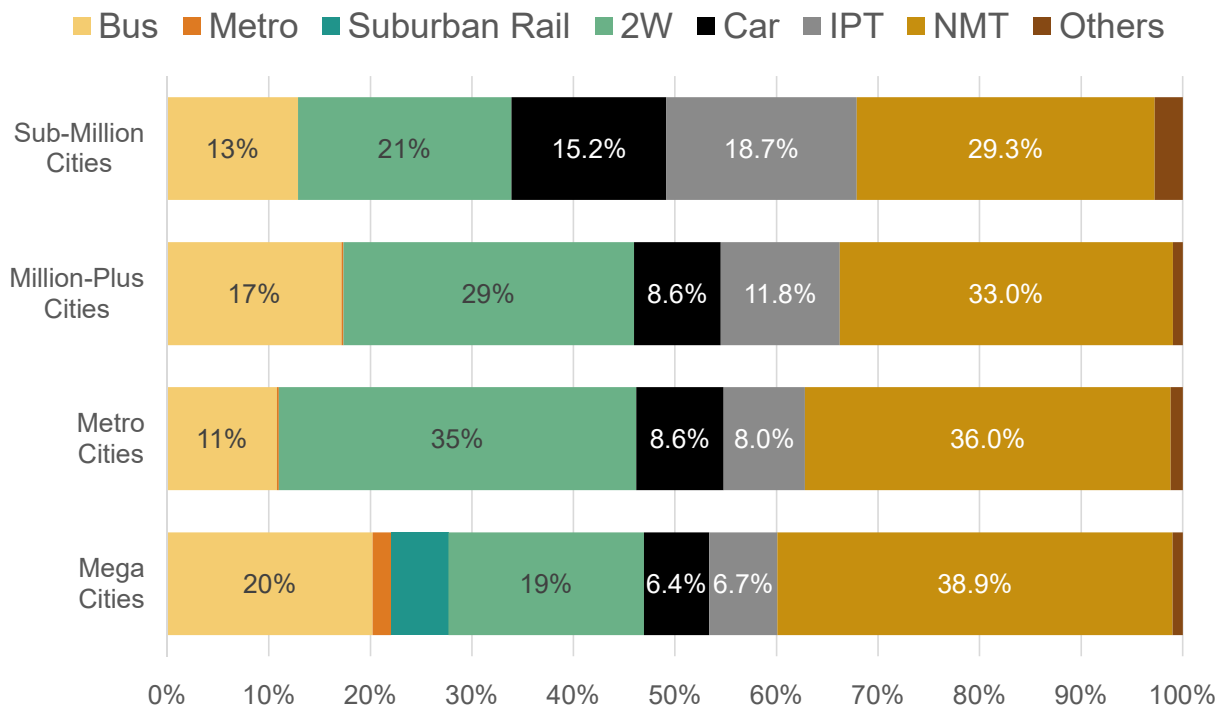
Need to reduce vehicles on roads; possible only with vastly augmented public transport system that has last-mile connectivity

The agenda is about clean vehicle fleets – not few electric vehicles

If we do this, it will improve air quality; also reduce congestion; improve connectivity. Will also reduce greenhouse gas emissions.

The co-benefit approach to climate mitigation

How people move? Modal share in cities of India



- Private cars that take up 90 per cent of the road space move only 6-15 per cent commuters in cities
- Even in big cities – mega cities close to 40 per cent people walk or cycle
- In these cities – from Delhi to Chennai – cars move only roughly 6 per cent people

Water: scarcity and excess

- Climate change is adding to water stress in our world; we are getting more rain in fewer number of rainy days; this is leading to floods and then droughts
- Climate change is also adding to heat stress, which in turn adds to the demand for water
- But we must remember that climate change is an exacerbating factor; our water crisis is about our inability to build an affordable system of water management to supply clean water to all; take back and recycle the used water of all
- **This is our opportunity; water will determine our future – today we know with AI/data centers the demand for energy and water will be huge**
- **In this age of climate change we cannot do water-waste business of yesterday**

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Cities need to relearn the art of local water and waste management

- Water stress is growing across cities in the South
- Current paradigm of bringing water long distances adds to cost of supply; distribution losses; adds to inequity in supply
- Current practice of wastewater management through infrastructure for intercepting sewage at each household is capital and resource intensive; adding to inequity in sanitation and then pollution
- **Opportunity to reinvent is now an imperative**

Heat: winter-to summer 2026

- Each year, old heat records are broken, new records are made
- Heat related deaths are not 'notified' – not recorded, but enough evidence that it leads to loss of productivity and death
- Nights are getting warmer; maximum and minimum temperatures differential is reducing
- Warmer nights means human body does not get time to recover; adds to stress and mortality
- It is not about temperature but increased humidity; wet-bulb phenomenon as bodies need to ventilate
- Yet we are building with glass; we are trapping heat and we are building without ventilation -- no windows, no fans

Co-benefit: build wise

- It is about climate change but not only climate change
- It is about the way we are building our cities
- Destroying green areas; water bodies
- More concrete; More vehicles; More air conditioners
- All add to heat stress
- We need **thermal comfort for all**
- We need to rework city planning for more green-blue spaces (re-worked role of sponges and green-areas)
- We need new building codes which reduce need for air conditioning; are based on passive architecture so that we can build with nature; build to shade and to ventilate

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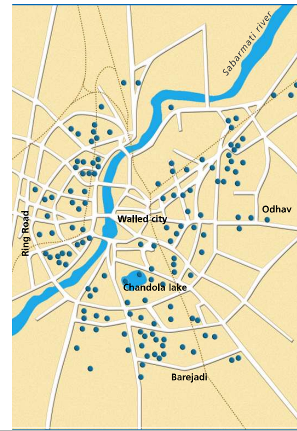
Wetlands are the sponges that will hold extreme rain
Wetlands are blue-green spaces for heat management

These are critical for future water-climate security

Rework cities for tomorrow

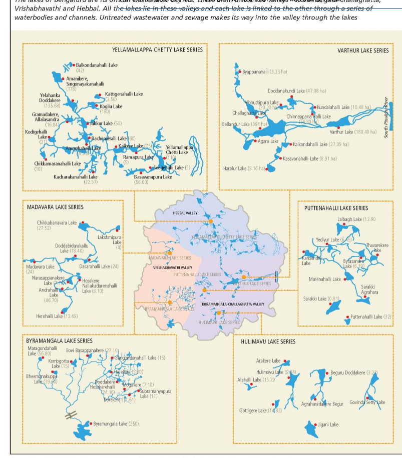
CITY OF LAKES AND FAKES

The 137 lakes of Ahmedabad, as listed by the collector's office. 65 of these are already been built upon, found the AMC

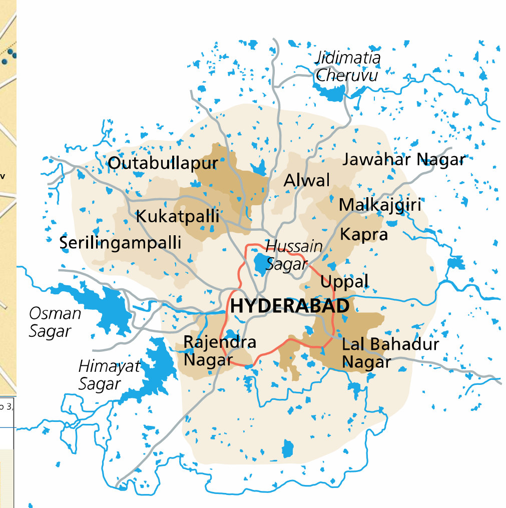


Source: Sopan Joshi 2002, 'Concrete Drama', *Down To Earth*, Vol 11 No 3, June 30, Society for Environmental Communications, Delhi

MAP: THE LAKE CLUSTERS



HYDERABAD: LOST GLORY



Source: Chigurupati Ramachandraiah and Manikoda Vedakumar 2007, 'Hyderabad's Water Issues and the Musi River: need for Integrated Solutions', paper presented in the International Water Conference, Berlin, Sptember 1-4, *mimeo*

No more Delhi's:
modern cities must be livable

- All cities getting bigger
- Question is how will they grow? What is their vision of a city?
- Not about bright lights and malls and nightlife
- It is about the basics: clean water, clean air, schools, housing, green spaces, no garbage and no congestion
- It is about quality of life
- Need a new model for city growth; connectivity for poor and rich as housing moves to where land is cheaper
- The new-gen city needs management, not populism leading to anarchy; today we protect the illegal in the name of the poor
- We need inclusive city models, but not chaos and poor services

Agriculture: affordable=sustainable
Biodiversity = soil and gut diversity

- Method of farming is to invest to increase productivity; assuming this would increase farmers income. Even 'organic' comes at high costs
- Farmers caught in double-triple pincer. Increased costs; hit by extreme weather and when costs go up; import are needed
- Key is to reinvent agriculture so that it cuts input costs; **rework the idea of organic** so that it invests in soil replenishment; lower costs and higher returns
- We know today that soil microbe diversity is critical for productivity
- This means growing diverse crops
- This means eating diverse crops – bringing biodiversity on our plates
- We also know that healthy gut is about diversity of microbes
- **This is the food-biodiversity connection**

Grow
Eat,
Celebrate

Diversity
Culture
Cuisines

About resilience
About working with nature
and not against it

Forest=production for local wellbeing

- **Future of production**
- Global trade has been built by moving to countries that are cheaper as they discount cost of labour and environment
- This needs to be reversed
- We can build new economic models based on wealth of natural resources; natural capital for economic capital
- We can build local growth models – so that people can benefit from higher production and wellbeing-led growth
- **This is the role of forests for the future** – but only if we can build on the ethical dimensions of growth that is inclusive and affordable

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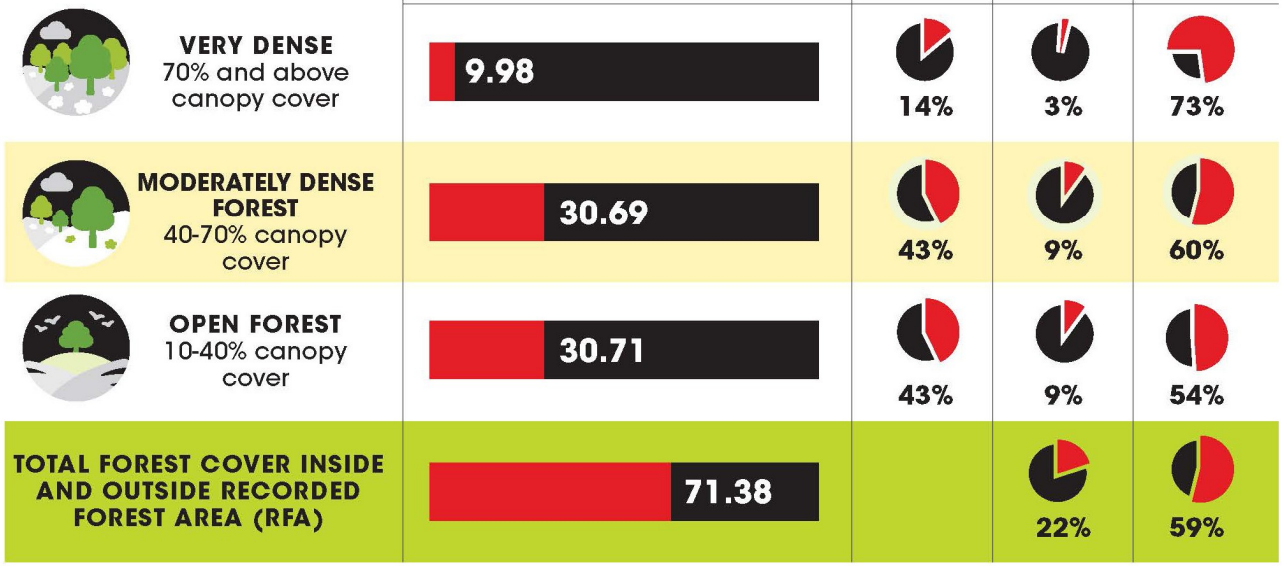
The opportunity

Ethical not a dilemma: Opportunity to work with lands of poor Forest Rights Act is not about land; but opportunity to rebuild economies of land for wood; provide livelihood; development

LATEST NUMBERS

Some 73% very dense forests located in tribal districts



*Forest cover is all land of more than 1 ha with over 10% tree canopy density; * RFA: All areas recorded as "forests" in government records, and consists of Reserved Forests and Protected Forests; Source: India State of Forest Report 2021

Work nature for people not profit

Trade in carbon credits growing to ‘offset’ emissions

India is 2nd largest supplier of credits

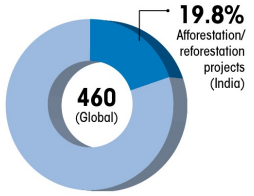
CSE did detailed investigation into voluntary carbon market in India

We found that it was not working for planet or people; only for the army of consultants; verifiers

But can be win-win if we get rules right so that people benefit

MOST SOUGHT AFTER

India is home to one-fifth of the afforestation and reforestation carbon credit projects in the world



Sources: Berkeley Carbon Trading Project, University of California, US; Note: Data updated till February 22, 2025

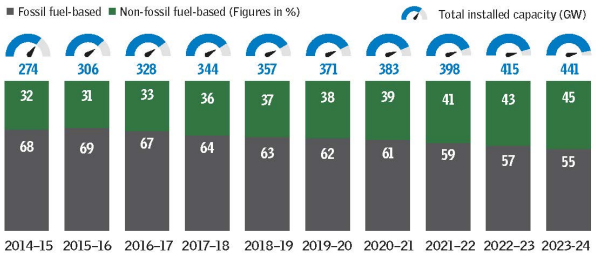
Green futures: nature-based livelihoods

- **Forests for development**
- Trees outside forests (TOF): incentivize wood-based economies not disincentivize growing of trees because we cannot cut them; transport them or use them
- Forests for development for improved livelihood based on trees and minor forest produce in forest regions
- **Forests for conservation**
- Compensation for managing forests as forests in critical wildlife areas/watersheds/biodiversity rich areas – ‘no-go’ areas – **to go to district and communities**

Energy question:
at the center of **growth and climate change**

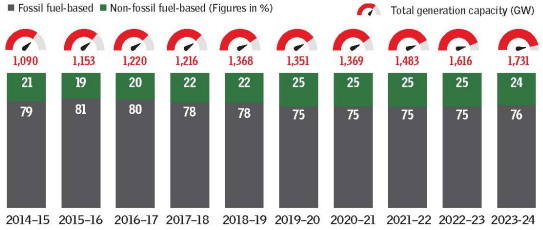
- **RE is also not the question anymore; technology is there; scaling up has happened; share of non-fossil has surpassed fossil in 2026**
- **But generation still not catching up/no displacing fossil fuels**
- **The question is how can intermittent clean energy 'fit' into electricity? Storage options? Cost and flexible grids**

Share of non-fossil energy in installed electricity capacity surged from 32% to 45% in last 10 years; new renewables increased by 3.5 times



Sources: 1 Central Electricity Authority of India; 2 Ministry of New and Renewable Energy

Share of non-fossil energy shows marginal rise in total electricity generation in the past decade. Electricity from fossil fuel, however, increased 1.5 times, from 860 BU in 2014 to 1,324 BU in 2024



Note: Generation data is for ground-mounted utility-scale solar as there is no data publically available for rooftop solar
Sources: Central Electricity Authority of India, Ministry of New and Renewable Energy, India Climate and Energy Dashboard of NITI Aayog

Our opportunity: **Rework economies in the age of climate change**

- Opportunity is to be build local economies that will build resilience; build green futures and put money in the hands of the poor so that they become consumers
- **Localization is our way ahead**
- **This is our uber solution: making local production count**
- **Today's great disruption could be our opportunity to work this change**