



ANIL AGARWAL DIALOGUE 2022

Twin challenges: Covid-climate change

- The world has been disruption had a scale not seen before; An RNA; not even a DNA has brought economies to a halt. **Unimaginable**
- Simultaneously, the world is hit by extreme weather events. We know today that climate change is real and the threat is existential.
- **IPCC report 2022** has made the following clear:
 - A. That the world has a small (and getting smaller) window to act to reverse damage
 - B. That climate change impacts are devastating; half the world population is highly vulnerable to catastrophic changes; and that this will get worse, much worse.
 - C. That the poor in the world as worst hit – they are victims, they have not contributed to the stock of greenhouse gases in the atmosphere. This is why, for the first time, IPCC has acknowledged the need for equity and climate justice.
 - 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.**



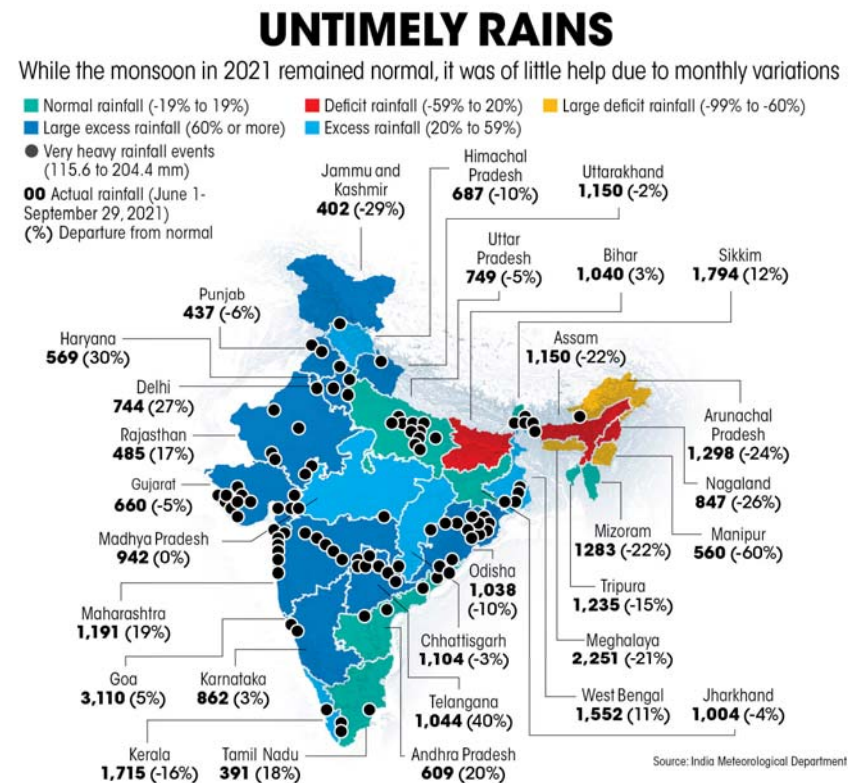
Both result of our
dystopian relationship with nature

- Call this the **revenge of nature**
- Covid-19 is because we are breaking the barrier between the wild habitats/humans and the way we produce our food
- Climate change is the result of emissions needed for economic growth – fossil fuels – that are unsustainable; our lifestyle is the problem
- Both are also linked; are being **exacerbated because of our mismanagement of our health system; our environment**
- But we can find solutions that work for Covid-19, climate and affordable and economic growth. **The co-benefit agenda**

India impact

Monsoon is our finance minister

- More than enough evidence to show that extreme and variable rain events are linked to climate change – increase of floods and then droughts



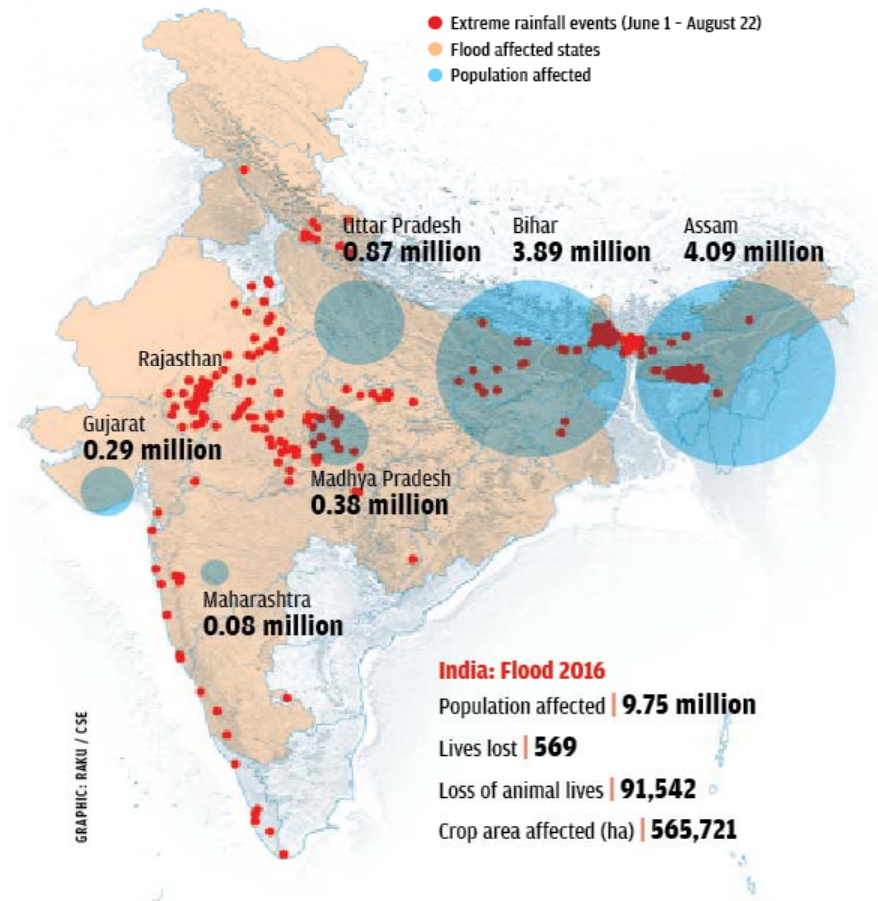
Extreme-rain floods Double-whammy Flood at the time of drought

- Cannot hold water
- Leads to flood
- Leads to drought

Will need enhanced efforts to contain floods by recharging ground and surface water and using it during prolonged drought period

Under water

Most of the floods this year were preceded by extreme rainfall events—a precipitation of 124.5 mm or more in a day



Local changes: must be understood

ALTERED PATTERN

Though rainfall in the Northeast has reduced overall in the past three decades, it has increased in some districts in all the states, except Tripura where all the districts now receive deficit rain

LEGEND
(Analysis period 1989-2018)
District-wise rainfall trend for monsoon season

- Increasing significantly
- Increasing but not significant
- Decreasing significantly
- Decreasing but not significant

Trend in frequency of rainy days*

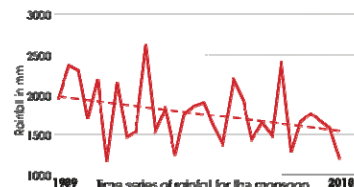
- Significant increase
- Significant decrease



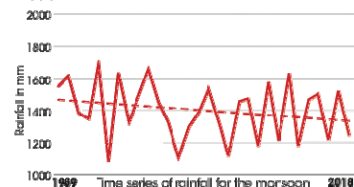
MOSTLY DRY

In six of the eight northeastern states, the overall monsoon rainfall is going down

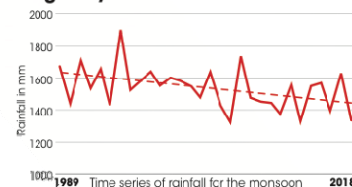
Arunachal Pradesh



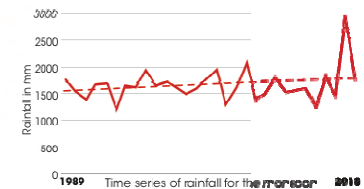
Assam



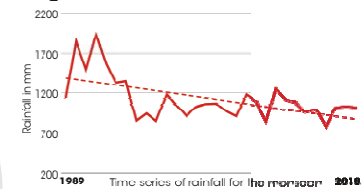
Meghalaya



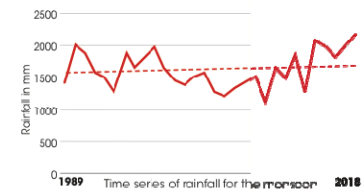
Mizoram



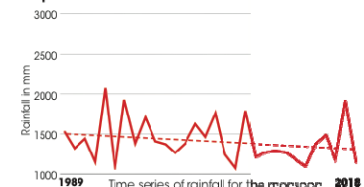
Nagaland



Sikkim



Tripura



NORTHEAST RECEIVES ALMOST THREE-FOURTHS OF ITS ANNUAL RAIN DURING THE MONSOON SEASON

THE REGION RECORDED LOWER THAN NORMAL RAINFALL IN 19 OF THE 21 YEARS BETWEEN 2001 AND 2021

Source: Observed rainfall variability and changes reports for northeastern states by India Meteorological Department. Analysis does not include Manipur due to unavailability of data

* 2.5 mm or more rain in a day

Rising heat.. ..will add to water stress

Every year is the hottest year, breaks records, till the next year comes

Rising heat means

- Dry moisture in soils – increase the need for irrigation; add to land degradation and dust formation
- Increased evaporation rate – water will be depleted faster than is stored in surface water structures
- Drive up the use of water – from drinking to irrigation to fighting fires in forests and buildings

Water management will be crucially important in the age of climate change

Drought-flood-cyclones not single day events

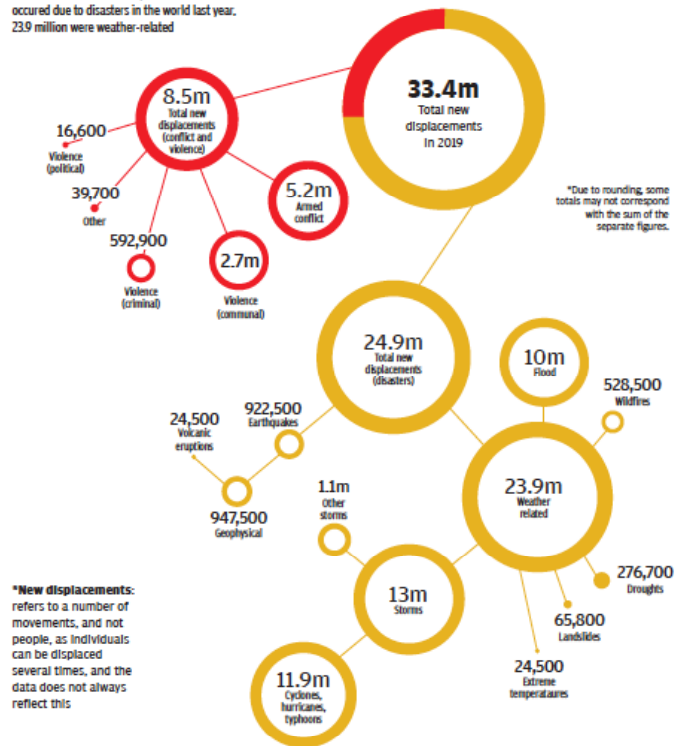
- Cripple people
- Destroy livelihoods
- Take away development dividend
- As events become more frequent, survival becomes more difficult
- No option but to move – migrate – **to cities to new countries**
- Add to growing insecurity in world

Not climate change alone. **Our mismanagement**. Climate change is exacerbating impacts. **No time to lose**

INTERNAL DISPLACEMENT

by disasters and conflicts

Of the 24.9 million new displacements* that occurred due to disasters in the world last year, 23.9 million were weather-related

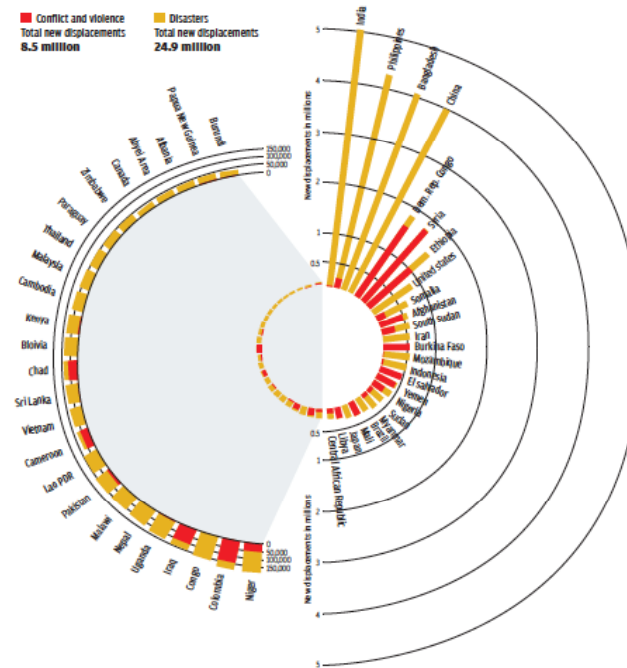


Source: Internal Displacement Monitoring Centre 2020

Sourced from upcoming State of India's Environment 2020. In Figures to be released on June 5

50 WORST HIT COUNTRIES

India alone accounted for over 20 per cent of all new displacements in 2019



Sourced from upcoming State of India's Environment 2020. In Figures to be released on June 5

Climate change: imperative of equity

1. Gases have long residence time in atmosphere: **past matters**
 2. CO2 emissions are linked to economic growth as we know it today; not just about sharing atmospheric space but also growth
 3. World has run out of carbon budget; but millions in the world, including India need space to grow; this growth will add to emissions; will add to the climate risks.
- This is why world needs an agreement based on climate justice; cannot accept climate-apartheid

Current emissions: 36.4 Gt/CO₂

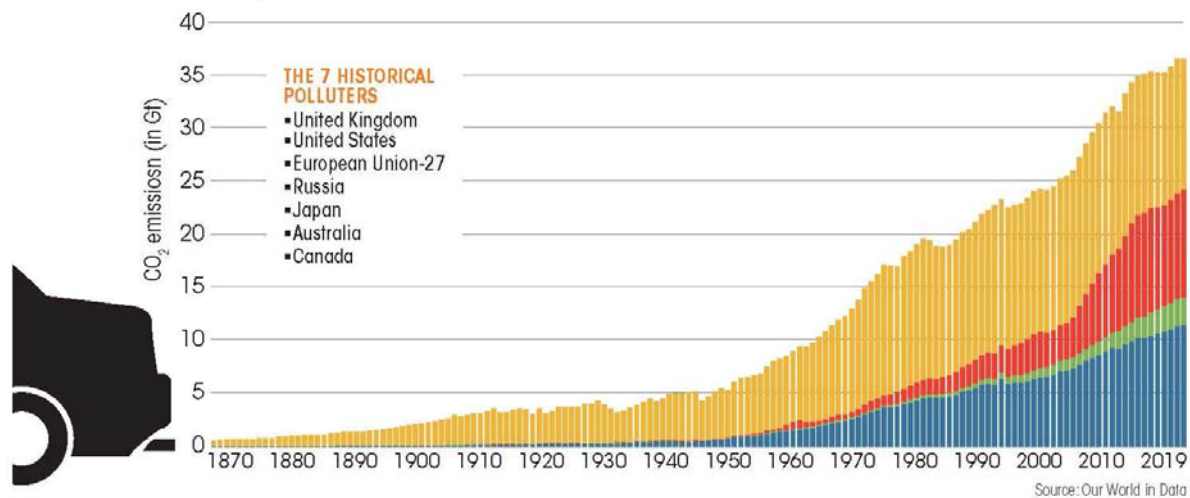
China, US, EU-27 currently emit 50 per cent of emissions

Africa and India both with 17% of world's population contribute 4 and 7%

HISTORICAL DEFAULTERS

Developed countries (in orange) were responsible for almost entire CO₂ emissions till the 1980s...

■ The 7 historical polluters ■ China ■ India ■ Rest of the world



World has run out of carbon budget

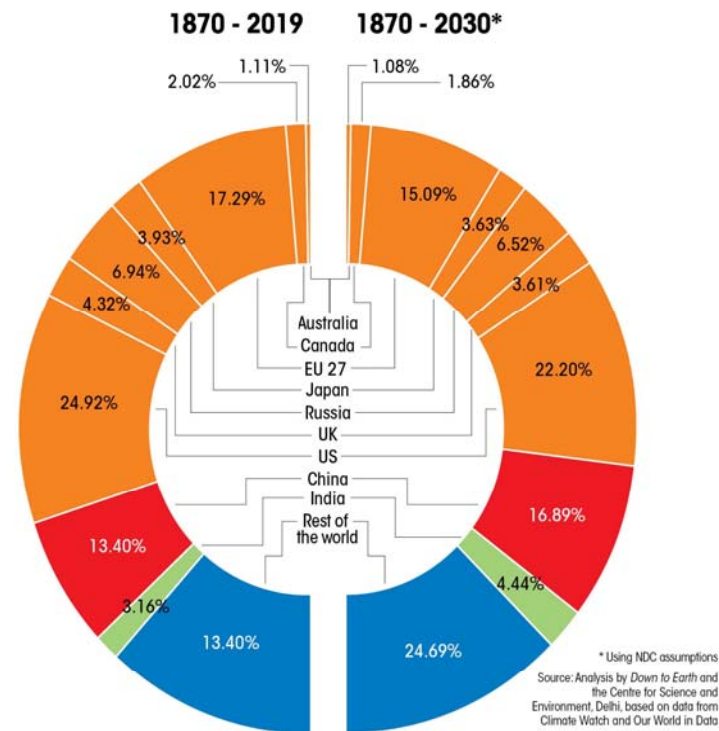
But vast numbers of people still need right to development

Poor are victims of climate change

Have not contributed to stock of emissions that are 'forcing' temperatures to rise

APPROPRIATION OF WORLD EMISSIONS

% of total world emissions for the given period



Agenda: India

- 4th highest contributor (3rd highest without EU)
- Quantum of historical, current and even future is not comparable to big polluters in the world
- But reality is that world has run out of carbon budget; run out of time
- We are victims of climate change: we will suffer as we are most vulnerable
- **So we need to act; in our self-interest**
- **Our climate change strategy has to be based on co-benefits**
- We need a low-carbon strategy for every sector; we must measure and count the difference; we must also ask the developed world to pay the high-cost options so that we can leapfrog

Ambitious goals

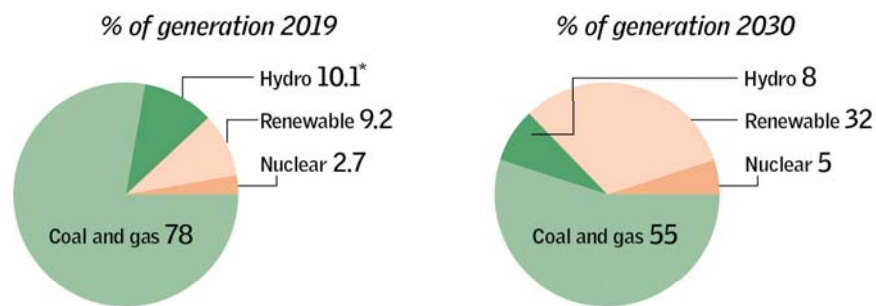
Our Prime Minister has set extremely bold targets for India: towards a co-carbon growth strategy

1. India will reach its non-fossil energy capacity to 500 GW by 2030.
2. India will meet 50 percent of its energy requirements from renewable energy by 2030.
3. India will reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030.
4. By 2030, India will reduce the carbon intensity of its economy by less than 45 percent.
5. India will achieve the target of Net Zero by 2070.

Future's agenda

- Re-inventing energy system

Graph 1: Current and future energy mix for India: CEA



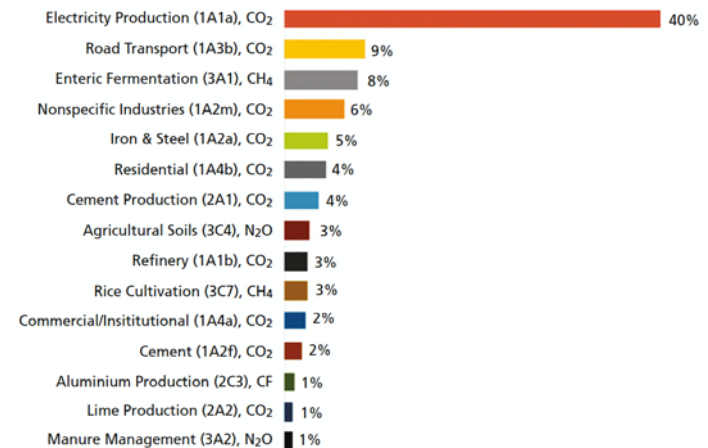
*Including import from Bhutan

Source: Report on Optimal Generation Capacity Mix for 2029–2030. Central Electricity Authority

Reducing emission by sector

Graph 2.7: Greenhouse gas emissions by category, Gigagrams CO₂e

Electricity production and road transport were the highest emitting sectors in 2016



Source: Ministry of Environment, Forest and Climate Change, Government of India, 2021, 'Third Biennial Update Report to the United Nations Framework Convention on Climate Change', https://unfccc.int/sites/default/files/resource/INDIA_%20BUR-3_20.02.2021_High.pdf, accessed in March 2021

Mitigation	Opportunity/Co-benefit	India's plan	Way ahead
Power sector: thermal power (40% of GHG emissions)	<p>Biggest contributor/coal and fossil fuel also add to domestic health burden</p> <p>Coal use in industrial boilers, because of unreliable electricity is the cause of air pollution in our cities</p>	50% energy from RE in 2030 will require us to reduce dependence on coal	Implementation of TPP-coal standards; phase out of older plants that are resource inefficient and phase out of coal usage in small boilers that add to pollution burden by moving towards clean fuel/electricity from clean fossil power plants/RE
Power sector: RE	<p>Need is to transform energy systems but also to ensure that energy is affordable and accessible to the very poor. Opportunity is to leapfrog from use of dirty biomass energy to cleanest energy in the homes of poor. This will require financial mechanisms as well</p>	50% RE target by 2030 requires India to increase installed RE to 500-600 GW by 2030.	<p>Scale up opportunities (will need international finance)</p> <ul style="list-style-type: none"> a. Offshore wind b. Repowering wind c. Aggregation of rooftop d. Mini-grids to bring clean cooking fuel to households and energy for livelihoods

Mitigation	Opportunity/Co-benefit	India's plan	Way ahead
Industry (18-20% of GHG emissions)	Key sectors; iron and steel (5%), cement (6%), Aluminium (1%), fertilizer, lime production (1%) and non-specific industry (6%)	1 GT reduction in CO2 by 2030 Reduction in carbon intensity by 40% by 2030	Massive opportunity for circular economy Steel: use of recycled steel Cement: increased use of flyash
Road Transport (9%)	Long-distance freight transport by roads Passenger vehicles in cities Reinventing mobility will bring co-benefits for clean air	Sectoral reductions will be required for carbon intensity reduction targets 2030	E-vehicles are the answer but only if we upscale the mobility transformation in our cities Move people, not vehicles Need the right to walk, to cycle; to take a bus; metro. Right to mobility is the right to economic growth

Mitigation	Opportunity/Co-benefit	India's plan	Way ahead
Residential sector (4%) and commercial and institutional (2%)	Energy use in residential sector increases with temperature increase or decrease	Sectoral reductions will be required for carbon intensity reduction targets 2030	Thermal comfort is needed in building design to reduce use of energy. Need to work on traditional architecture; passive building design for affordable housing
Waste management	Landfills add to CO2 and methane production Plastic manufacture is a huge user of fossil fuel Co-benefit of cleaning up our cities/healthy cities		We cannot 'waste land for waste'. Segregation will allow processing of waste; need to implement ban on single-use; add to list so that non-recyclables are not manufactured

Mitigation	Opportunity/Co-benefit	India's plan	Way ahead
Agriculture (15%)	Enteric fermentation (8% methane) Rice cultivation (3% methane) Manure and soils (4% nitrous oxide)	These are survival emissions and involve livelihoods of very poor communities	The problem is with intensive and industrial food systems Need to invest in small-agriculture systems that are low-input; environmentally sound – This food will cost ; farmers must benefit but people must get food at affordable price
Forestry (nature-based solutions)	Opportunity is to use forestry and nature-based solutions for livelihoods of very poor and regeneration of lands. Forests are both sources and sinks and the effort should be to reduce deforestation (source) and increase re-forestation (sinks)		Forest lands are habitats of poor communities and so while we must work on nature-based solutions, these must not be used to dispossess them further or destroy biodiversity Need to reinvent forestry so that we can grow, cut and regrow trees but without destroying forests

Water must be our obsession

- Water is life
- Climate change will make water more scarce; more rain but in fewer number of rainy days
- Pollution is adding to stress – it degrades available water
- **We also know unless sewage systems are reinvented so that they are affordable we will not clean our rivers.**
- We also have the huge opportunity is to increase funding in MNREGA – **but for durable assets** – to increase water security locally; build agriculture-livelihoods future locally. **World's largest adaptation programme**

Climate change: India and the world needs inclusive growth

- COVID: deadly race between virus, vaccines and variants
- We know nobody is safe till all are safe (world and India)
- We know we have to invest in public health care for all
- Same with climate change
- Inter-dependent world demands global cooperation, built on equity
- **Same with environmental management**
- **Sustainability only possible with affordable and inclusive growth**