

# India's environment through numbers

How climate change affects our lives

Kiran Pandey

Programme Director,  
Environment Resource Unit  
Centre for Science and  
Environment, New Delhi





# What is covered



- **7<sup>th</sup>** edition
- **17** chapters
- **39** factsheets
- **16** factsheets on state-level data
  - State of the states, river pollution, land degradation, Health index, unemployment and more
- **6** factsheets on district-level data
  - Soil health, forests, coastal erosion and more
- **1** urban index of 56 million-plus and capital cities



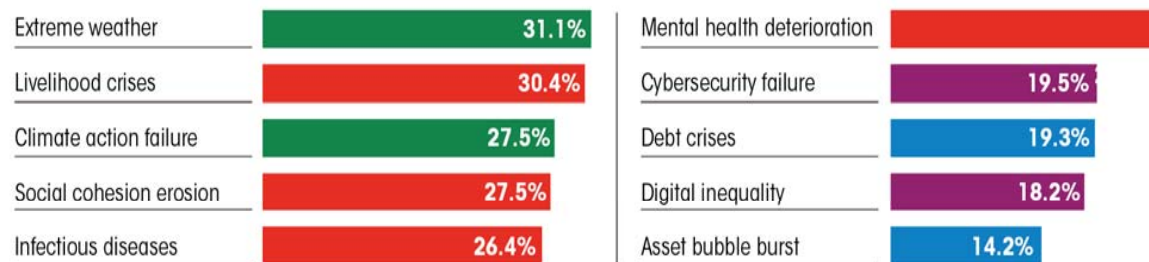


# Environmental degradation the biggest challenge



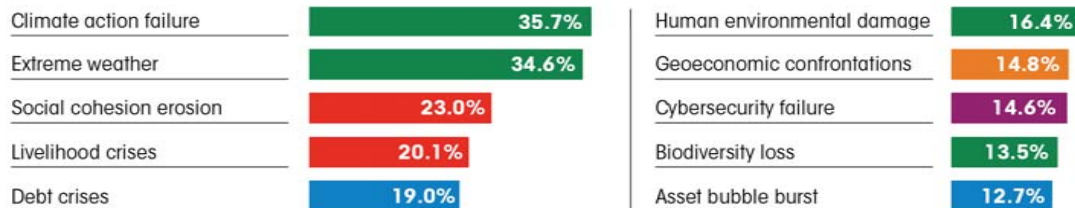
## 0-2 years

■ Economic ■ Environmental ■ Geopolitical ■ Societal ■ Technological



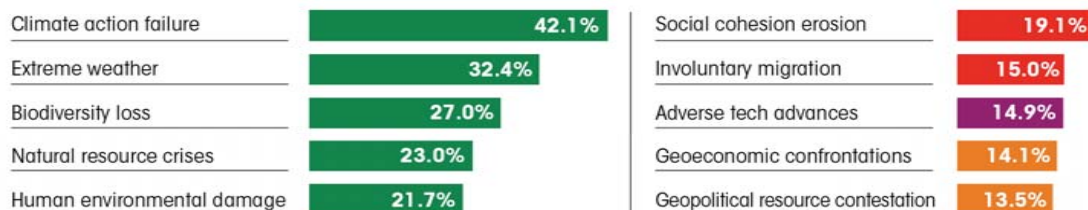
## 2-5 years

■ Economic ■ Environmental ■ Geopolitical ■ Societal ■ Technological



## 5-10 years

■ Economic ■ Environmental ■ Geopolitical ■ Societal ■ Technological



For the next five years, societal and environmental risks will be the biggest challenges globally. Over a **10-year horizon**, concerns about the health of the planet will dominate

**Extreme weather, biodiversity loss, natural resource crises, human environmental damage and climate action failure pose the biggest challenges**

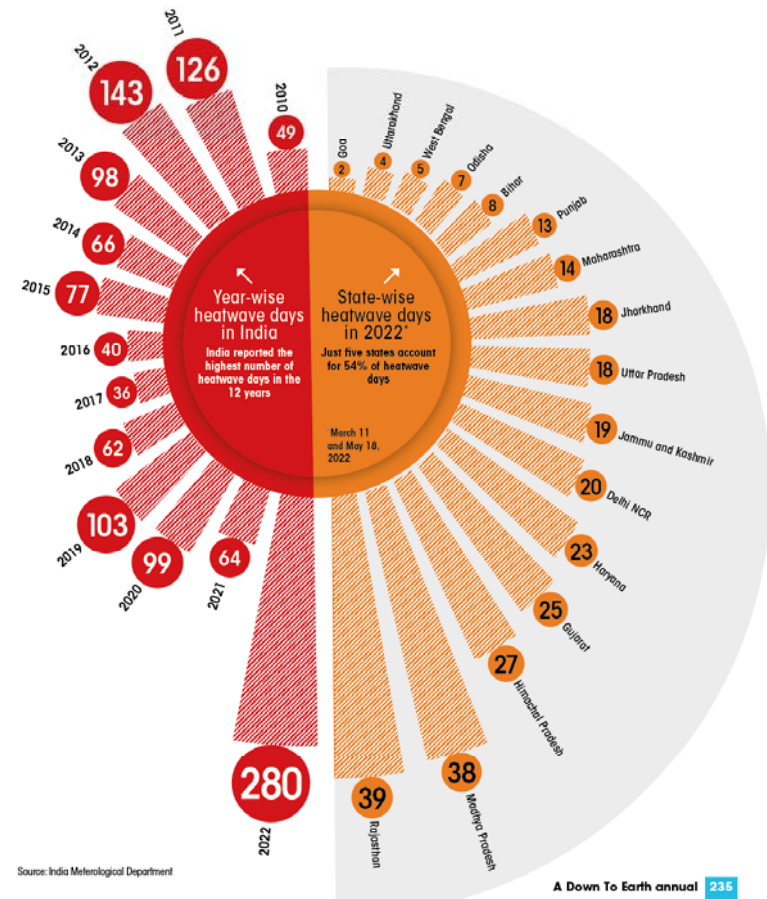
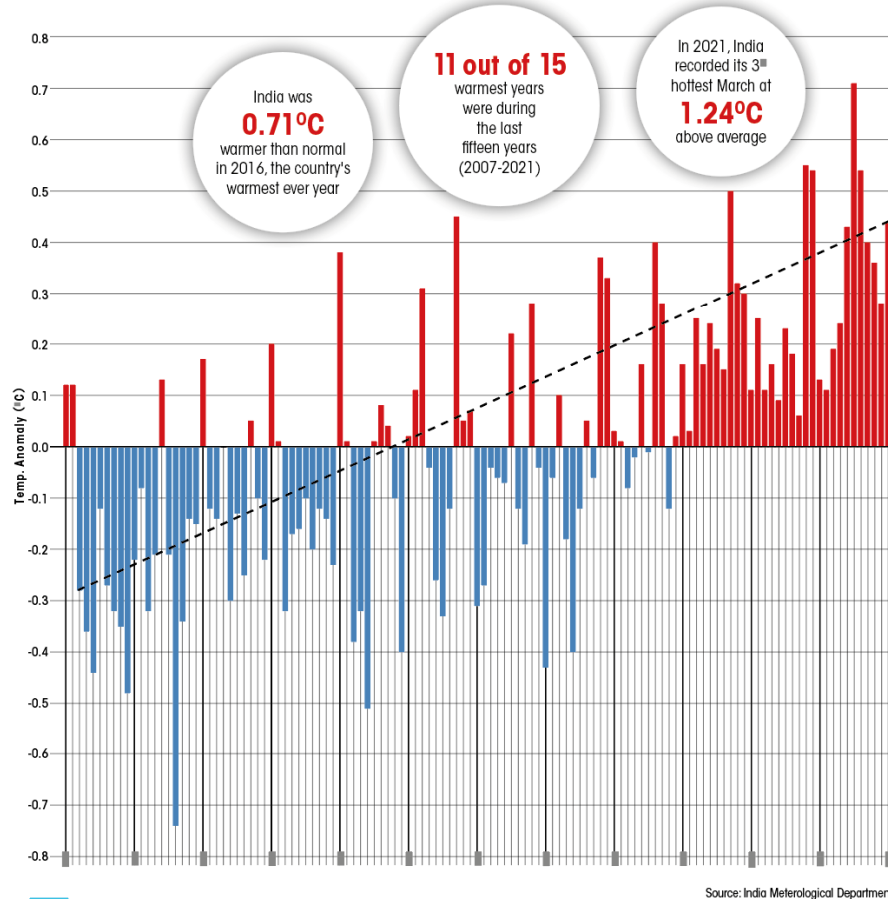


# India is becoming hotter



India recorded its **fifth warmest year in 2021** when the average temperature remained  $0.44^{\circ}\text{C}$  above normal (1981-2010 average). This was due to an **unusually warm winter** ( $+0.78^{\circ}\text{C}$  in January and February) and post-monsoon season ( $+0.42^{\circ}\text{C}$  in January and February)

In 2022, India recorded its **hottest March**. This triggered an early onslaught of heatwaves. The country reported **280 heatwave days between March 11 and May 18**, the highest in the past 10 years. This is almost double of what the country experienced in 2012, the second highest heatwave year in the past decade



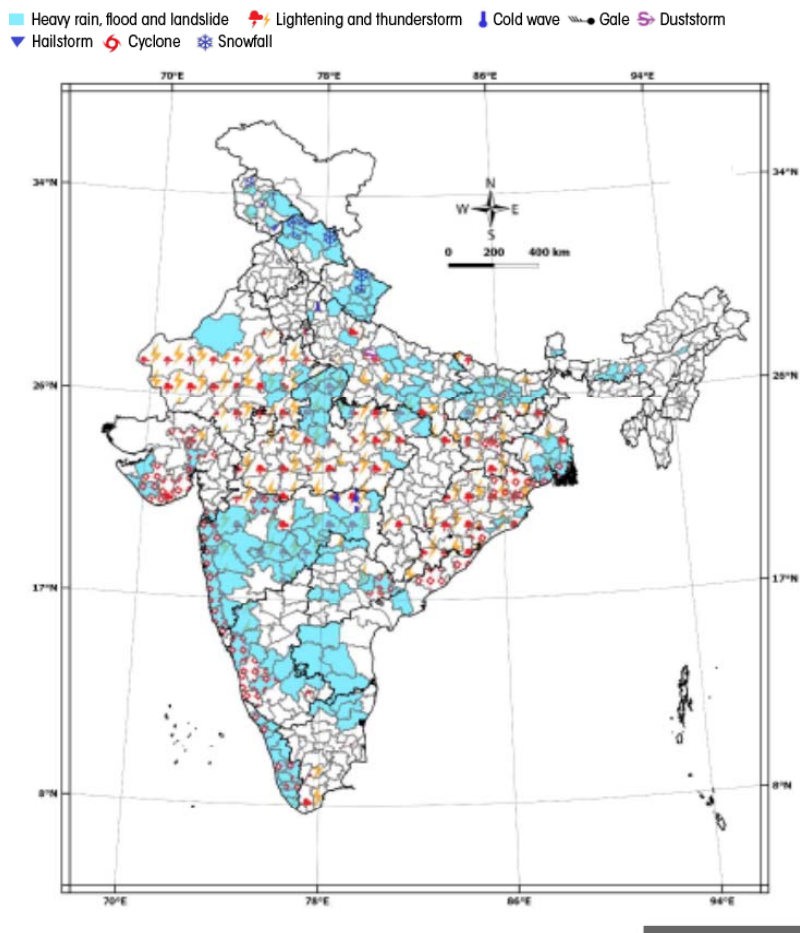


# Climate threats



At least 1,750 people died due to extreme weather events in 2021. Bulk of the deaths were due to lightning and thunderstorms, and floods, heavy rainfall and landslides

There are 25 glacial lakes and water bodies in India, China, and Nepal that have seen a 40% increase in water spread area since 2009. They pose a great threat to seven Indian states and Union Territories and need to be monitored closely

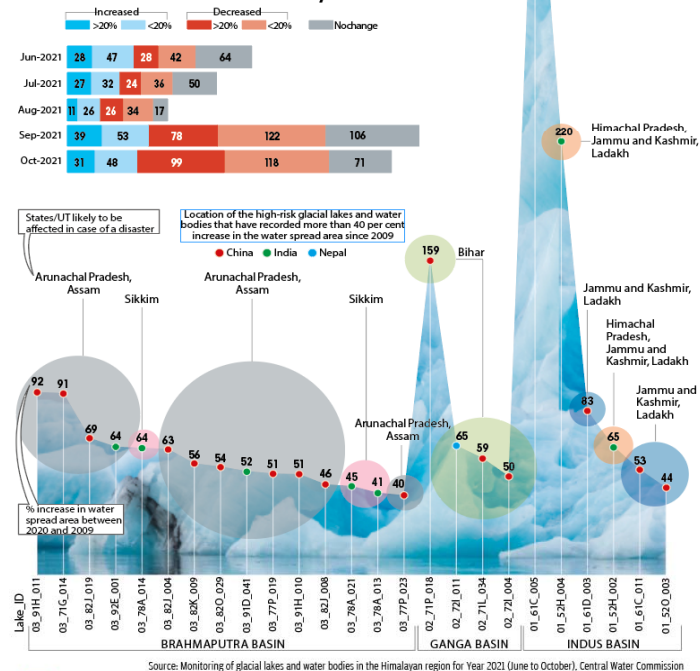


## STATE OF CLIMATE

## MELTING GLACIERS

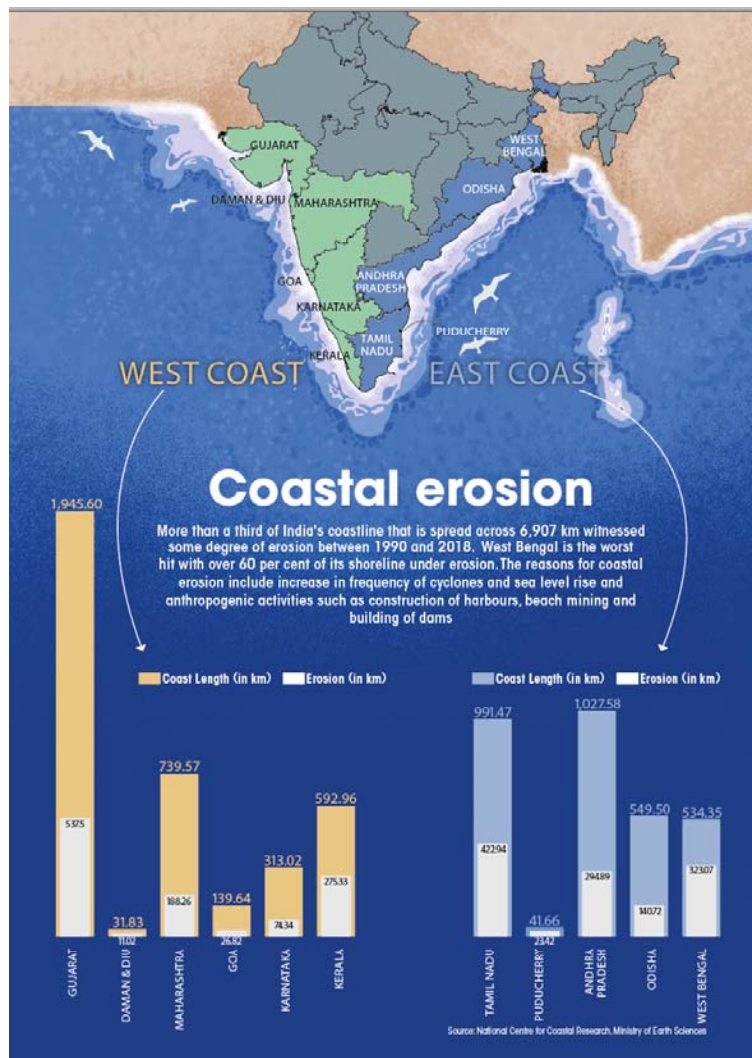
There are 25 glacial lakes and water bodies in India, China, and Nepal that have seen a 40% increase in water spread area since 2009. They pose a great threat to seven Indian states and Union Territories and need to be monitored closely.

**In October 2021, 31 glacial lakes and water bodies showed an increase in area by 20%.**





# Eroding coasts



More than a third of India's coastline that is spread across 6,907 km witnessed some degree of erosion between 1990 and 2018. West Bengal is the worst hit with over 60 per cent of its shoreline under erosion. The reasons for coastal erosion include increase in frequency of cyclones and sea level rise and anthropogenic activities such as construction of harbours, beach mining and building of dams

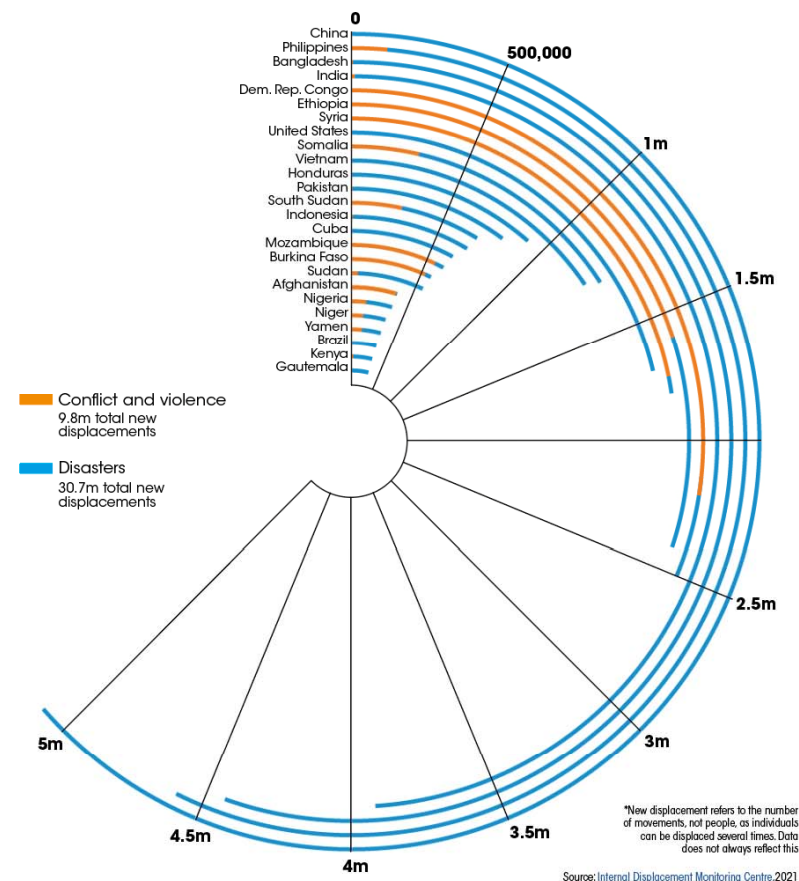
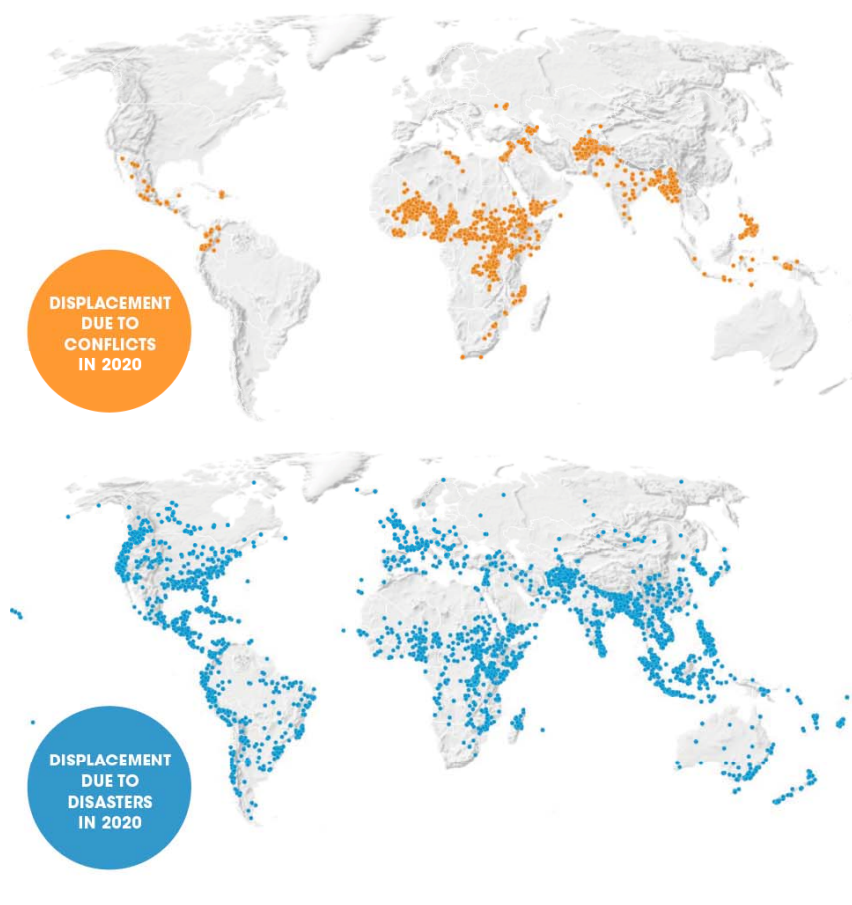


# Large scale internal migration



## Climate a bigger problem than conflicts

By the end of 2020, new internal displacements took place **across 42 countries and territories due to conflict and violence**, and **144 countries and territories due to disasters**.  
**India, fourth worst hit by disasters**





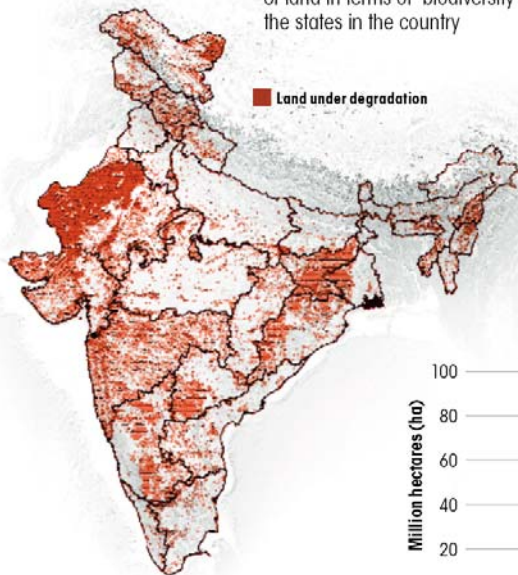


# Land quality is deteriorating

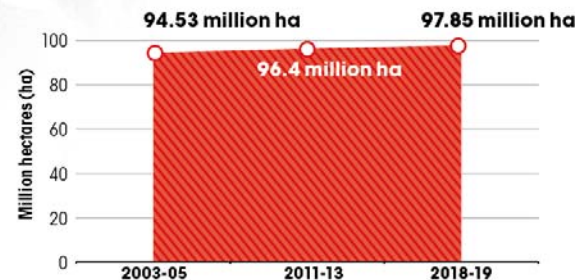


India has almost **30% of its geographical area under degradation**. It is triggered by various factors including climate and human induced factors

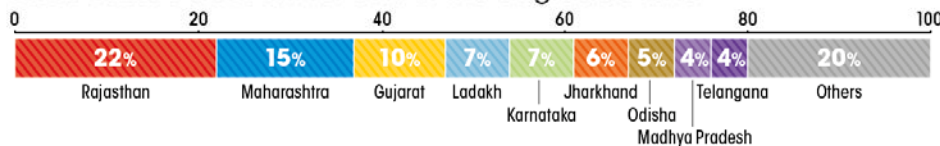
Land degradation, defined as decline in productivity of land in terms of biodiversity and economy ails all the states in the country



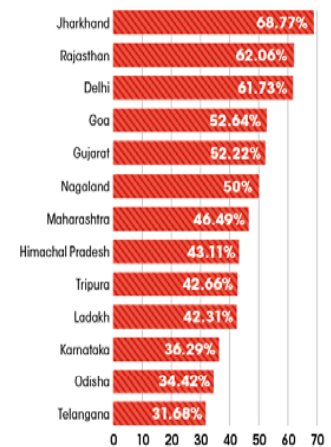
Over **3 million hectare** additional land degraded between 2003-05 and 2018-19



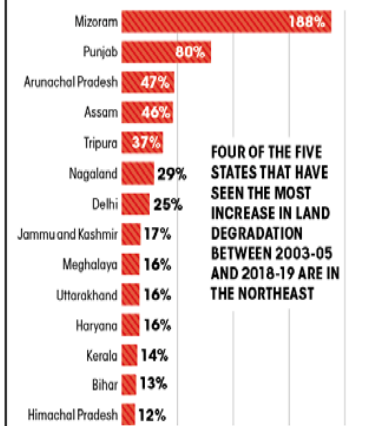
**Nine states** account for 80% of the degraded land



**13 states** have over 30% of their land under degradation



**14 states** have seen over 10% rise in the share of degraded land between 2003-05 and 2018-19

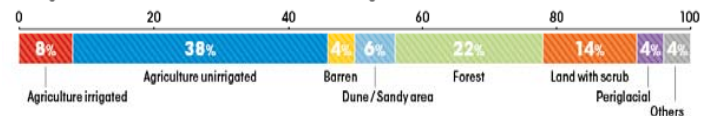


**FOUR OF THE FIVE STATES THAT HAVE SEEN THE MOST INCREASE IN LAND DEGRADATION BETWEEN 2003-05 AND 2018-19 ARE IN THE NORTHEAST**

Source: Desertification and Land Degradation Atlas of India, Space Applications Centre, Indian Space Research Organisation

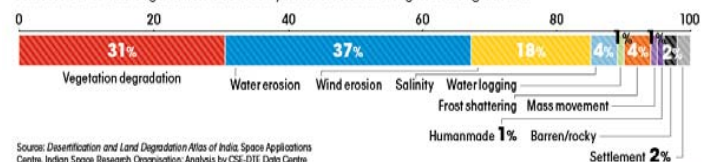
## What kind of land is undergoing degradation

Unirrigated farmland and forests account for 60% of land degradation



## What is causing degradation

Almost 70% of land degradation is caused by water erosion and vegetation degradation



Source: Desertification and Land Degradation Atlas of India, Space Applications Centre, Indian Space Research Organisation; Analysis by CSE-DTE Data Centre

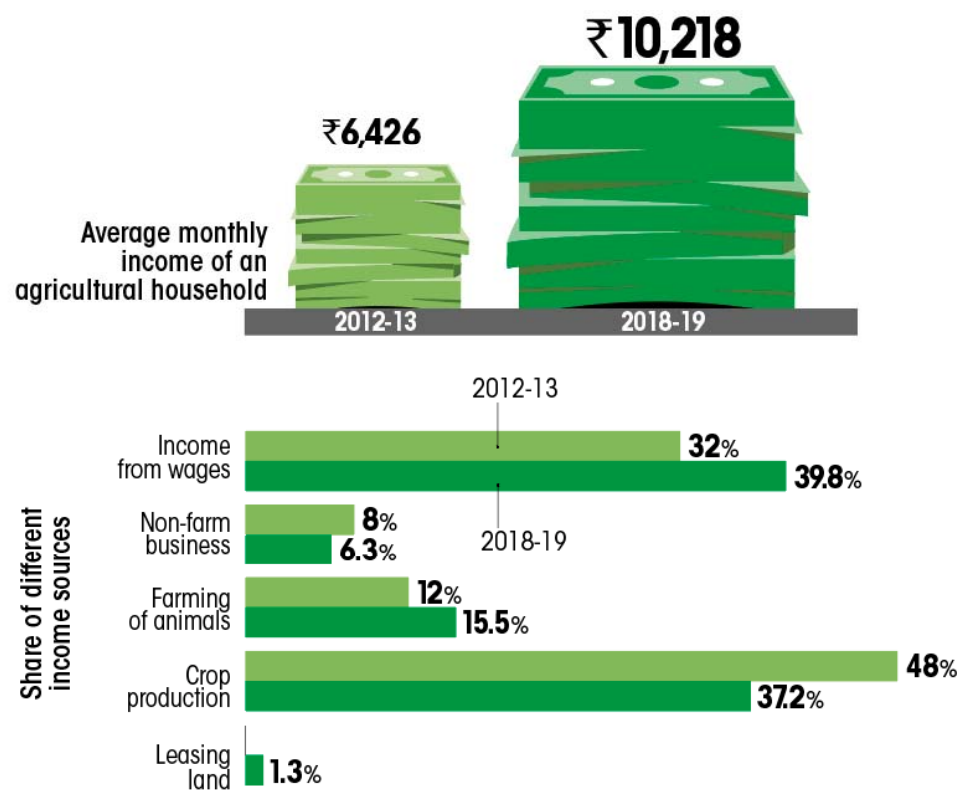




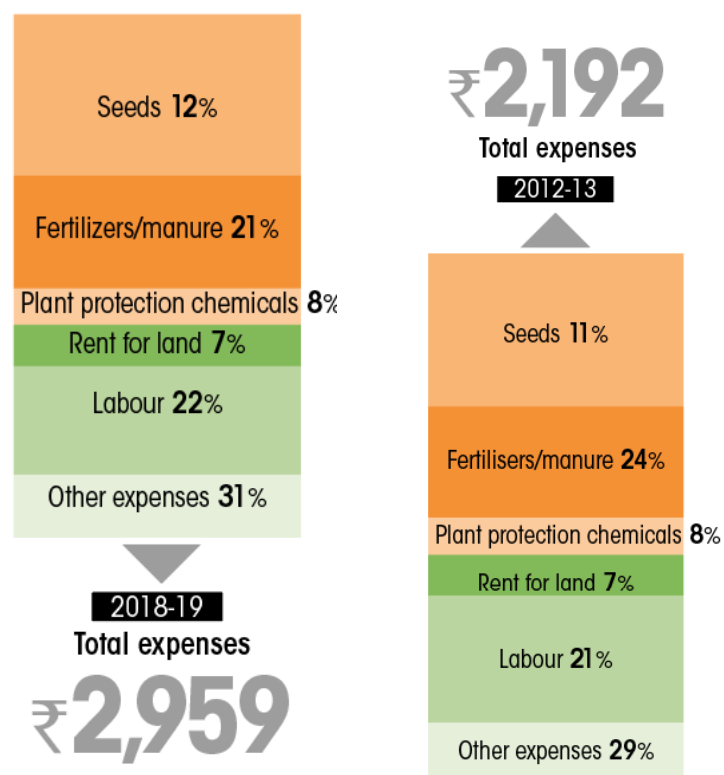
# Farming is becoming unviable



In 2012-13, crop production was the main source of income for an agricultural household. In 2018-19, income from wages has become their main source of income

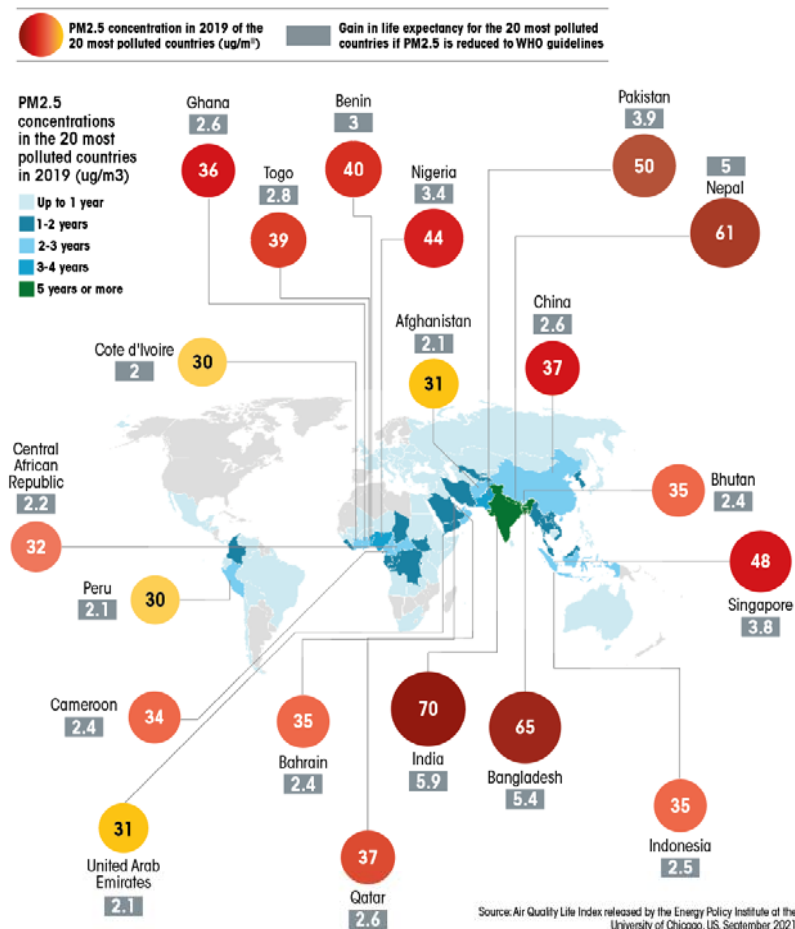


35% increase in the monthly cost of cultivation between 2012-13 and 2018-19





# Air pollution is reducing our life expectancy



Reducing air pollution to meet the WHO's levels would add **2.2 years** to global life expectancy.

**Indians**, on an average, will live for an additional **5.9 years** if the country meets the WHO levels of PM2.5



# Future tense; need action now

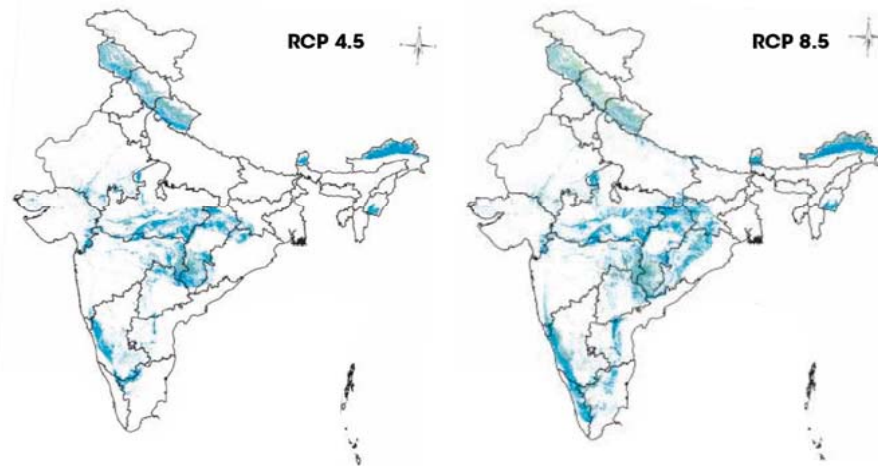
By 2030, **45 to 64% of India's forest cover is likely to become a climate hotspot**. Almost the entire forest cover of the country is likely to become a climate hotspot by 2050. The severity, in terms of damage due to climate change, is set **to increase in 2085**

2030

2085

## INCREASING DEGREE OF SEVERITY

Severity 1 (High) Severity 2 Severity 3 Severity 4 (Very High) Severity 5 Severity 6 Severity 7 (Extremely High)  
Severity 8 Severity 9 Severity 10 (Critical)

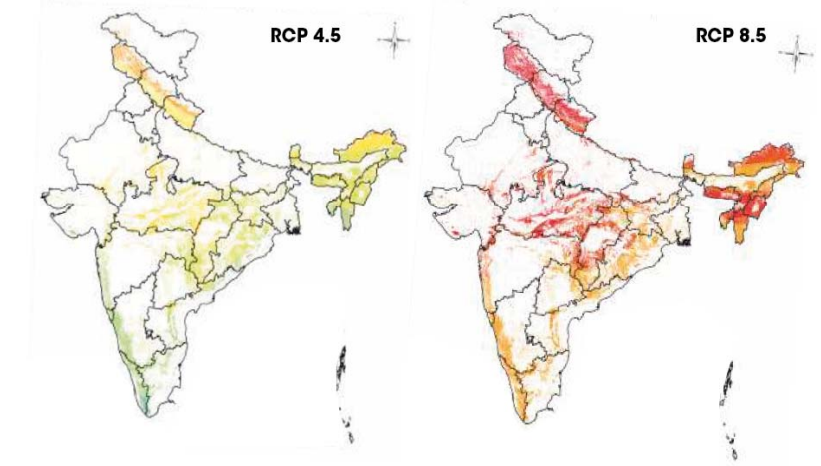


HOTSPOT EXPOSURE	AREA UNDER SEVERITY CLASS (KM <sup>2</sup> )	HOTSPOT EXPOSURE	AREA UNDER SEVERITY CLASS (KM <sup>2</sup> )
High	314,969	High	448,367
Very High	698	Very High	1,552
Extremely High	0	Extremely High	0
Critical	0	Critical	0
<b>Total</b>	<b>315,667</b>	<b>Total</b>	<b>449,919</b>

Source: India State of Forest Report 2021, Ministry of Environment, Forest and Climate Change

## INCREASING DEGREE OF SEVERITY

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HOTSPOT EXPOSURE	AREA UNDER SEVERITY CLASS (KM <sup>2</sup> )	HOTSPOT EXPOSURE	AREA UNDER SEVERITY CLASS (KM <sup>2</sup> )
High	11,804	High	0
Very High	656,094	Very High	0
Extremely High	37,196	Extremely High	566,442
Critical	0	Critical	138,736
<b>Total</b>	<b>705,094</b>	<b>Total</b>	<b>705,178</b>

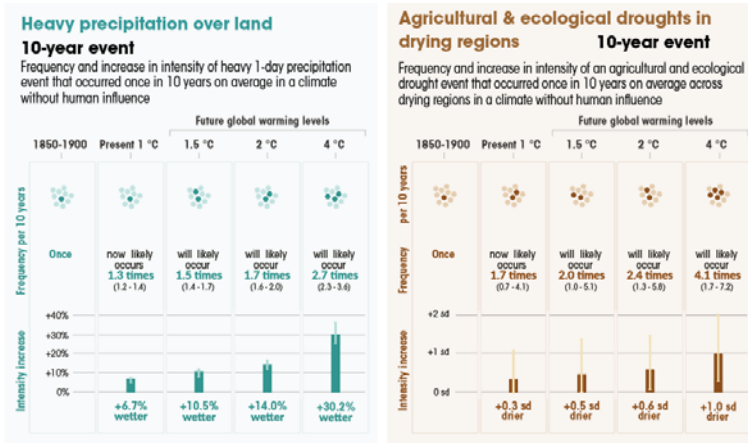
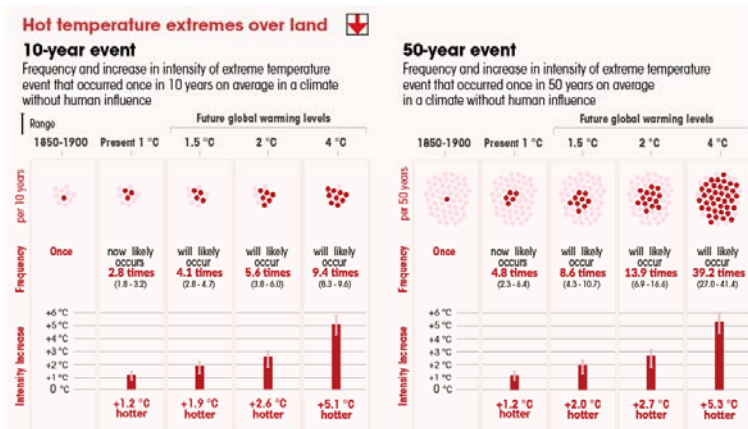
Source: India State of Forest Report 2021, Ministry of Environment, Forest and Climate Change



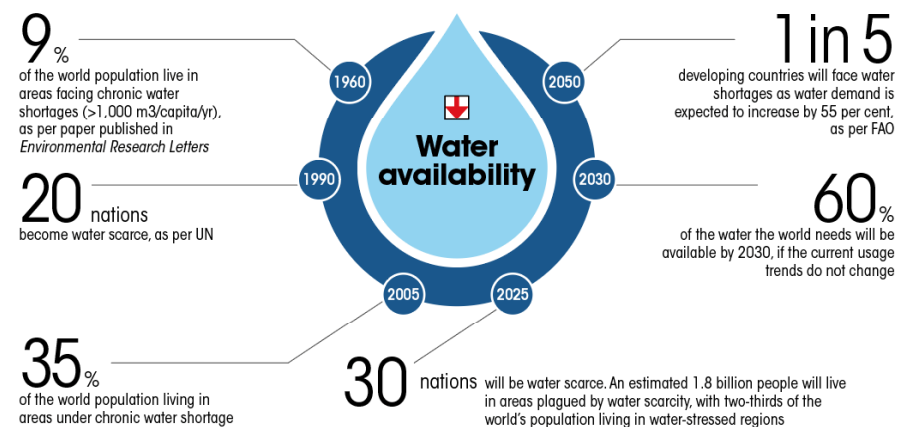
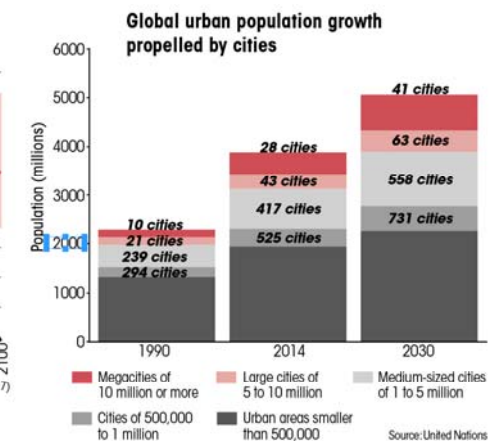
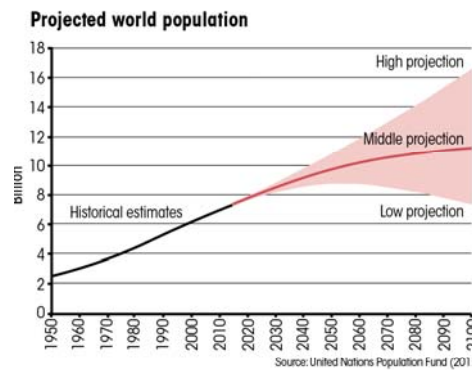
# Global challenges



The severity and frequency of extreme events will increase in a warming world. The world will also need to produce at least **50% more food to feed the projected 10 billion population by 2050**, most of which will be urban. Need more sustainable food systems and planned urbanisation



Source: Climate Change 2021: The Physical Science Basis, the Sixth Assessment Report of the Intergovernmental Panel on Climate Change







# Thank you

*[kiran@cseindia.org](mailto:kiran@cseindia.org)*



# Thank you

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