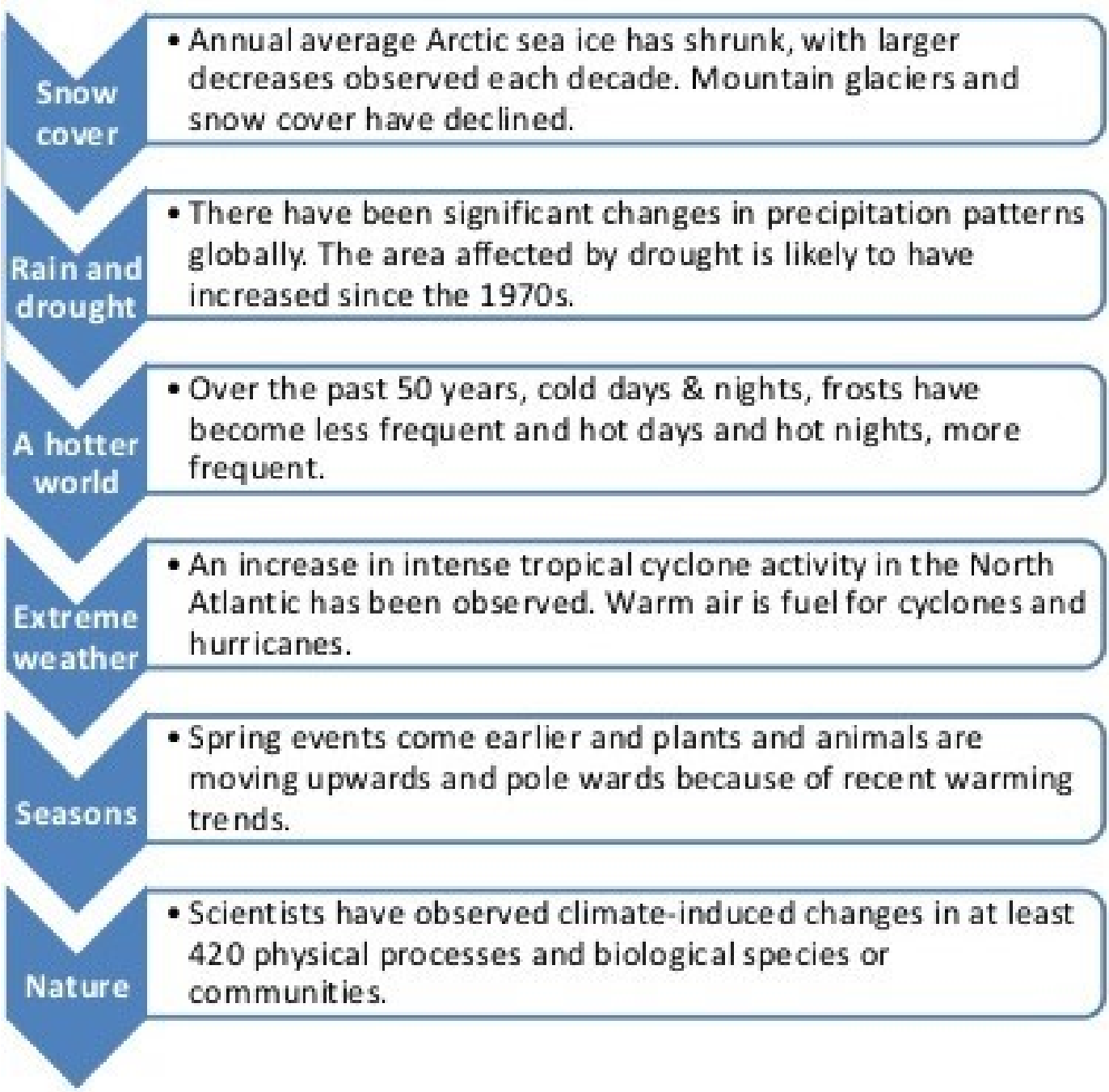
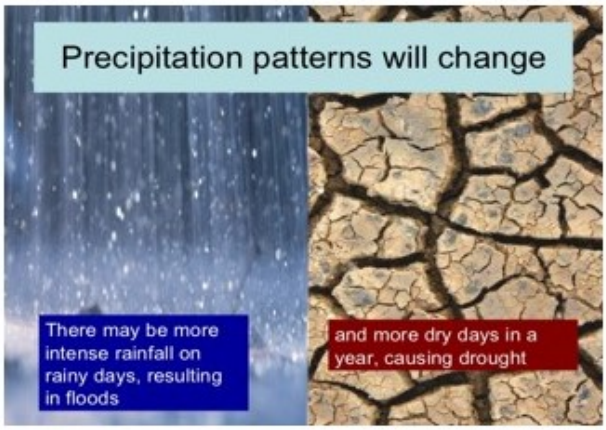
Impact of climate Change

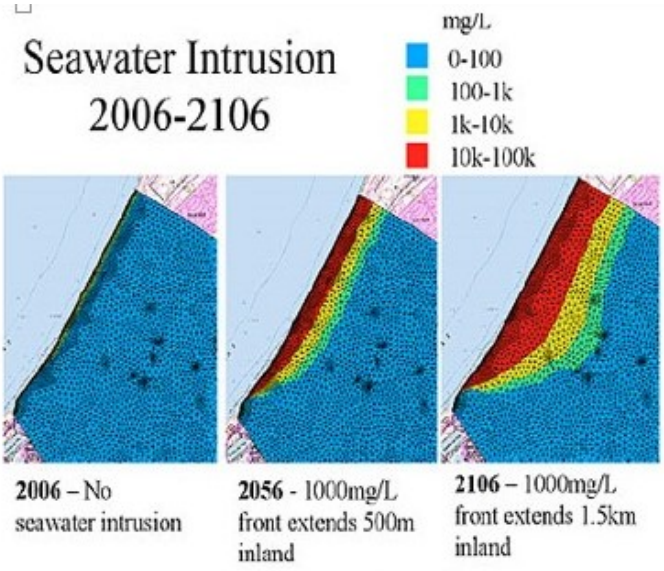


Impact of Climate Change on Water Resources

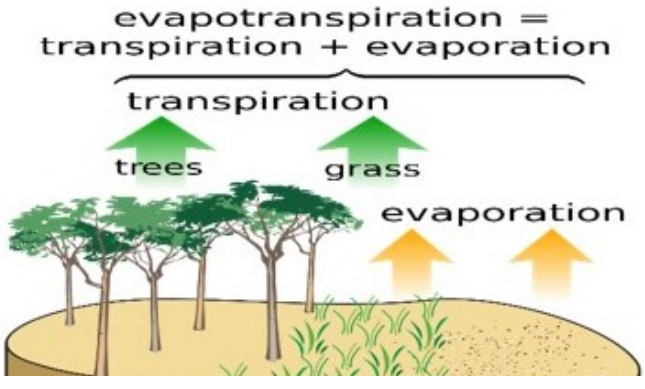
Reduced per capita availability due to Increased population and Increased variability of water availability both in space & time



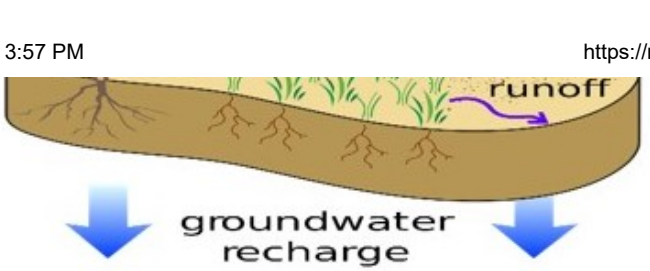
Increased drought and Flood like situations. Rise in Extremities



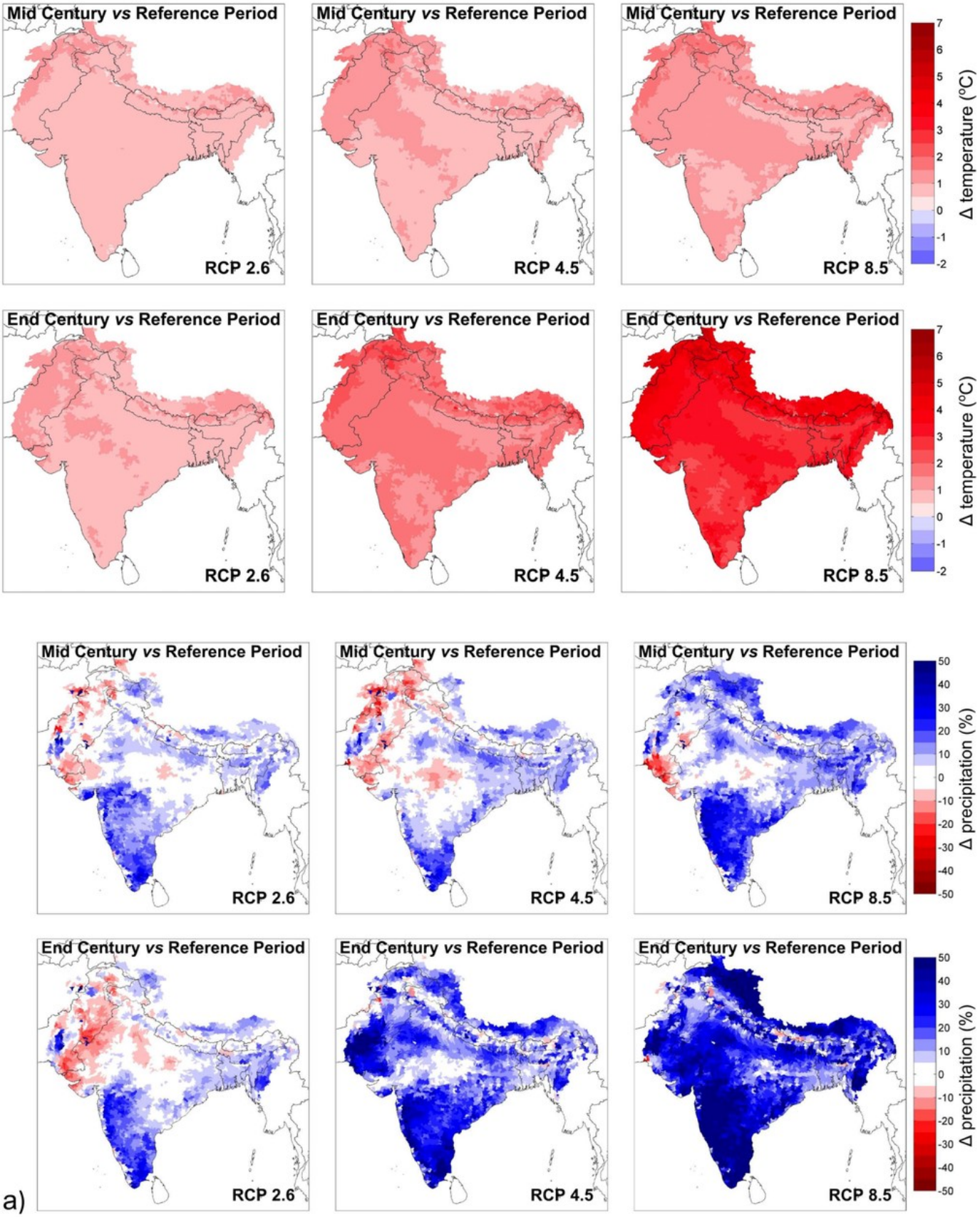
Reducing fresh water in coastal areas due to sea water intrusion as sea level is likely to rise

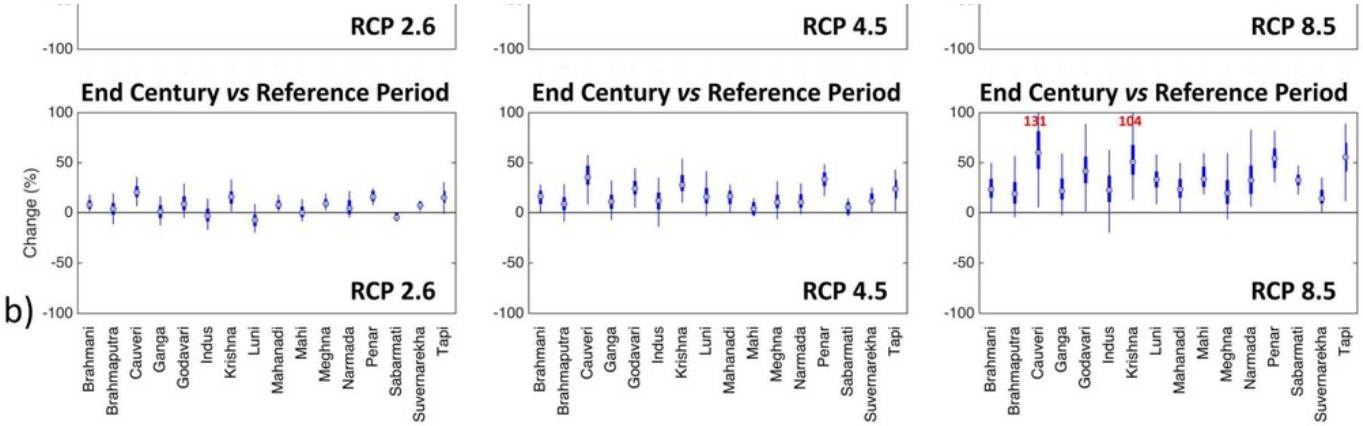


Rise in evaporation and evapo-transpiration

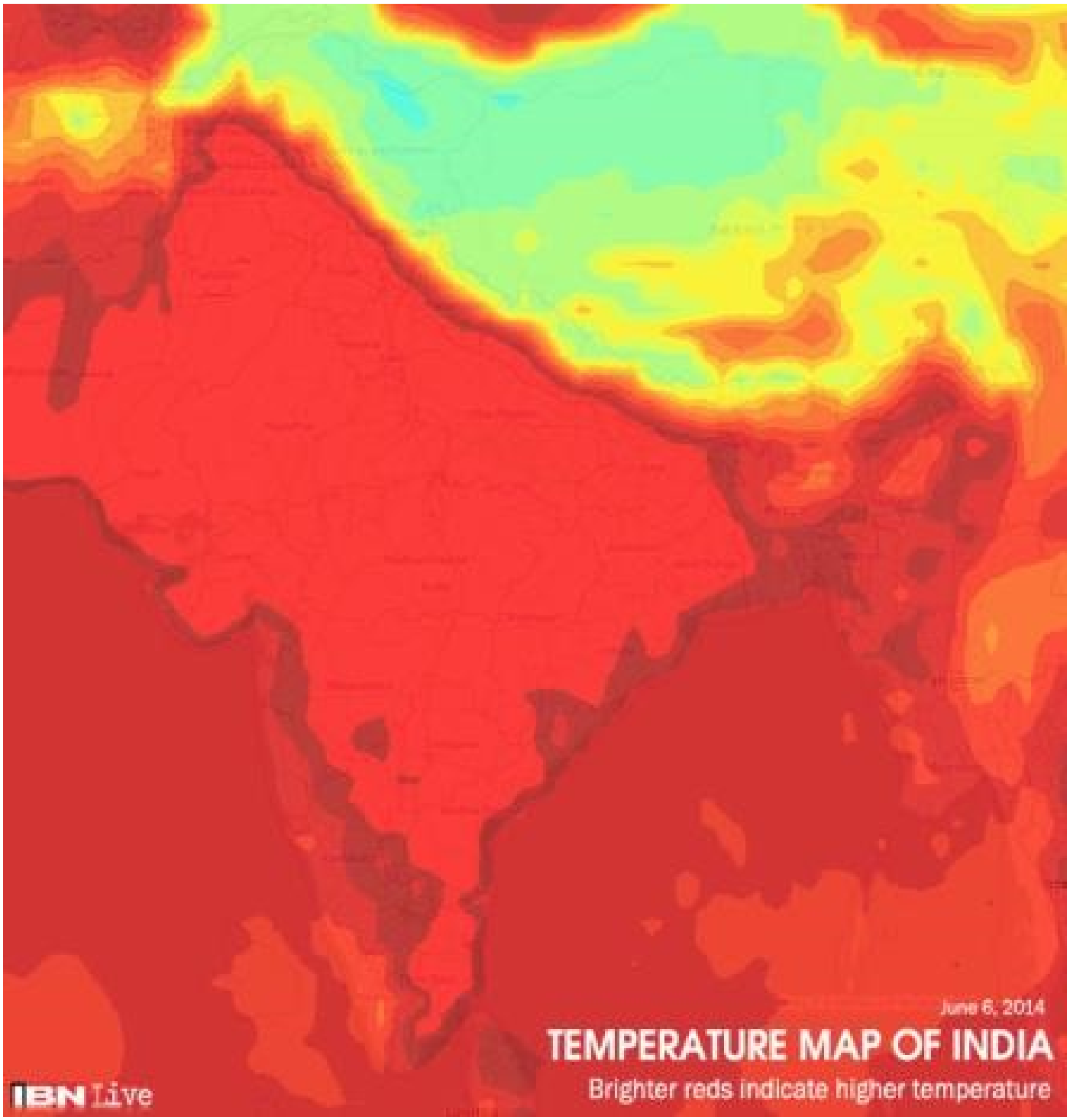


Impact of Climate Change on Indian Sub-Continent


Mid Century vs Reference Period
RCP 2.6
RCP 4.5
RCP 8.5
Δ temperature (°C)
End Century vs Reference Period
Δ precipitation (%)
a)
Change (%)



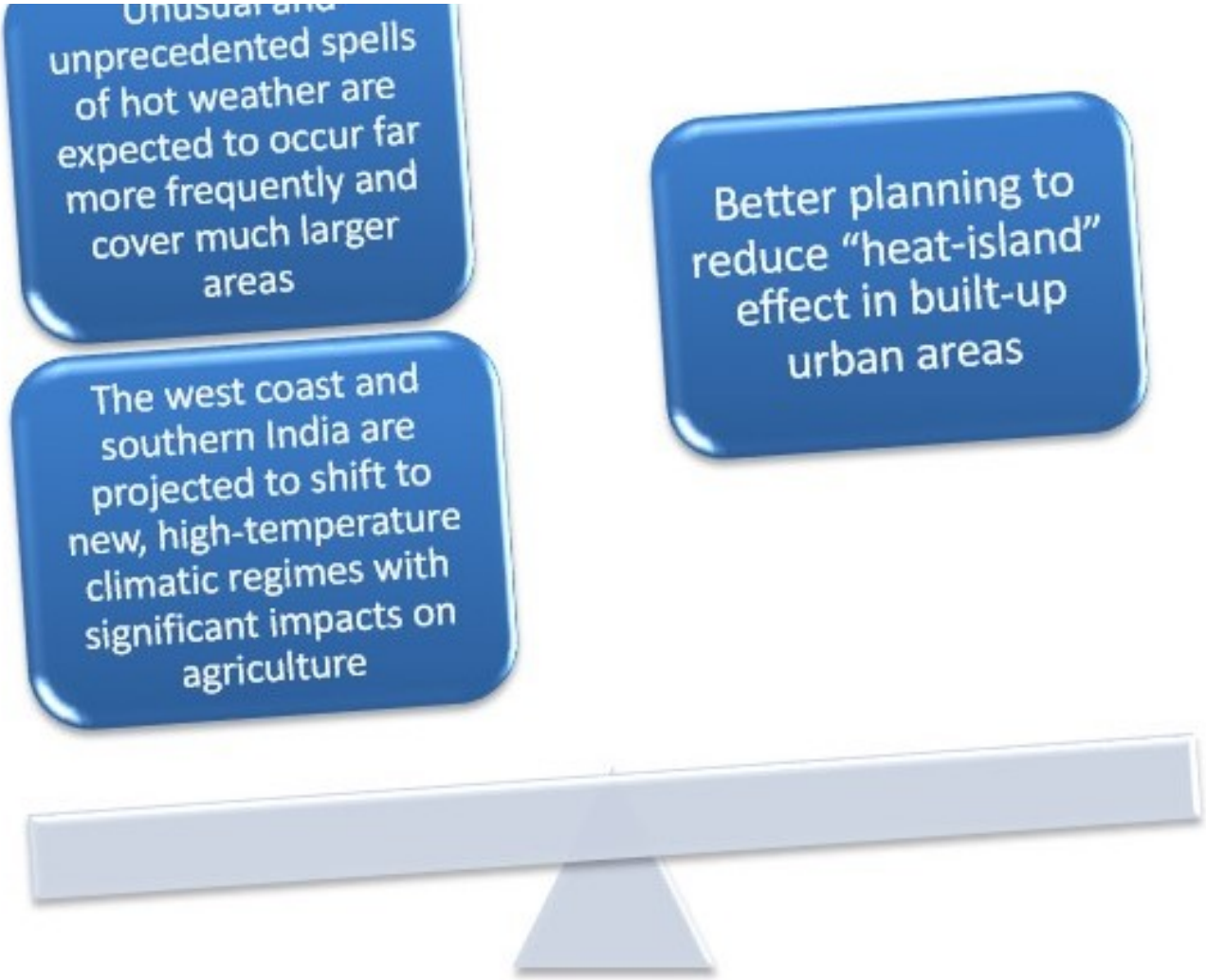
Impact of Extreme Heat



What Could Happen

What Can Be Done

Unusual and



Impact of Rainfall

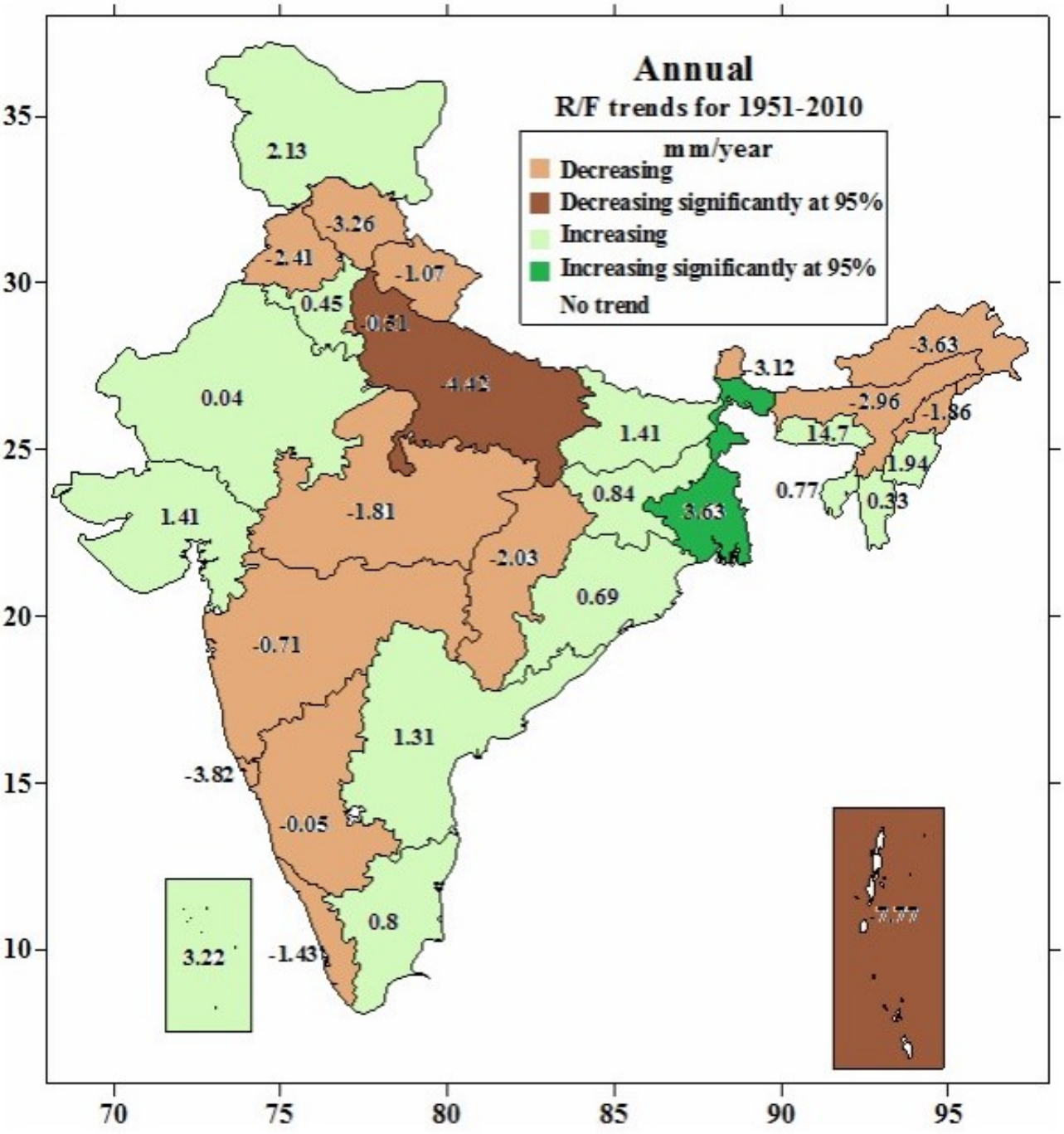
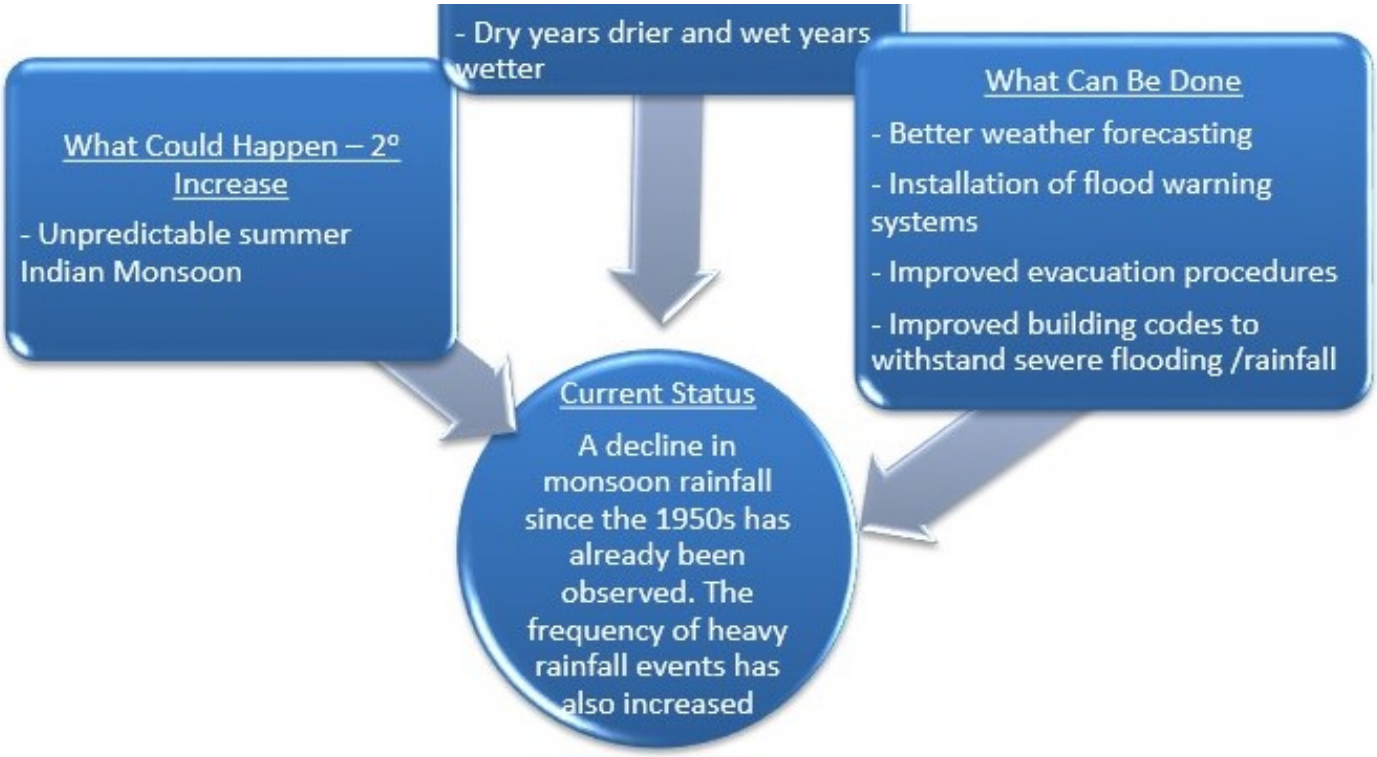


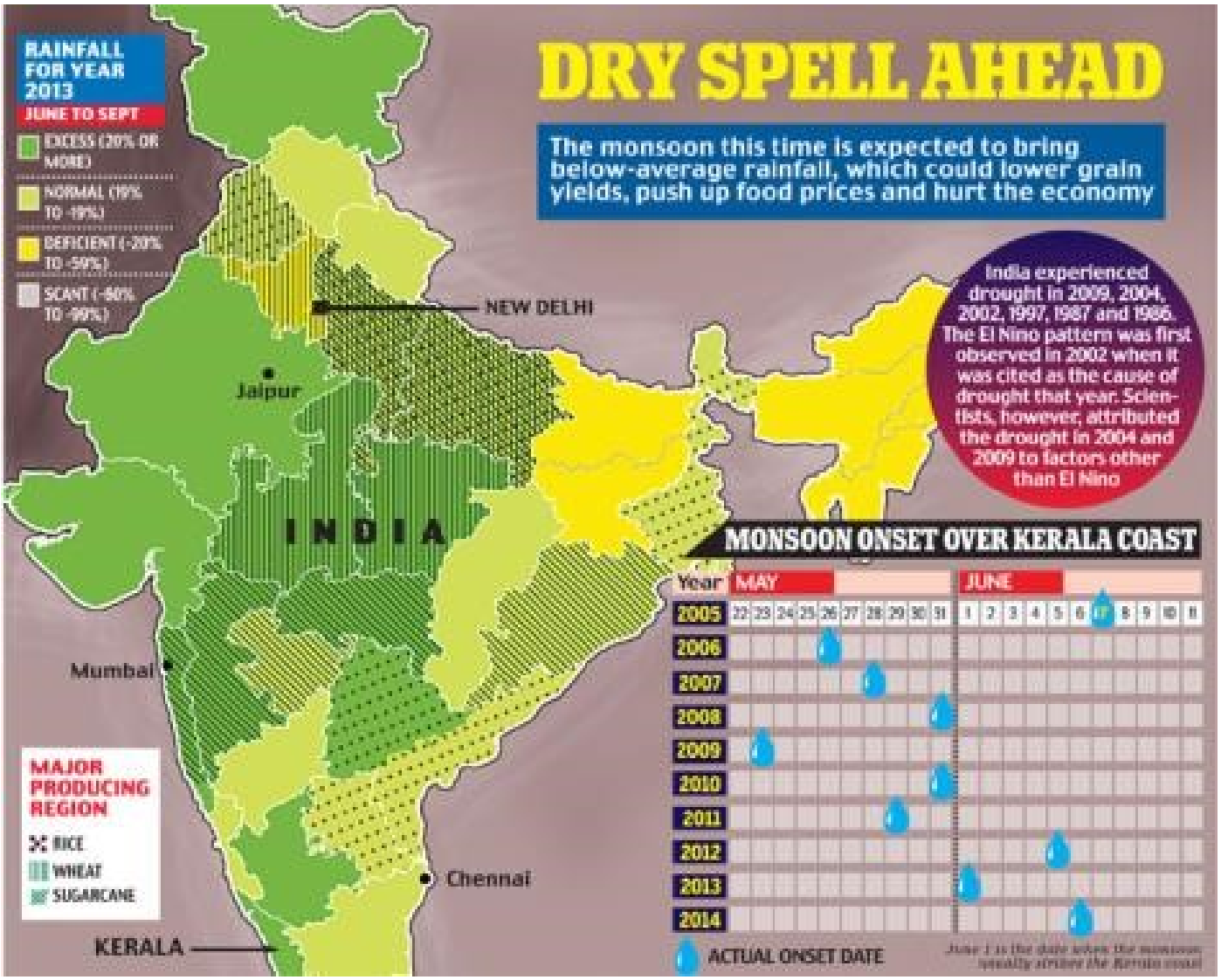
Figure 7: State level annual rainfall trends.

What Could Happen – 4° Increase

- Extreme monsoon cycles every 10 years instead of 100 years
- More frequent droughts and flooding



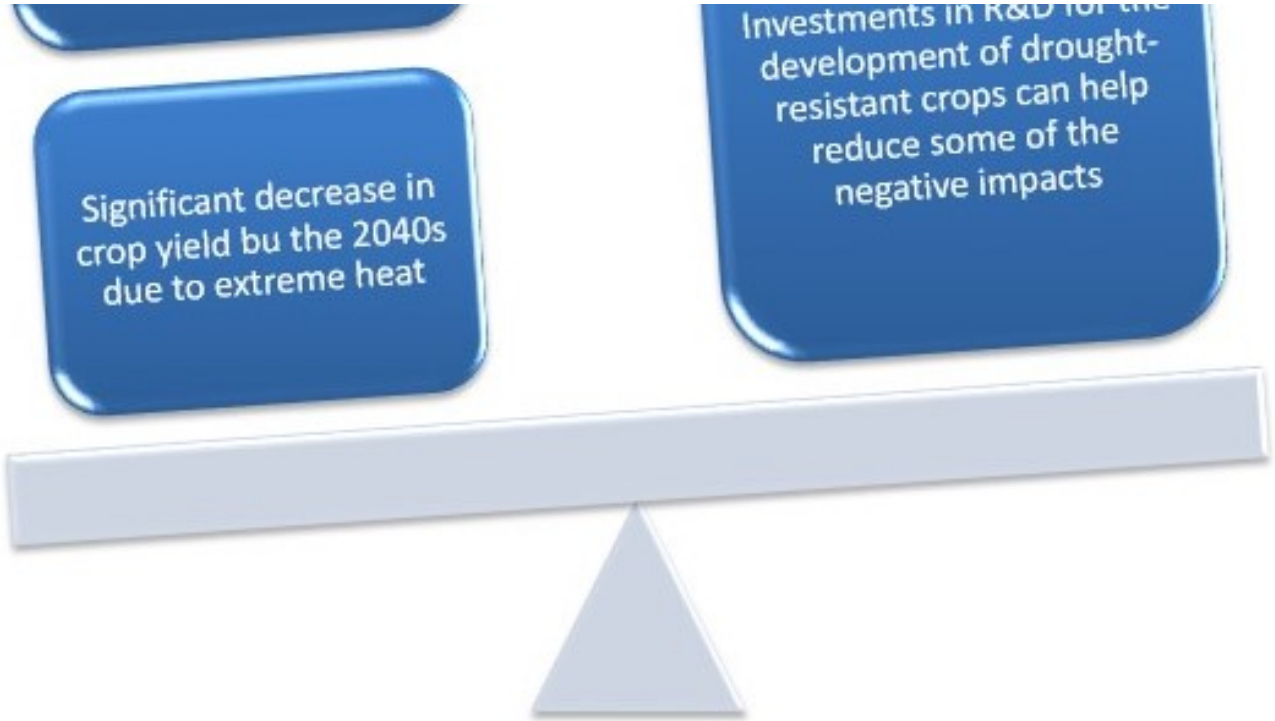
Impact of Drought



What Could Happen

What Can Be Done

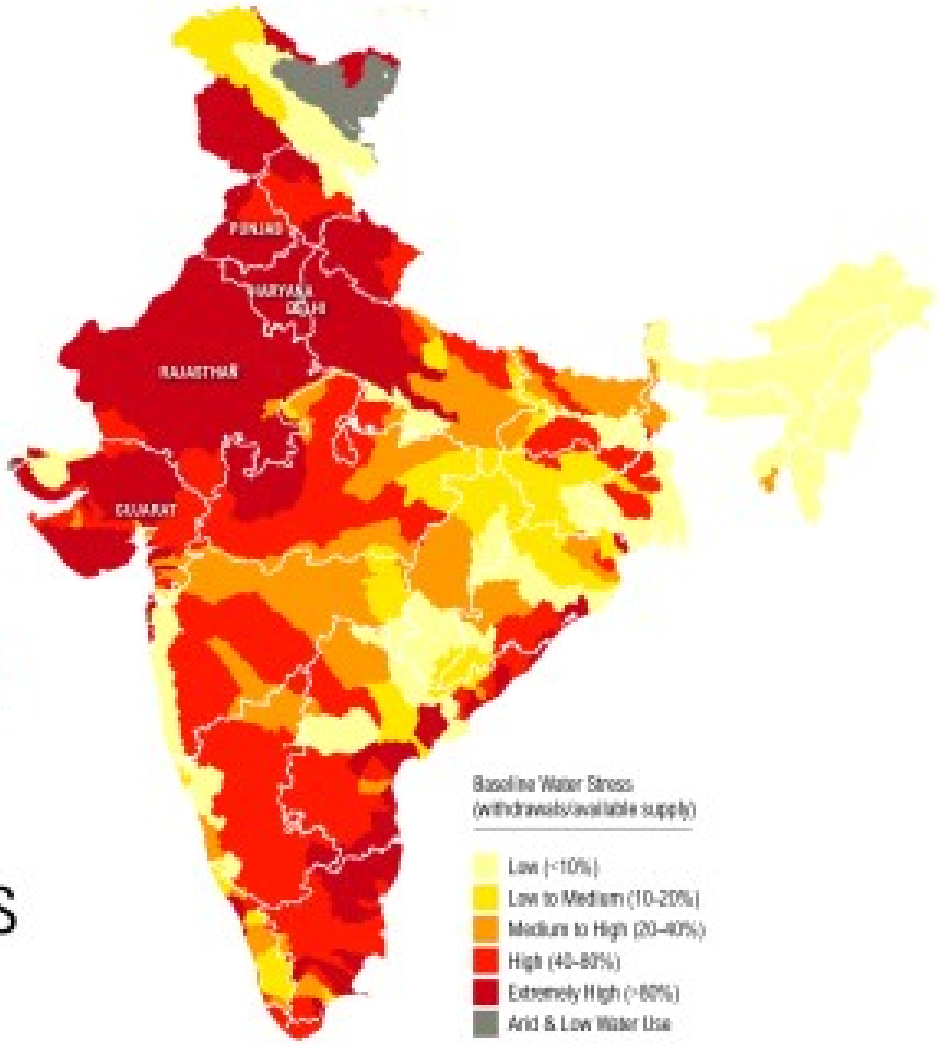
Increase in frequency of droughts in NW India (Chathisgarh, Orissa, Jharkhand)



Impact of Lowering Ground Water

54%

of India Faces **High** to **Extremely High** Water Stress



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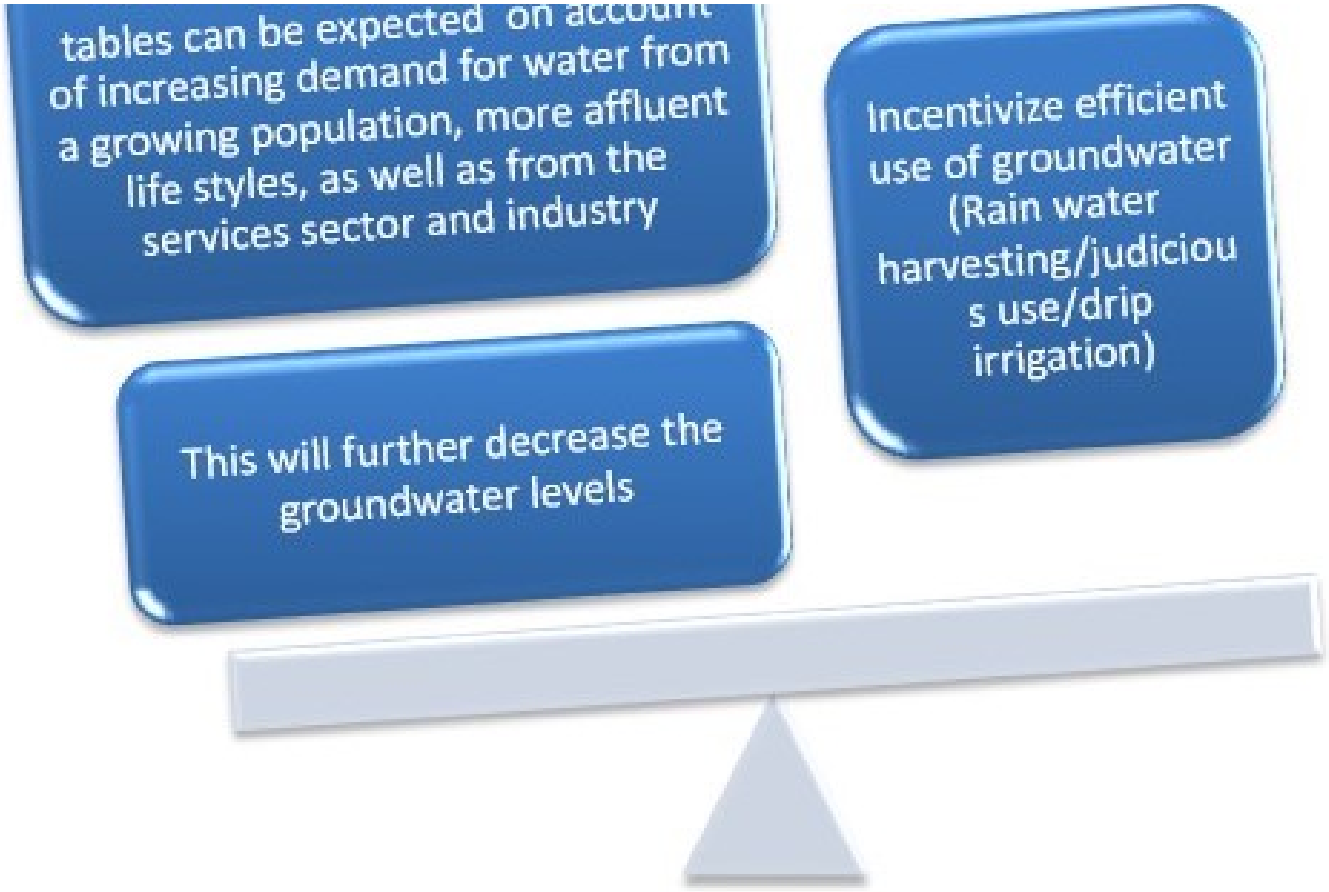
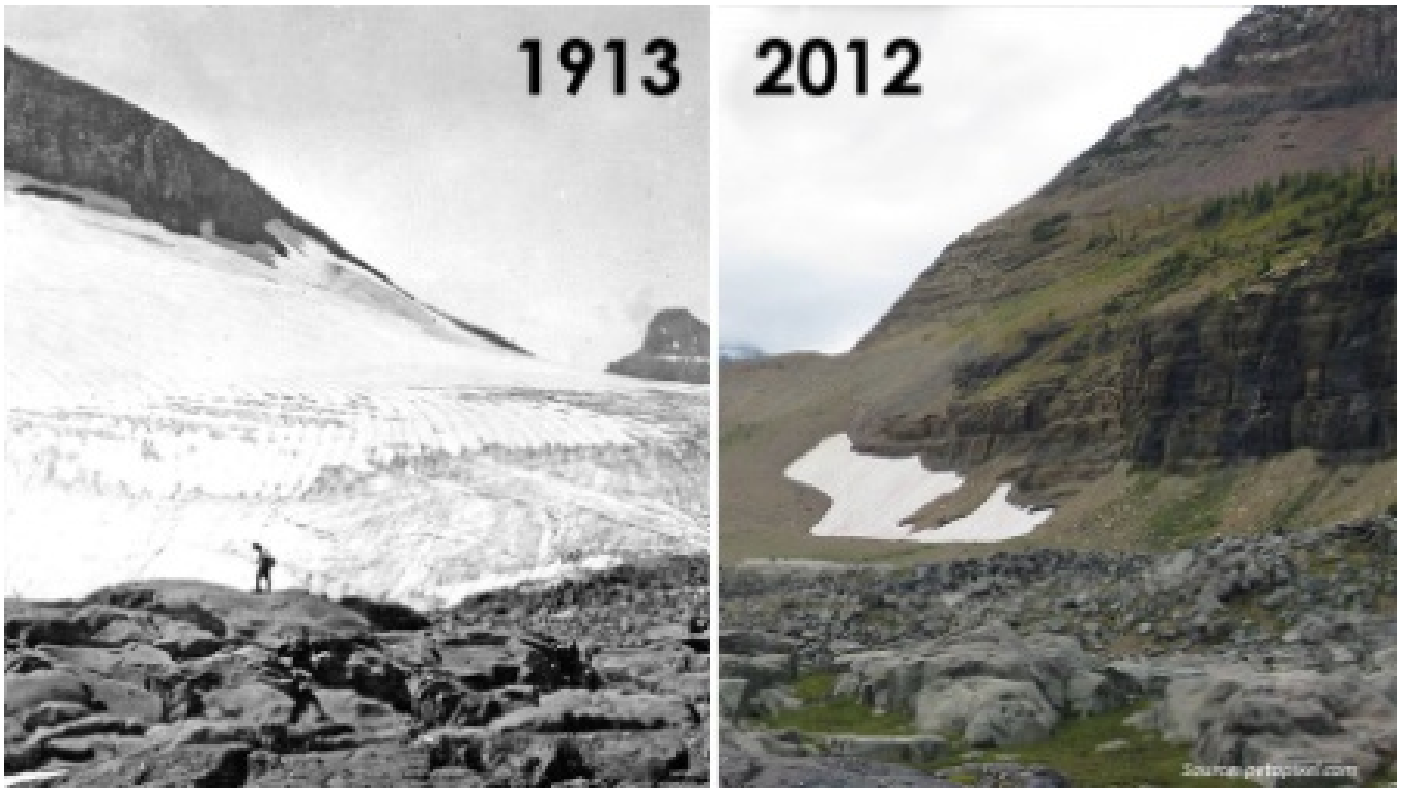
What Could Happen

What Can Be Done

More demand on falling water



Impact of Melting Glaciers



What Could Happen

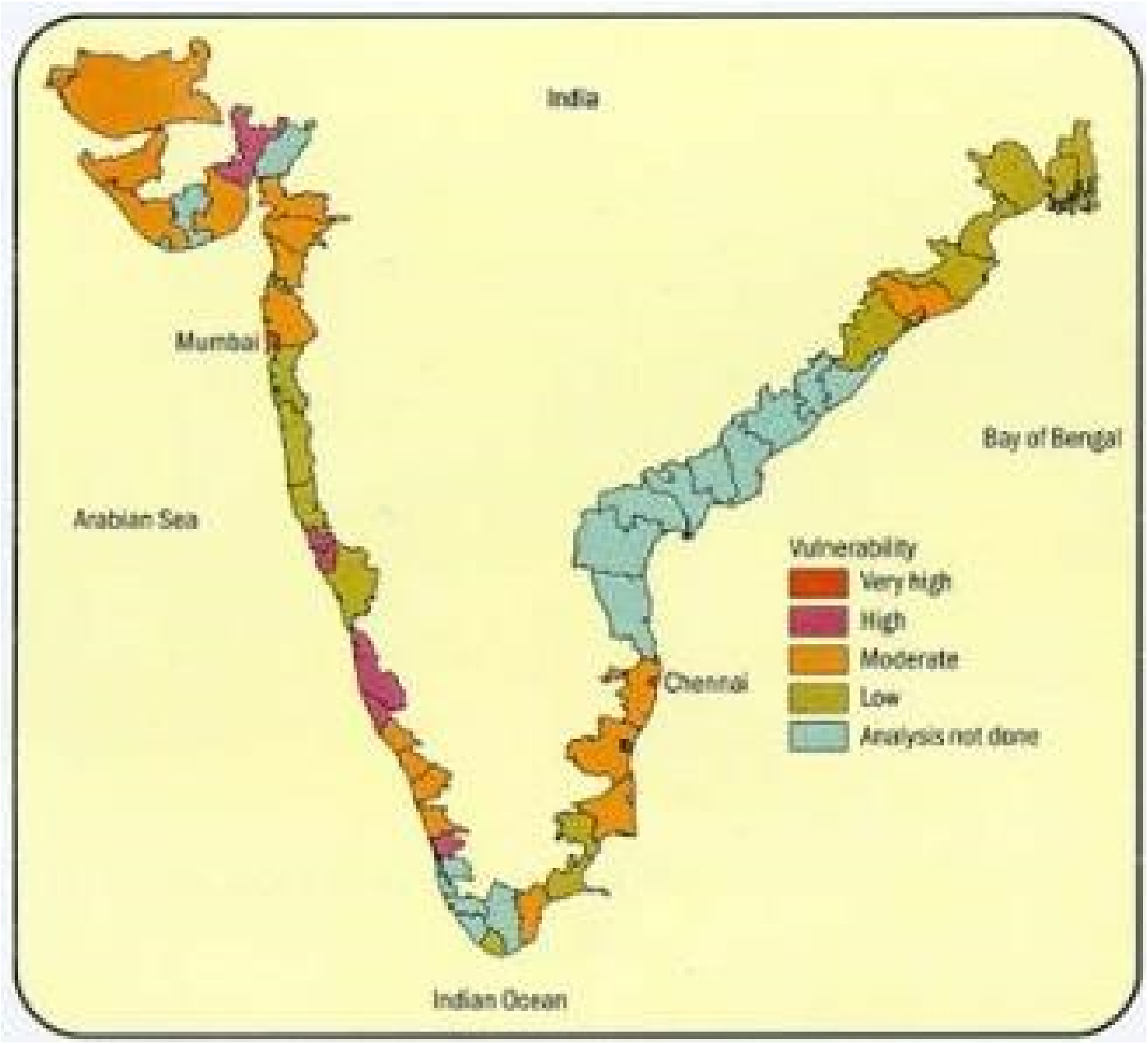
At 2.5°C warming, melting glaciers and the loss of snow cover over the Himalayas are expected to threaten the stability and reliability of northern India's primarily glacier-fed rivers, particularly the Indus and the Brahmaputra

Alterations in the flows of the Indus, Ganges, and Brahmaputra rivers could significantly impact irrigation, affecting the amount of food that can be produced in their basins as well as the livelihoods of millions of people (209 million in the Indus basin, 478 million in the Ganges basin, and 62 million in the Brahmaputra basin in the year 2005).

What Can Be Done

Major investments in water storage capacity would be needed to benefit from increased river flows in spring and compensate for lower flows later on.

Impact of Rising Sea Level



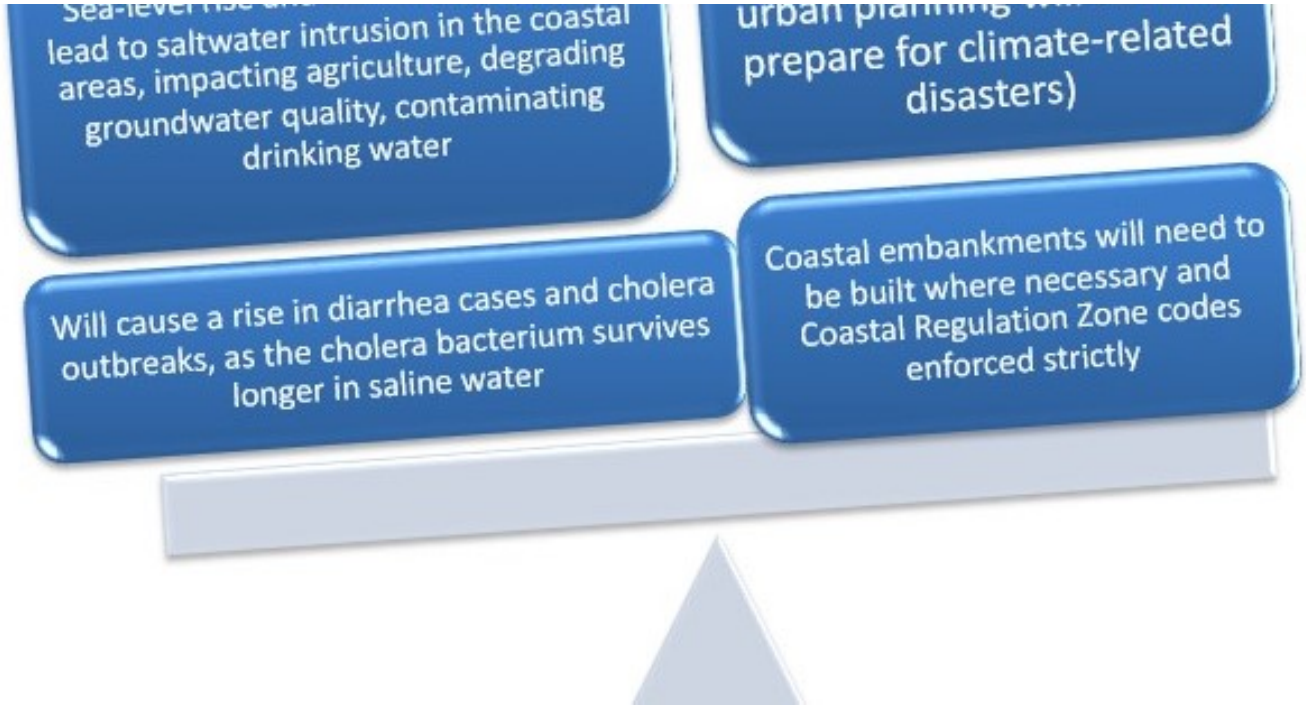
What Could Happen

So close to the Equator, the Indian sub-continent would see much higher flooding as compared to coasts in higher altitudes

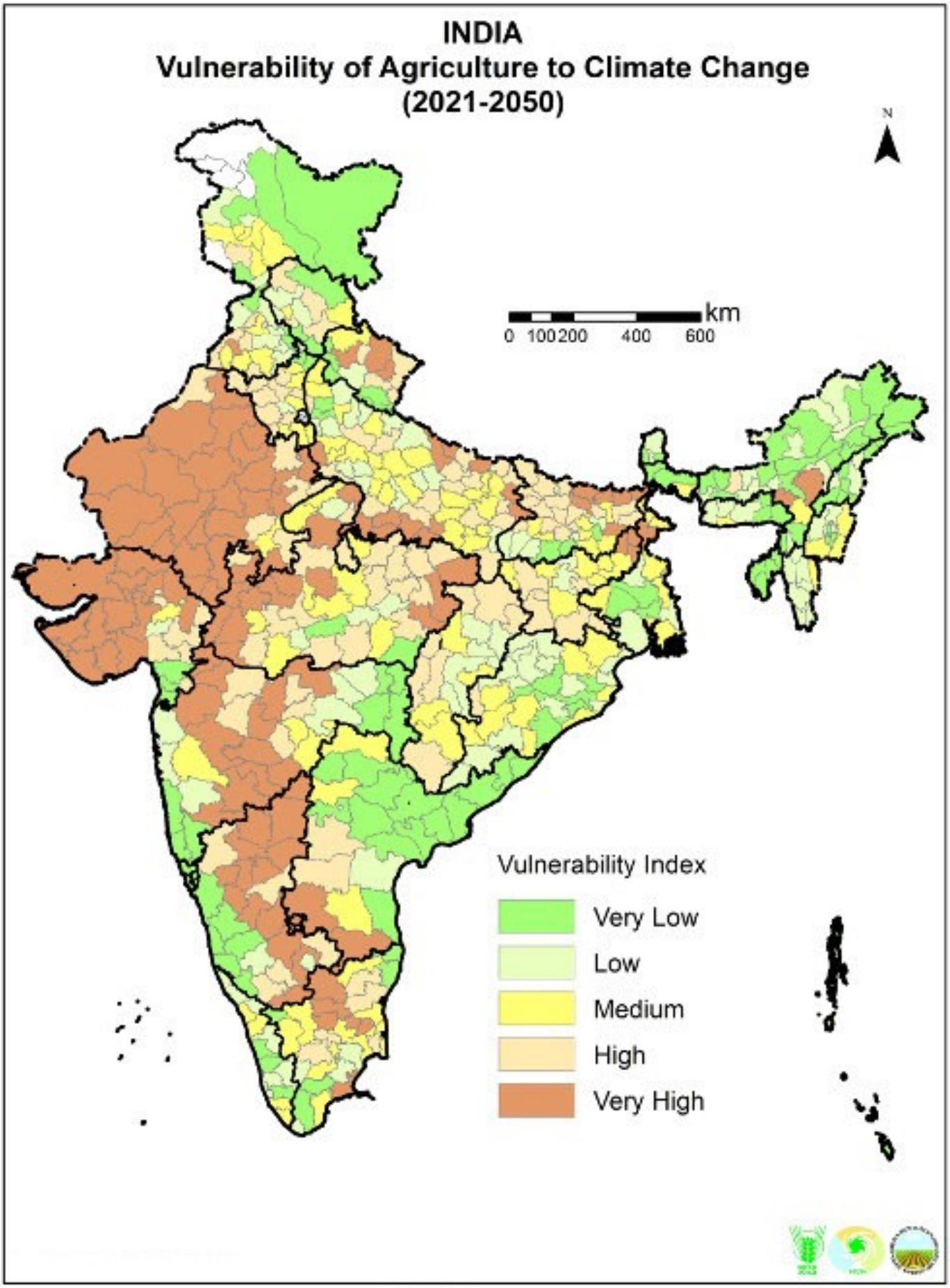
Sea level rise and storm surges would

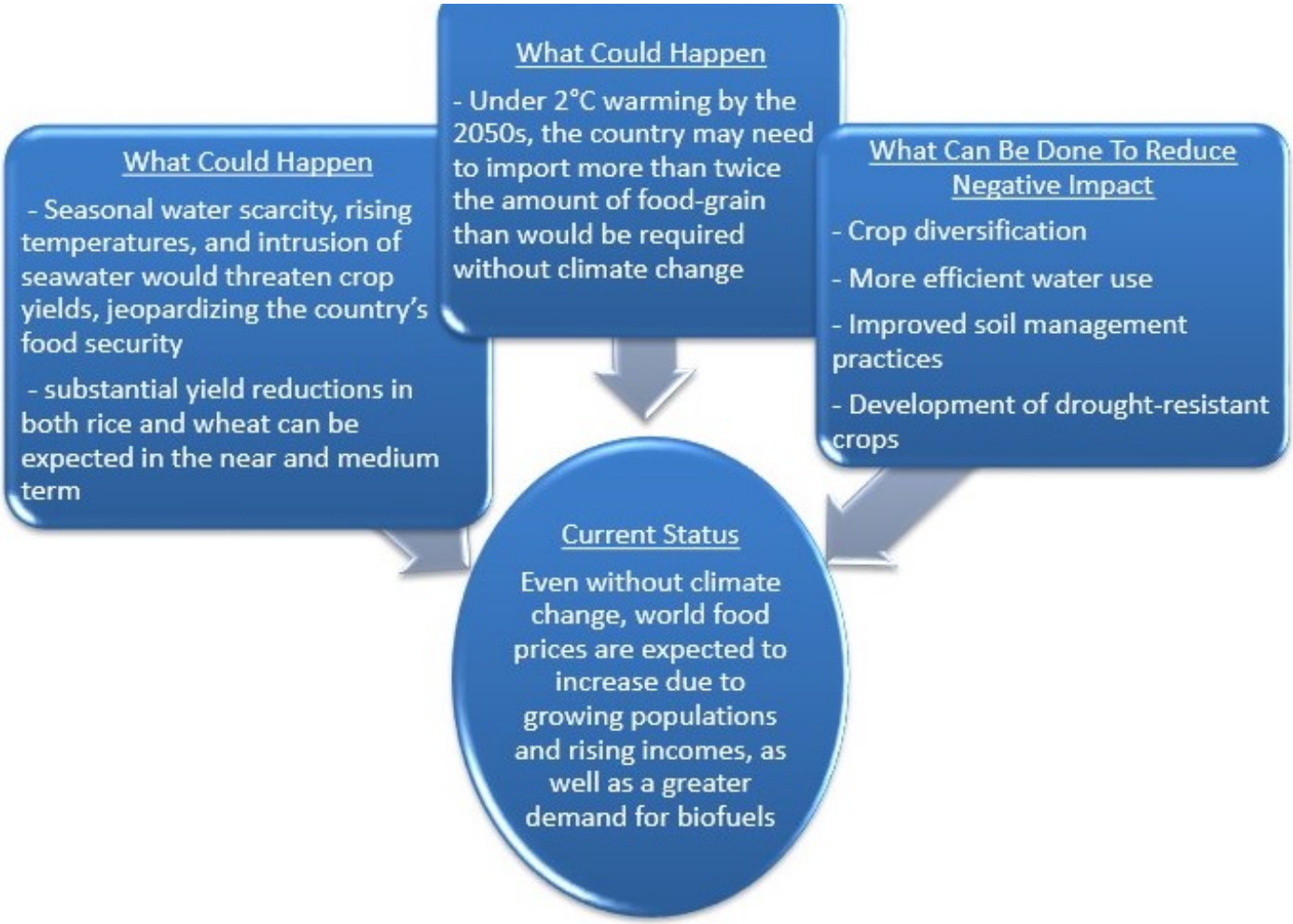
What Can Be Done

Building codes will need to be strictly enforced and

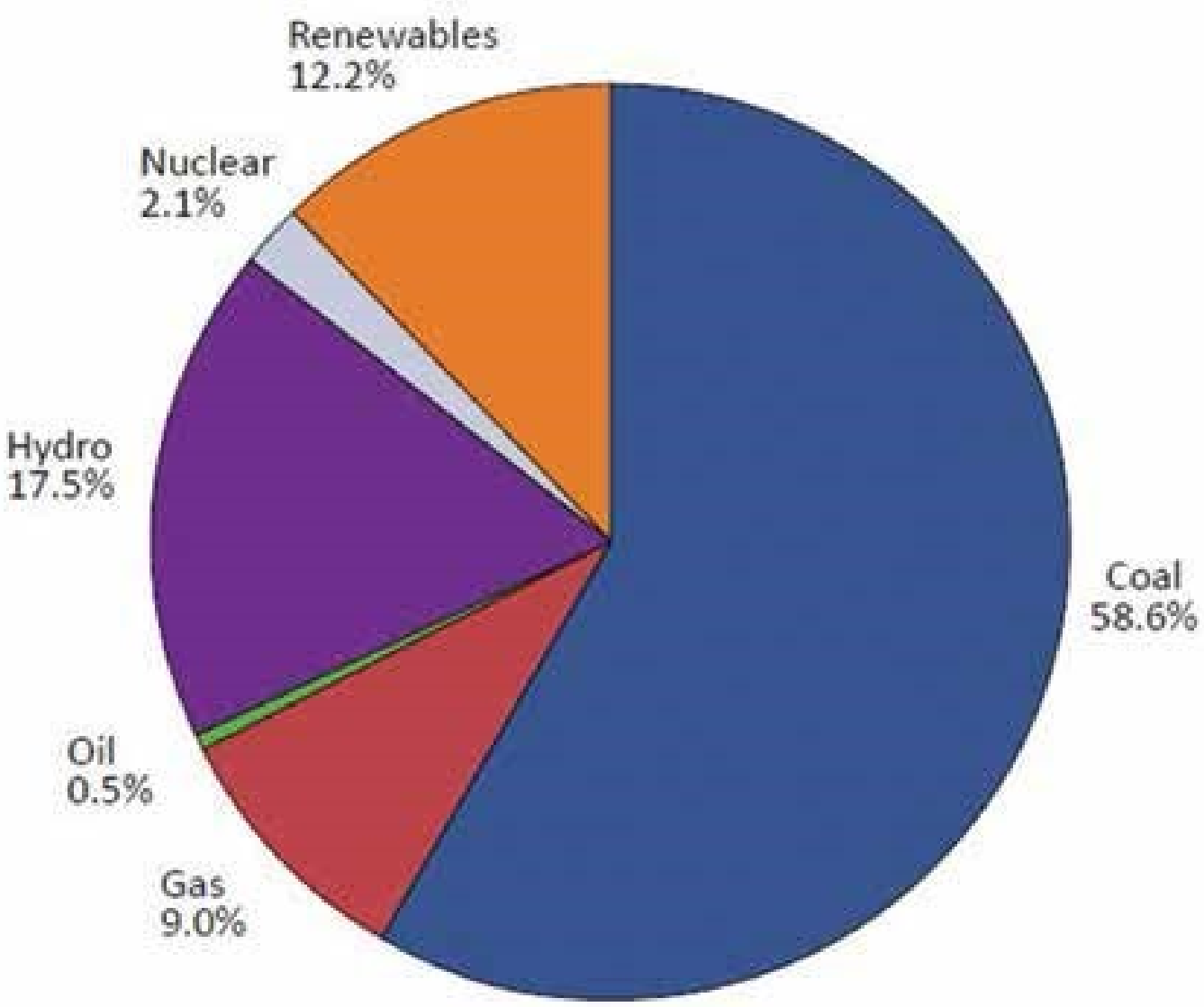


Impact on Agriculture and Food Security


INDIA
Vulnerability of Agriculture to Climate Change
(2021-2050)
N
km
0 100 200 400 600
Vulnerability Index
Very Low
Low
Medium
High
Very High



Impact on Energy Security



What Could Happen

- The increasing variability and long-term decreases in river flows can pose a major challenge to hydropower plants and increase the risk of physical damage from landslides, flash floods, glacial lake outbursts, and other climate-related natural disasters

Current Status

Climate-related impacts on water resources can undermine the two dominant forms of power generation in India - hydropower and thermal power generation - both of which depend on adequate water supplies to function effectively

What Can Be Done To Reduce Negative Impact

- Projects will need to be planned taking into account climatic risks

Next Chapter >>
Climate Change Challenges