The Indo-Gangetic plain

The Indo-Gangetic plain is one of the most populous and productive agricultural ecosystems in the world. The region is 400-800-km-wide, low-relief, east-west zone between the Himalayas in the north and the peninsula in the south. Climate change will result in both flood and drought, impacting agriculture in the region

POPULATION

Total

432.5 million

Rural 73%

Urban 27%

LAND USE

Net sown area

68%

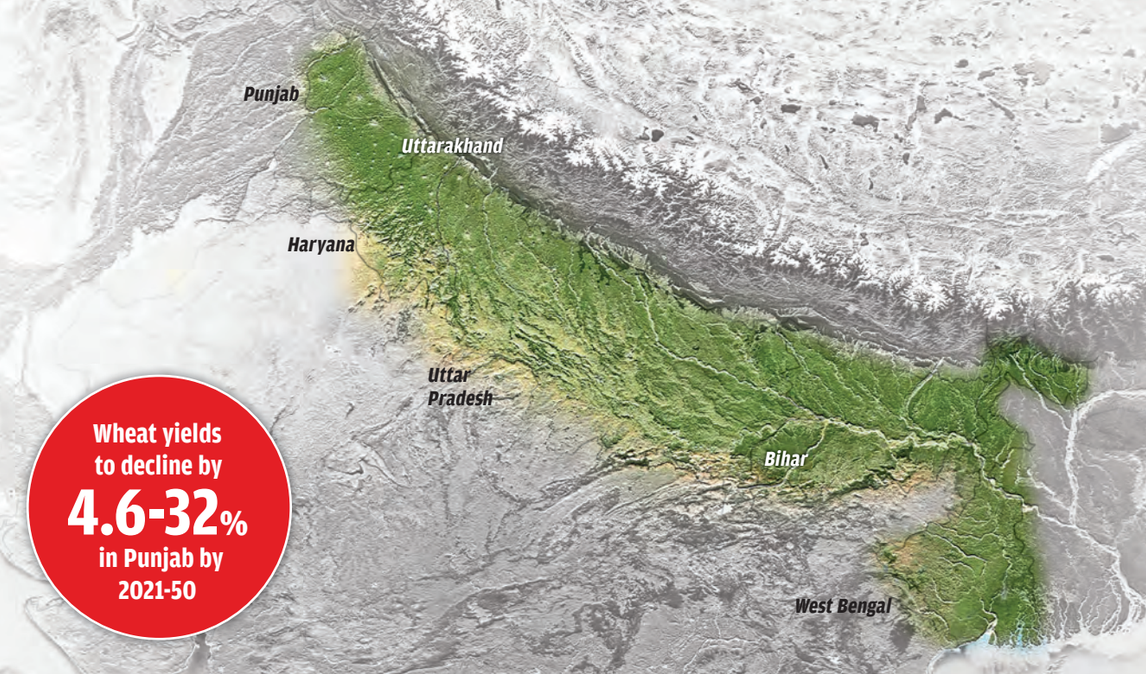
Forest

7.3%

LIVELIHOODS

53%
depend on agriculture

25%
on service sectors

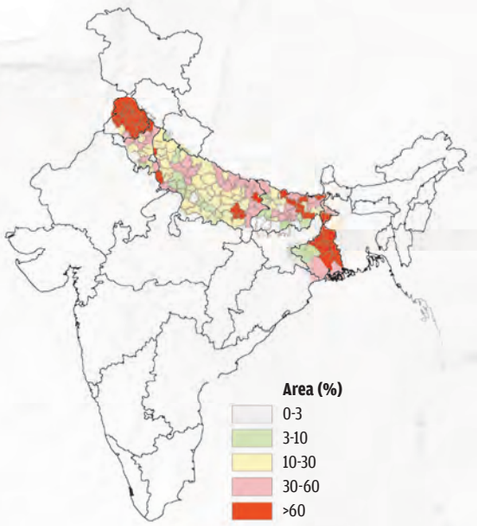


Wheat yields to decline by 4.6-32% in Punjab by 2021-50

CLIMATE CHANGE TRENDS

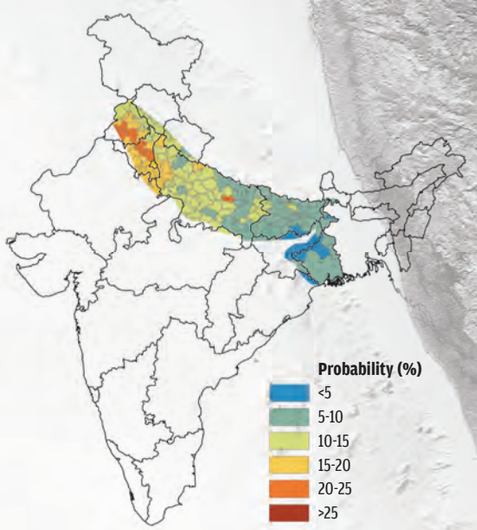
Flood

High-intensity precipitation events projected to increase, leading to floods, particularly in the eastern parts of the basin



Drought

Western parts of the basin—Haryana and Punjab—likely to become vulnerable to drought



Source: Rama Rao C.A., et al., Atlas on Vulnerability of Indian Agriculture to Climate Change, Central Research Institute for Dryland Agriculture, Hyderabad, 2013

State-wise projections and impacts

Punjab

Increase in mean minimum temperature
1.9 C-2.1 C

Increase in mean maximum temperature
1 C-1.8 C

Increase in annual rainfall
13-22%

Impact and vulnerabilities:

- Drought days to extend by 23-46 days in lower Sutlej basin
- Increase in flash floods
- Severe water-logging in south-western region

Haryana

Increase in mean minimum temperature
2.1 C

Increase in mean maximum temperature
1.3 C

Increase in annual rainfall (by 2100)
17%

Impact and vulnerabilities:

- Increase in water evaporation
- Not much change in groundwater recharge despite high rainfall
- Increase in agricultural water stress by 2100

West Bengal

Increase in temperature
1.8 C-2.4 C

Not much change in monsoon but winter rain to reduce

Impact and vulnerabilities:

- Intensity of cyclone to increase
- Sea surge height may increase to 7.46 metres
- Sea level rise will be higher than global average
- Sunderbans and Darjeeling hill to have more rain

Uttar Pradesh and Bihar

Increase in temperature
2 C (by 2050)
4 C (by 2100)

High-intensity precipitation events to increase

Impact and vulnerabilities:

- A mere 1 C rise in temperature to reduce wheat yeilds significantly in UP
- Rice yeilds are expected to decline in Bihar
- Drought to increase in UP and Bihar