Biodiversity, Wetlands and Climate Change in Rajasthan

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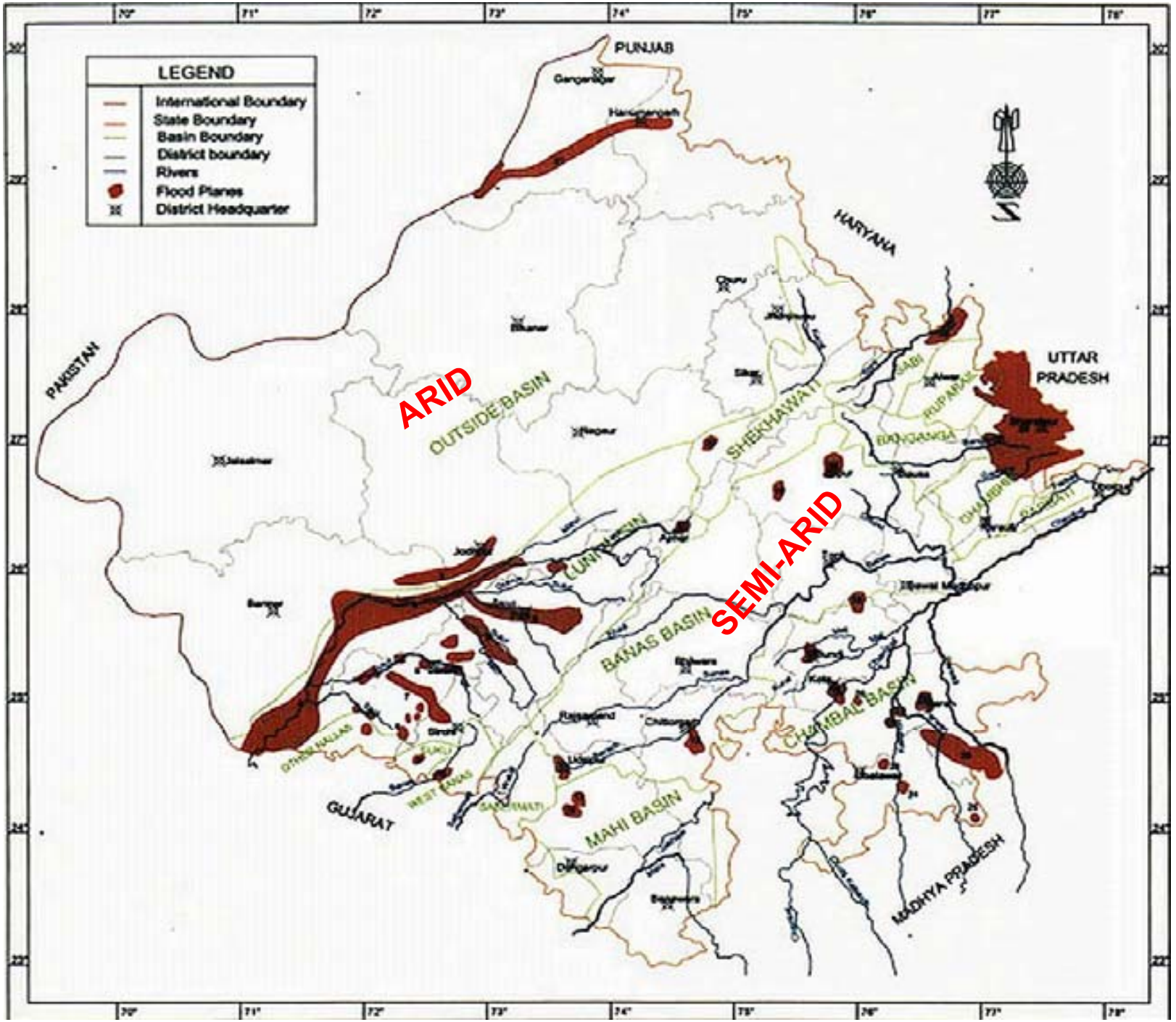
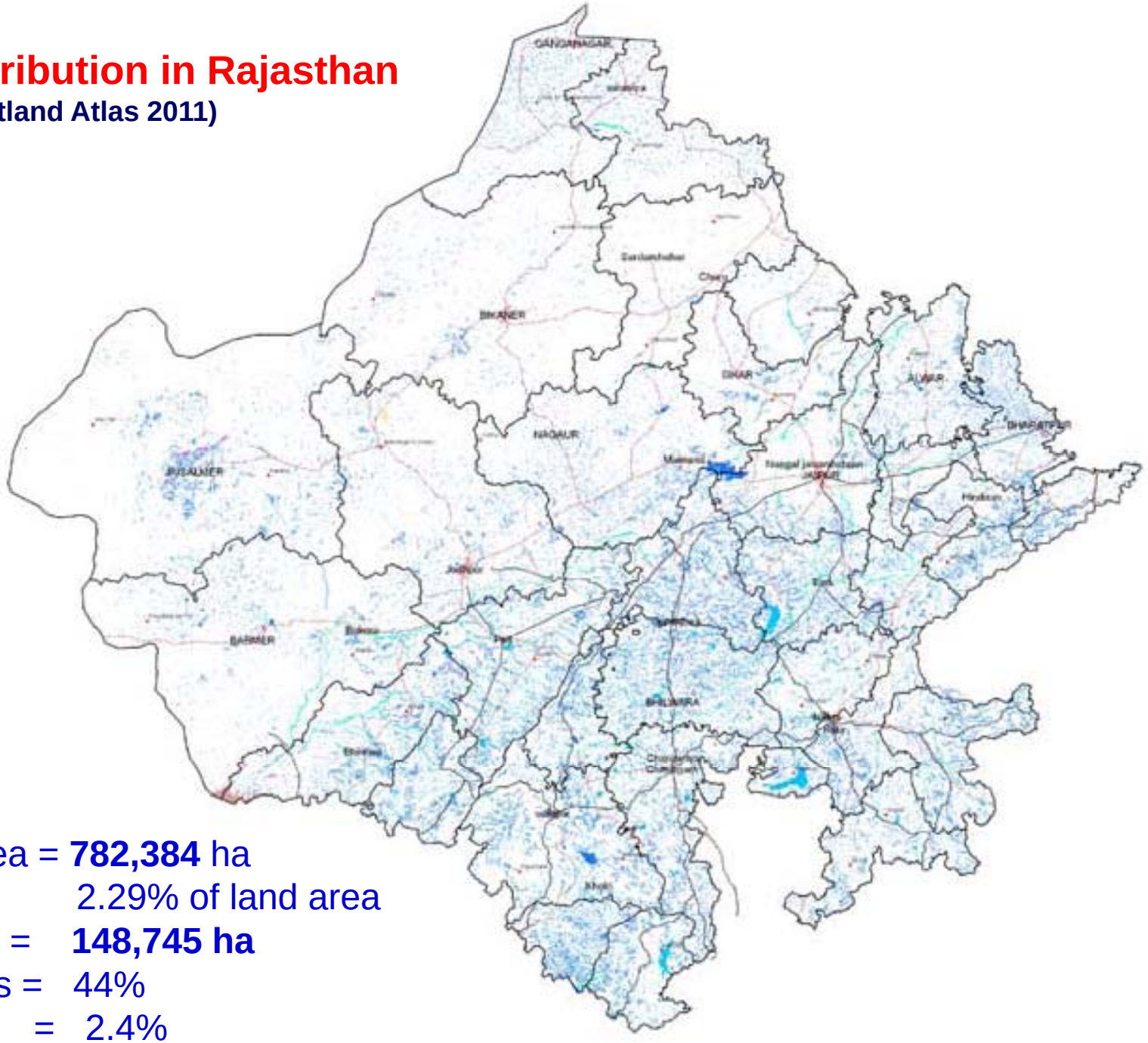

LEGEND
International Boundary
State Boundary
Basin Boundary
District boundary
Rivers
Flood Planes
District Headquarter
PUNJAB
HARYANA
UTTAR PRADESH
PAKISTAN
GUJARAT
MADHYA PRADESH
ARID
SEMI-ARID
OUTSIDE BASIN
SHEKHAWATI
BANAS BASIN
CHAMBAL BASIN
MAHI BASIN
LUNI BASIN

Wetland Distribution in Rajasthan

(from National Wetland Atlas 2011)



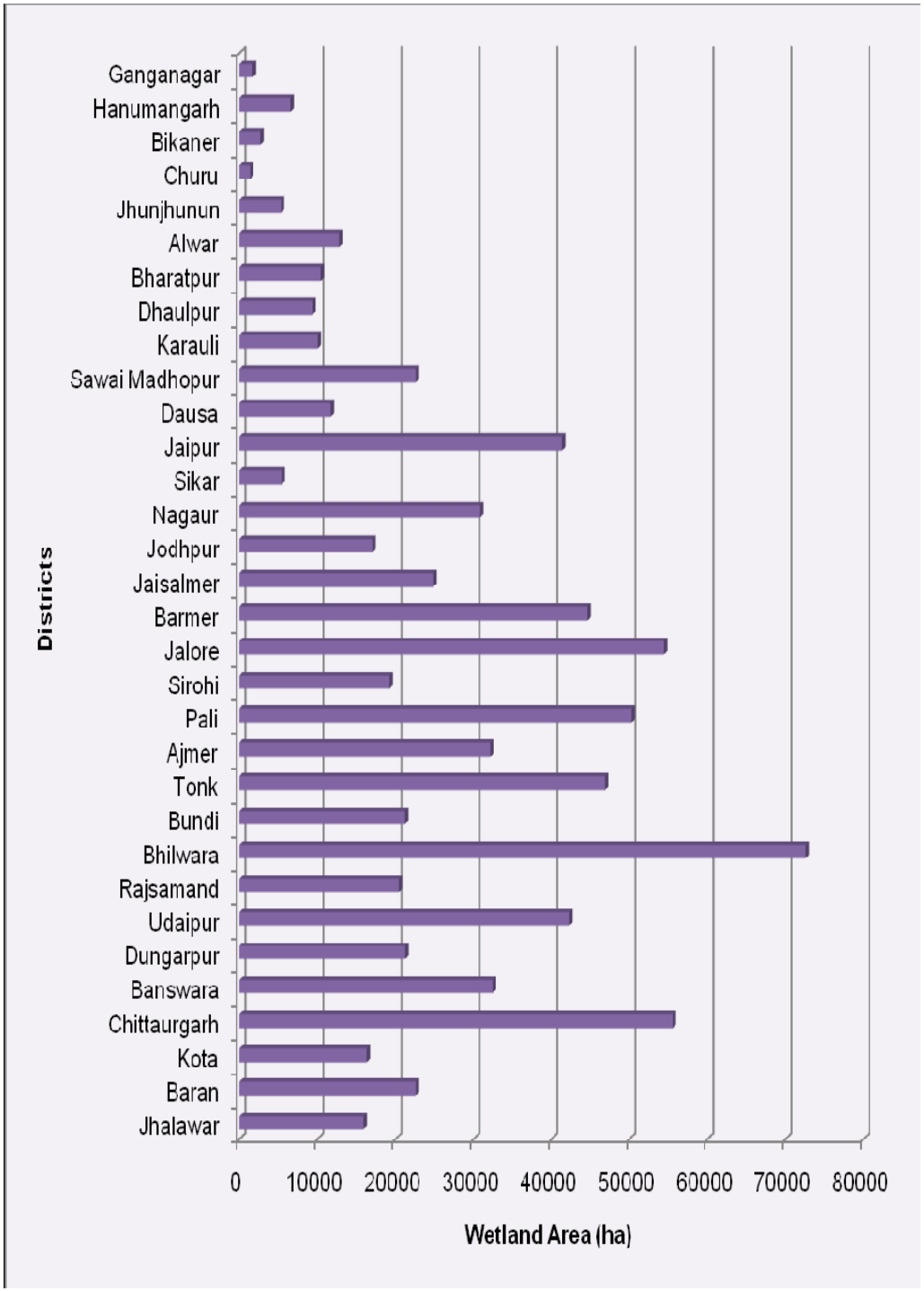
Total wetland area = **782,384** ha
2.29% of land area
Dry season area = **148,745 ha**
Reservoirs/Tanks = 44%
Intertidal Saline = 2.4%

Wetland Area in Rajasthan

(from National Wetland Atlas 2011)

Natural Wetlands			
Lakes/Ponds	**65**	**38269**	**4.89**
Waterlogged	**61**	**16856**	**2.15**
River/Stream	**648**	**312570**	**39.95**
Man-made Wetlands			
Reservoirs/Barrages	**979**	**190600**	**24.36**
Tanks/Ponds	**10731**	**151027**	**19.31**
Waterlogged	**101**	**7636**	**0.98**
Salt pans	**39**	**12283**	**1.57**
Coastal Wetlands			
Intertidal mud flats	**1**	**18950**	**2.42**

Small tanks (<2.25 ha) 34123 ha
Area under Aquatic Vegetation 5166 ha



Wetland Biodiversity

Almost all are seasonal marshes

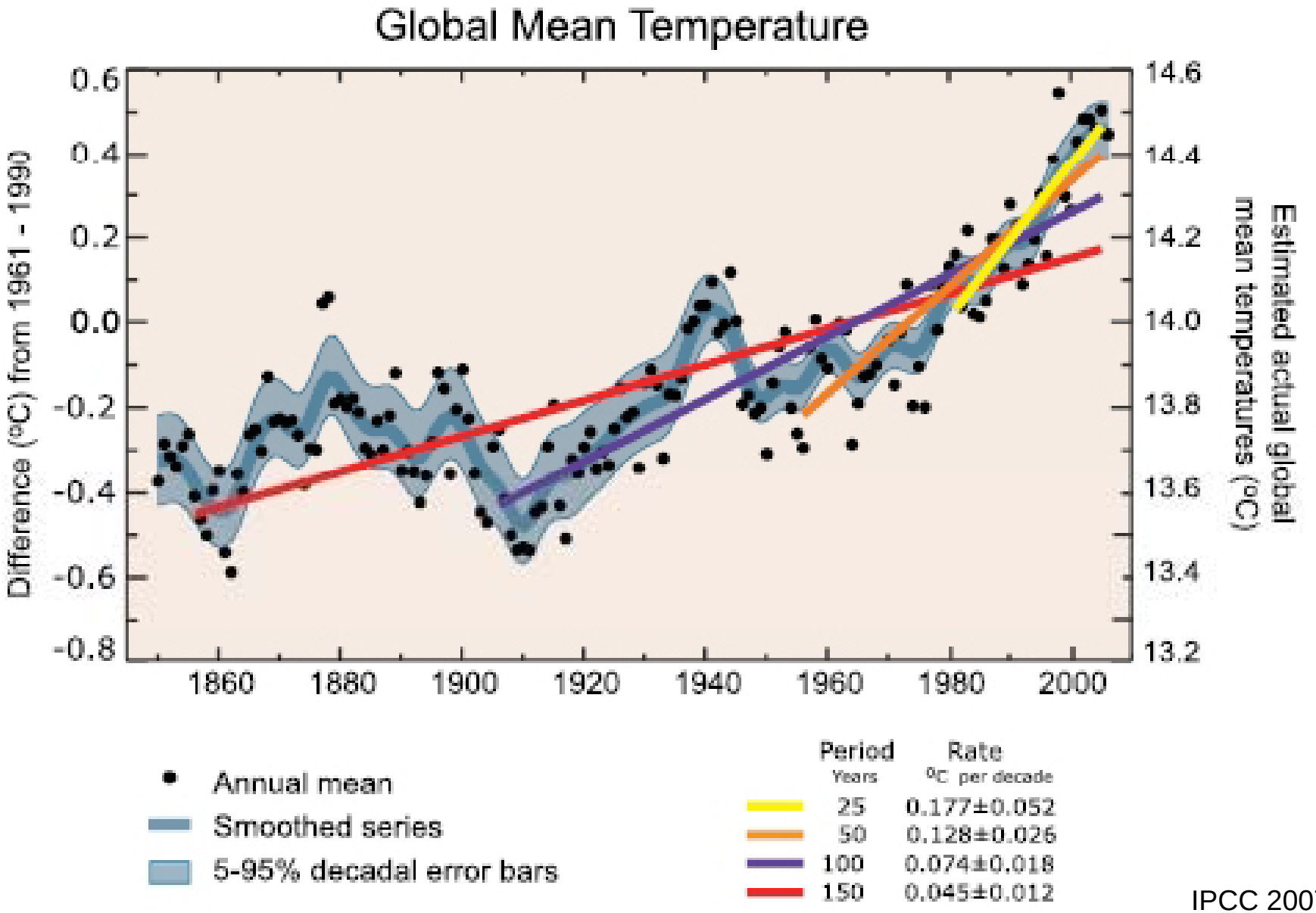
Estimated Species:

c. 130 vascular plants; >425 algae;
liverworts, mosses, aquatic fungi & bacteria – *not invetorised*

380 birds (incl. migratory); c. 100 fish; c.50 amphibia & reptiles; 1 dolphin;
c.150 zooplankton; >100 arthropods; many more

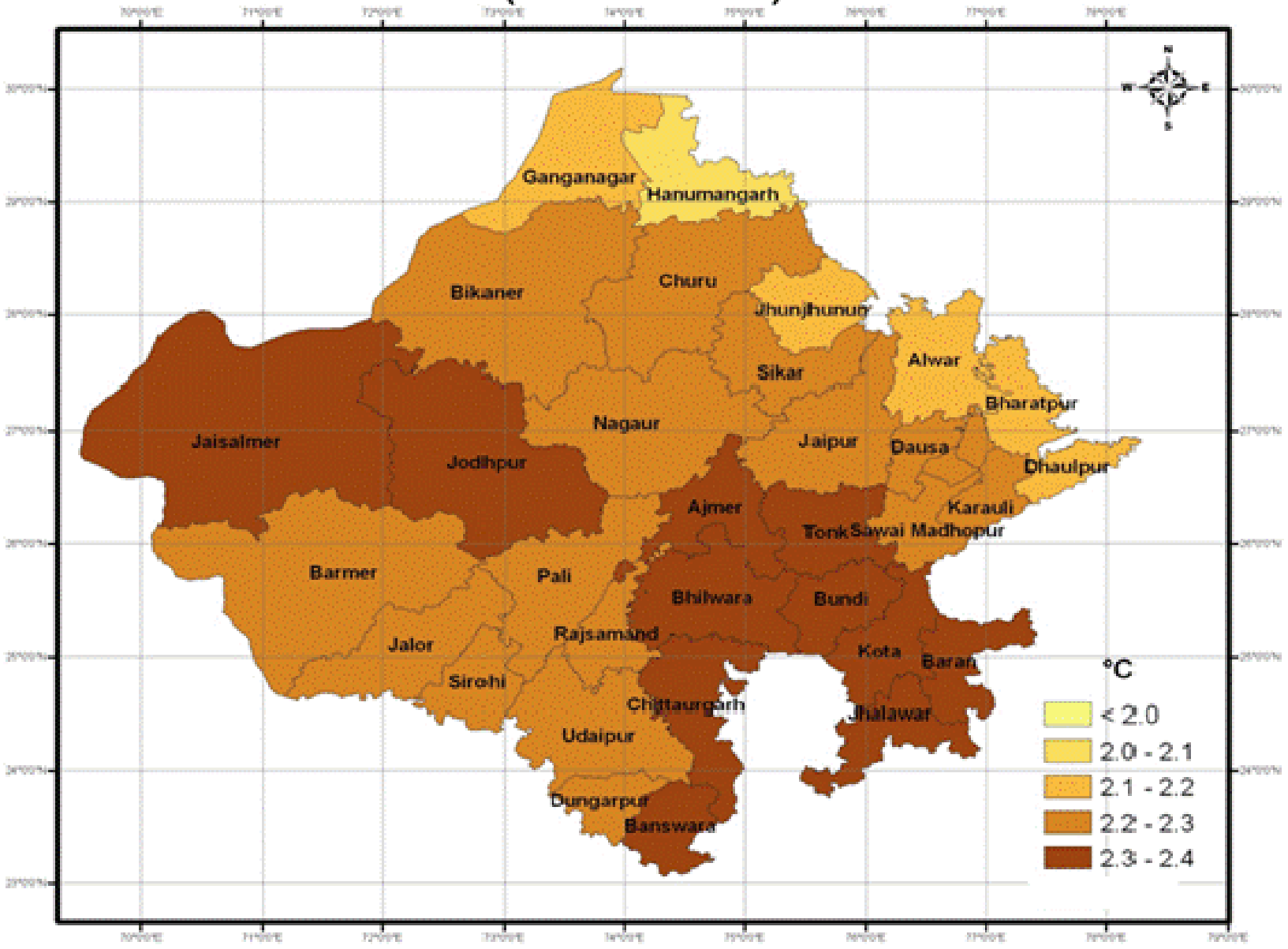
Few RARE & ENDEMIC species

GLOBAL CLIMATE CHANGE



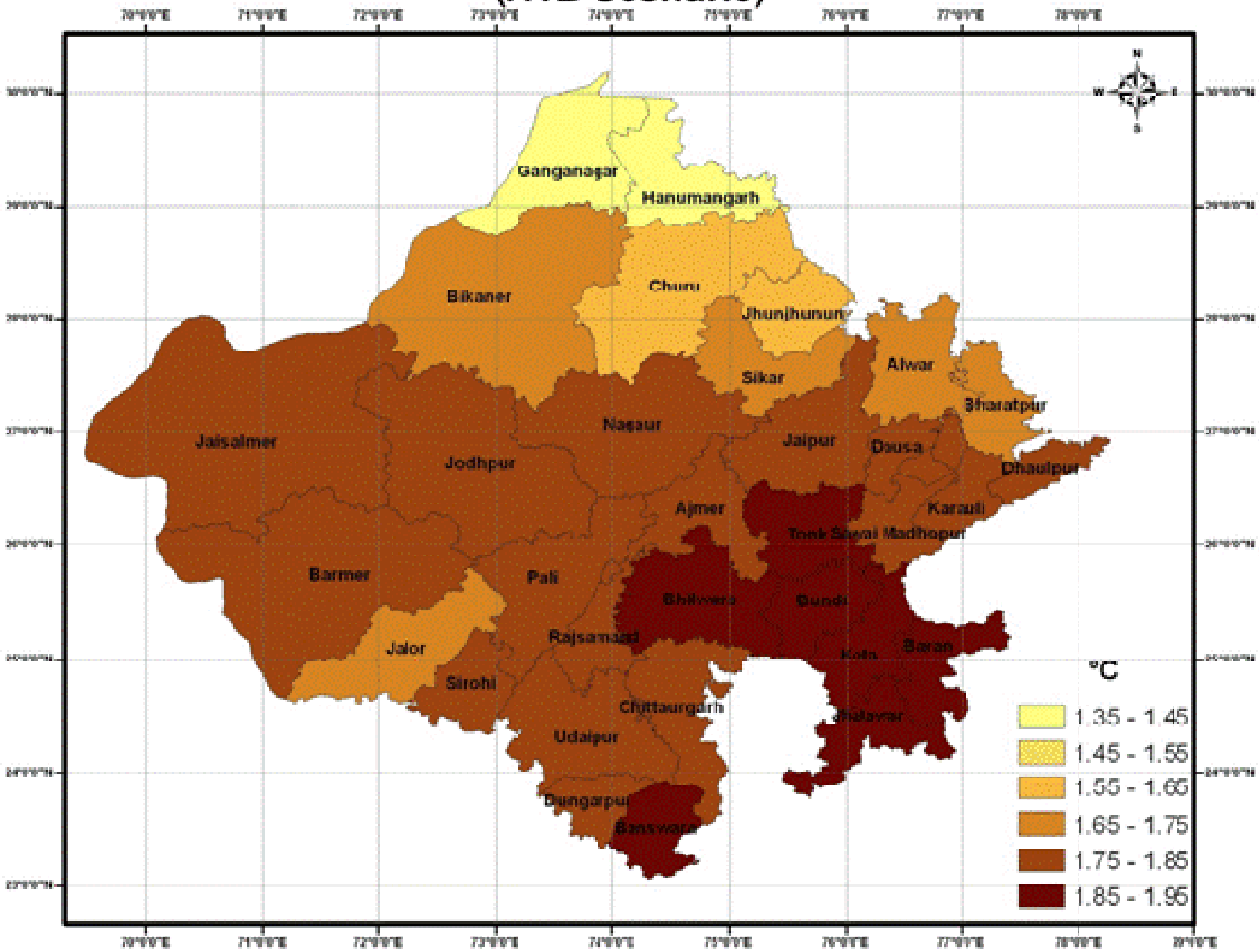
IPCC 2007)

Districtwise projected increase in minimum temperature in 2035 (A1B Scenario)



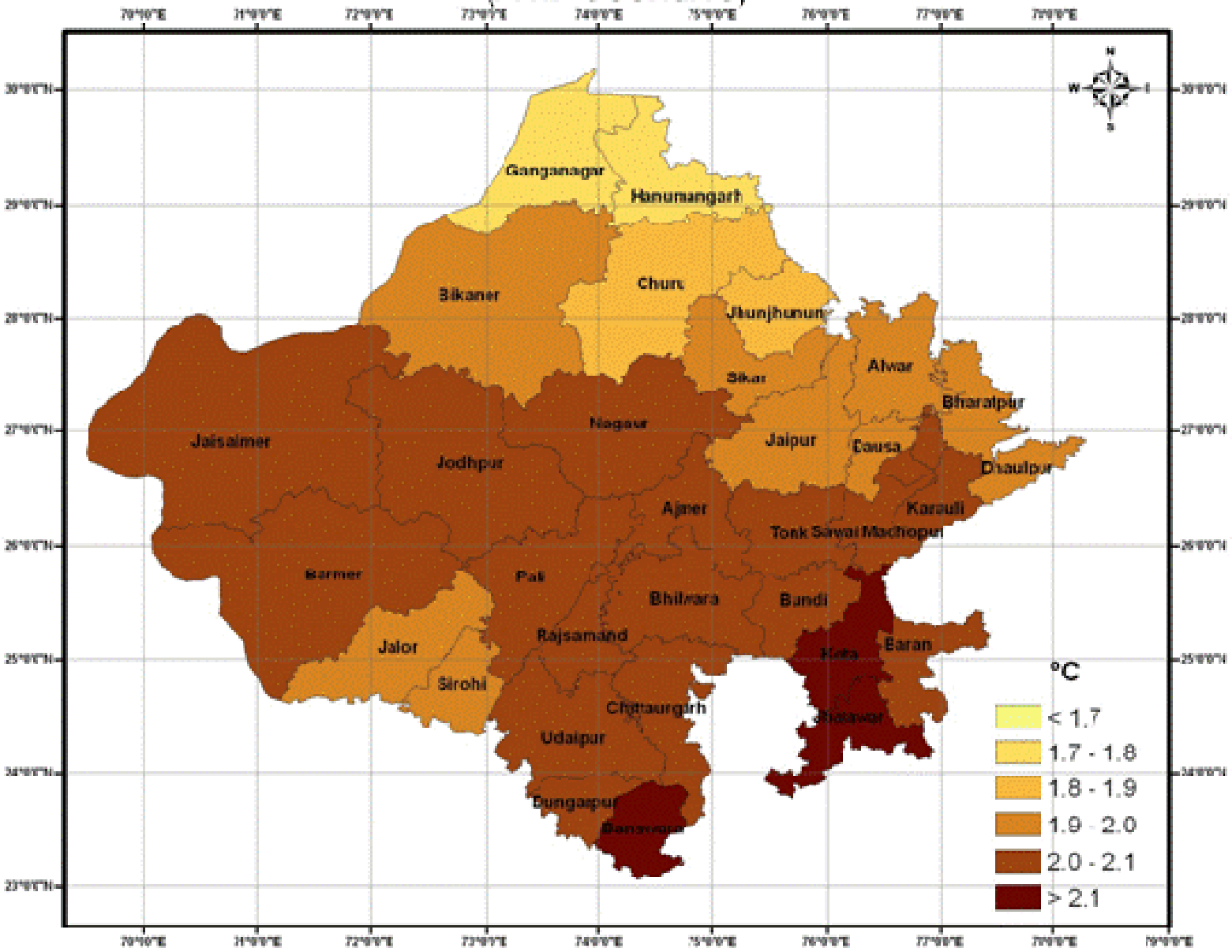
(Gopalakrishnan et al., 2011)

Districtwise projected increase in maximum temperature in 2035 (A1B Scenario)

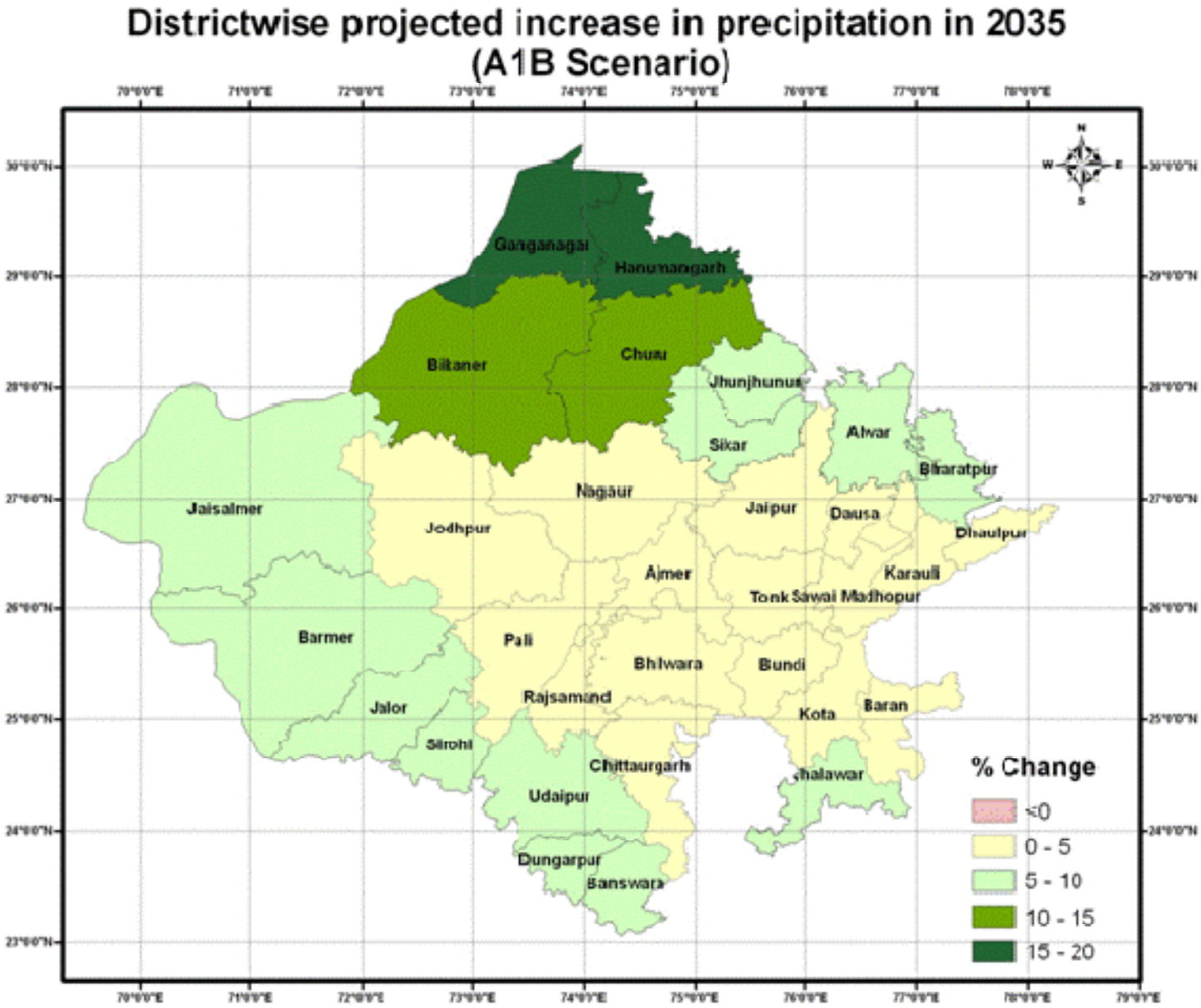


(Gopalakrishnan et al., 2011)

Districtwise projected increase in average temperature in 2035 (A1B Scenario)



(Gopalakrishnan et al., 2011)



Mean annual rainfall to decrease slightly,
but extreme rainfall to increase in frequency and intensity.

(Gopalakrishnan et al., 2011)

Natural vs Man-Made Wetlands

Wetlands develop in areas waterlogged by irrigation system. Serve as habitats for many wetland species of plants and animals.

Considerable cost to agriculture and human health, and loss of biodiversity that is characteristic of arid regions.

***Impact of Irrigation in W. Rajasthan*:**
Disappearance of 53 species of plants,
21% of flora changed in Ganganagar,
22 bird species disappeared,
Invasion by species of mesic habitats
(Idris et al. 2009)

***Impact of Irrigation in SE Rajasthan*:**
>10,000 ha cropland invaded by weeds

Climate change is a reality, it is human-induced.
We MUST take steps for both mitigation and adaptation.

BUT we must not lose sight of what we are doing today.

What is happening today?

Keoladeo is already threatened, NOT by climate change
Jamwa Ramgarh has dried, NOT due to climate change
Sambhar lake is degraded, NOT because of climate change
Wetlands have disappeared, NOT due to climate change
Malaria epidemic in the desert, it is NOT climate change

Climate Change will be like adding Salt to Injury.
(a synergistic effect)

We must manage water resources properly.


Thank You