

**SBSTA-42**

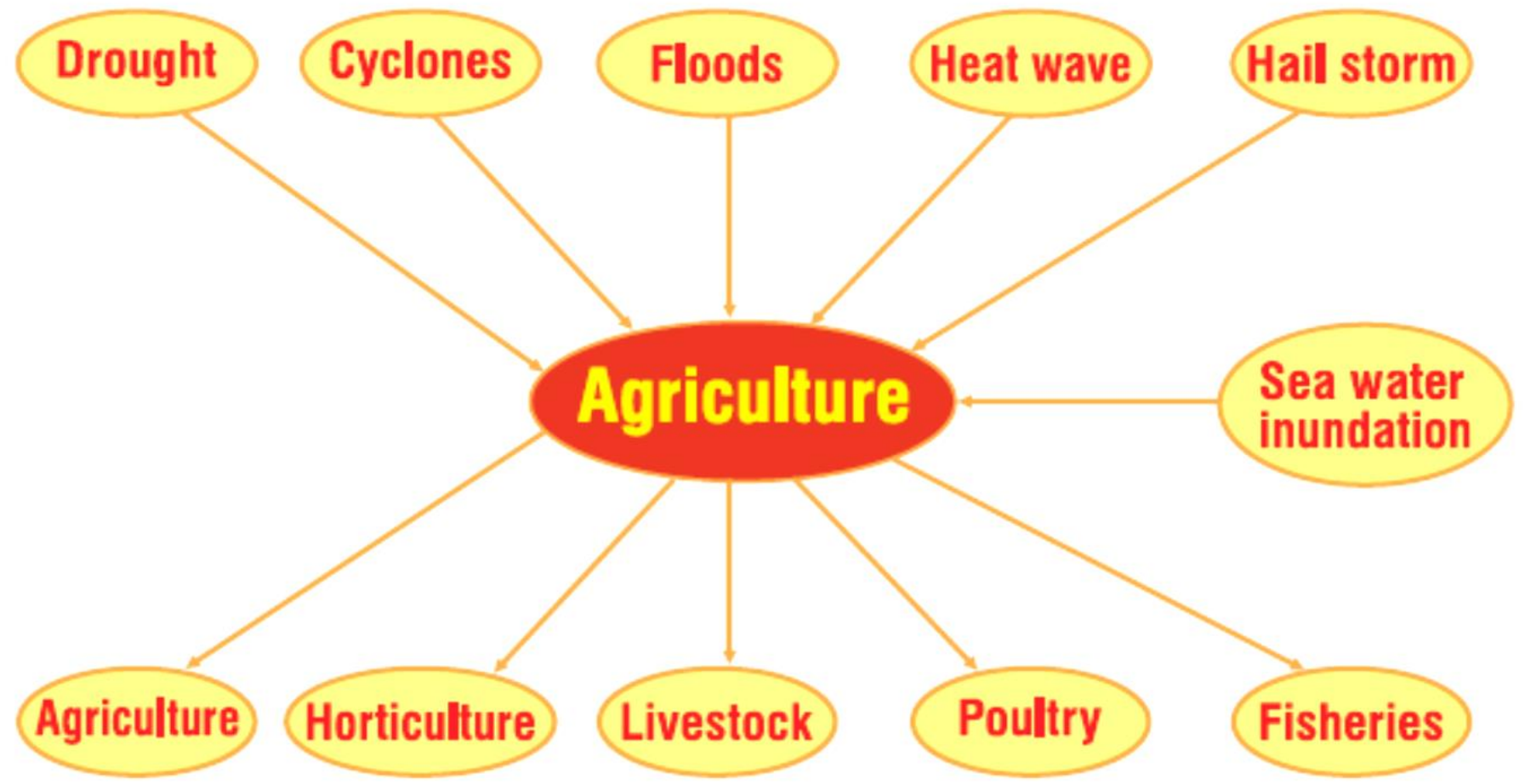
**In-Session Workshop (Agriculture)-II**

# **Assessment of Risk and Vulnerability of Agricultural Systems**

**to different climate change scenarios at  
regional, national and local levels, including but  
not limited to pests and diseases**

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**India**

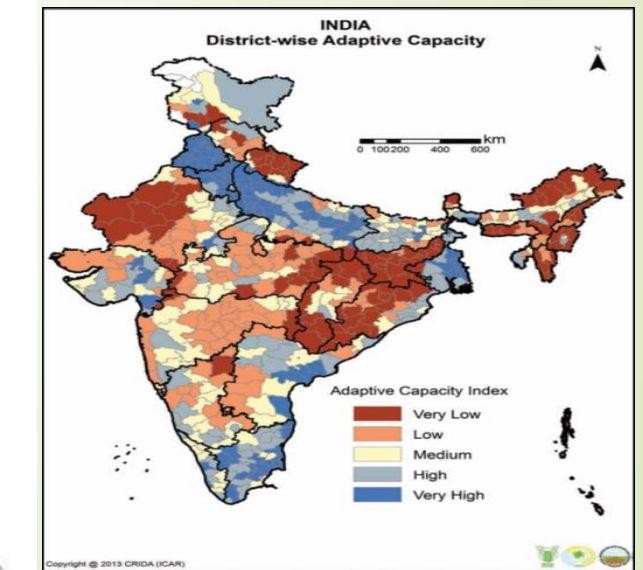
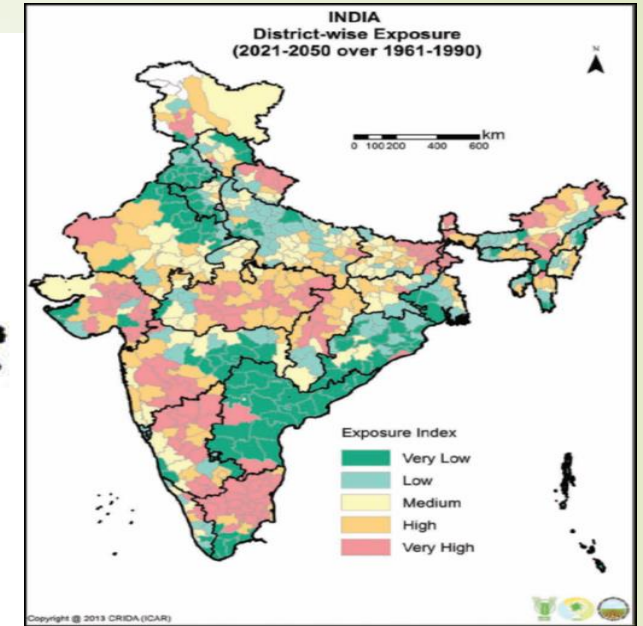
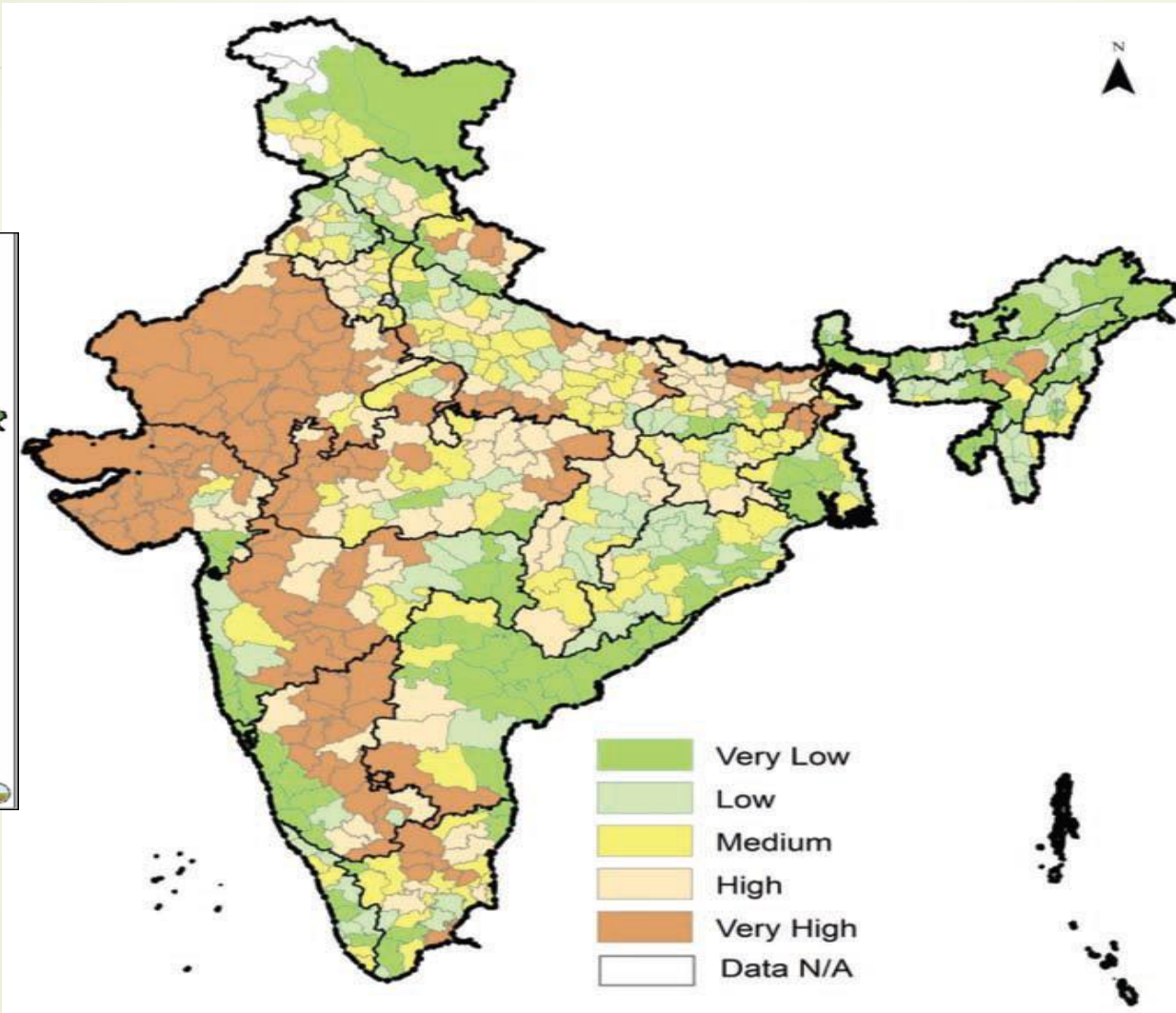


# Extreme events – increased frequency of occurrence

Year	RF % departure (June-Sep)
2000	-8
2001	-15
2002	-19
2004	-13
2007	+5
2009	-23
2012	-8
2013	+6
2014	-12
<b>2015</b>	<b>-7% (!)</b>

Year	Event
2002	All India drought Severe cold wave (2002-03)
2004	Drought like situation High temperature anomaly in March
2005	High temperature in Jan
2006	Floods in arid Rajasthan & AP Drought in high rainfall NE India
2007	High temperatures in Jan-Feb
2009	All India drought
2010	Warmest year
2011	Failure of Sep rains in AP
2012	Drought in Punjab, Haryana, Gujarat, Karnataka, Cyclone & Floods in AP
2013	Drought in Bihar & Jharkhand, Floods in Uttarakhand, Phailin cyclone
2014	Floods in J&K, Cyclone Hudhud, widespread hailstorm in March

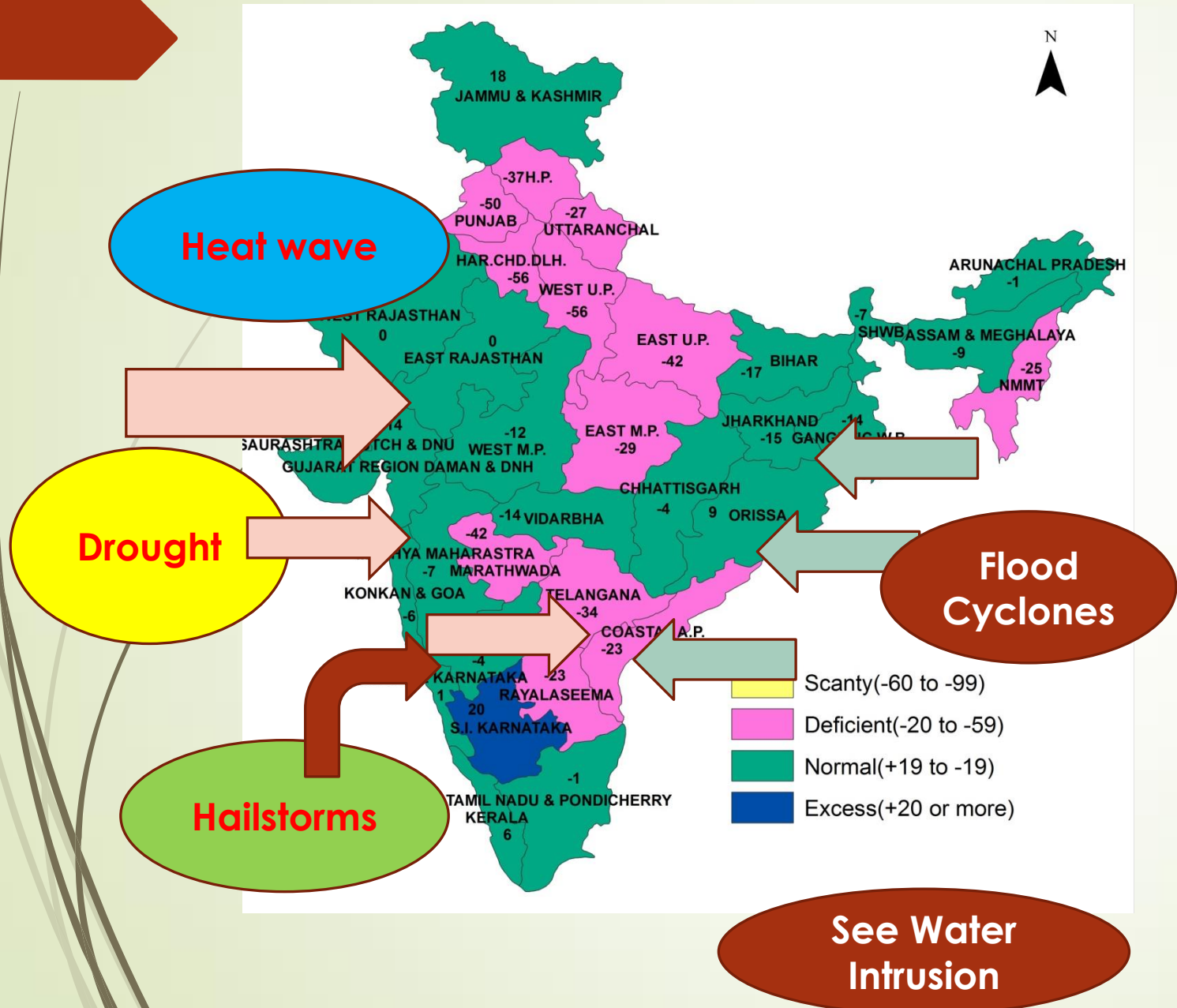
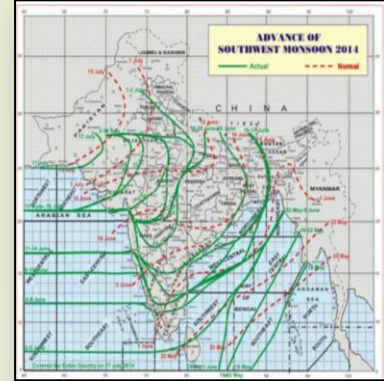
# Vulnerability of Indian Agriculture to Climate Change – district Level Assessment



Source: Vulnerability Atlas ([www.nicra-icar.in](http://www.nicra-icar.in))



# Seasonal rainfall situation-Monsoon 2014



## Regional rainfall situation

Country As A Whole	-12
North West India	-21
Central Peninsula	-19
South Peninsula	-7
East & North East India	-12

Assessing vulnerability of agriculture to climate change is the pre-requisite for developing and disseminating adaptation technologies.

Planning and decision making need this information to prepare strategies for addressing the adverse impacts of climate change/to identify vulnerable regions for allocating resources.

**Vulnerability of Indian agriculture to climate change was assessed at district level following IPCC framework of**

**Exposure (of future climate),  
Sensitivity and  
Adaptable capacity.**

## **Risk and Vulnerability Assessment .....**

- @ National, State and District level planning**
- @ State action plan implementation**
- @ Crop planning and resource target decisions**
- @ National programs such as NMSA, NICRA, NAF to address vulnerable agro-eco systems**

@ Districts that are relatively more vulnerable to climate change were delineated and the important factors contributing to vulnerability were also identified.

@ Such information will be useful for planning and targeting investments for adaptation research and policies.

@ Therefore, concerted efforts are required for adaptation to reduce the vulnerability (Research + Technology + Policy Support)



## Risk and Vulnerability Assessment for Agricultural systems

@ Development and implementation of adaptation strategy necessitate socio-economic empowerment of farmers besides developing competencies in acquiring knowledge and skills related to adaptation practices.

@ The envisaged adaptation of agriculture to climate change will require substantial funds to support vigorous and concerted efforts by national/international research and development institutions.

## Risk and Vulnerability Assessment for Agricultural systems

@ To promote the adoption of climate-resilient strategies we need to facilitate transfer of climate-resilient technologies from developed countries to developing countries so that the in-house efforts of adaptation get further strengthened.

@ Possible sources of technical & funding supports should be identified for promoting climate-resilient adaptation technologies. Any form increased pesticides usage need to discourage.

## Risk and Vulnerability Assessment for Agricultural systems

@ Exchanging information and providing technical advice on improving efficiency, productivity and resilience of agriculture at regional and national scales should be considered.

@ Strong research on regional level vulnerability index development for Agril systems (Field, horticulture, Livestock, Poultry, Fishery sectors) needed.

@ Besides, capacity building and awareness on multiple advantages of climate-resilient, sustainable agricultural technologies should be promoted.

# Farm Pond Technology for Dryland Systems

Thanks



Achievements at a glance ...