



AWCI Phase 2 Implementation Plan – India's input

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Issues & Needs

- *Increase in demand of usable water*
- per capita availability of water resources is reducing
- Over exploitation of groundwater is leading to reduction of low flows in the rivers
- Declining of the groundwater resources
- Inventory of quantitative measure of all components of water resources



WATER REQUIREMENT FOR DIFFERENT USES (CU KMS) IN INDIA

USE	YEAR 2000	YEAR 2010	YEAR 2025	YEAR 2050
IRRIGATION	524	557	618	807
DOMESTIC	30	43	62	111
INDUSTRY	30	37	67	81
POWER	9	19	33	70
ECOLOGY	0	5	10	20
EVAPORATION	36	42	50	76
TOTAL	629	710	850	1180



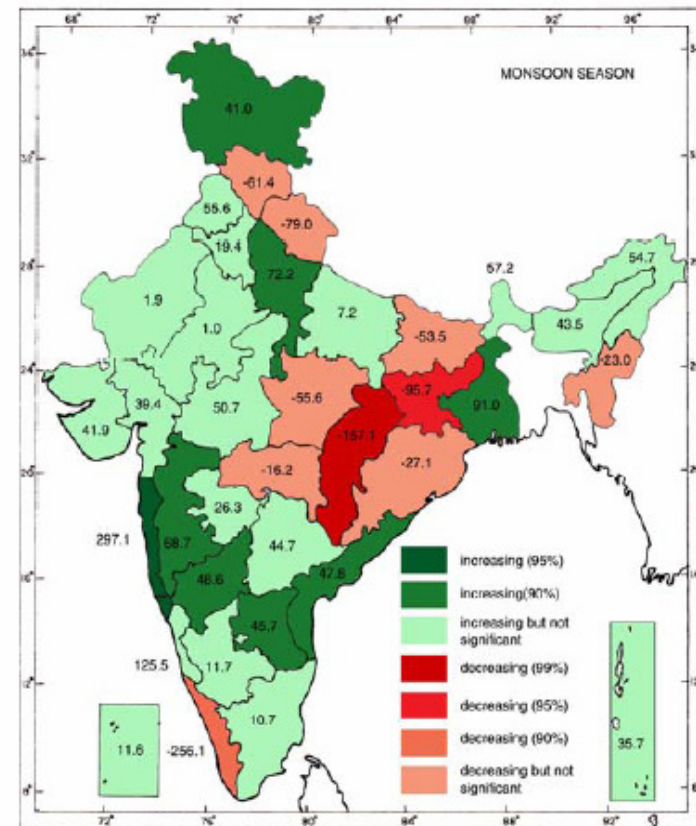
Issues & Needs

- *Future climate scenario (time & space specific)*
- *impact of climate change on water resources of the basins*
- *capacity building in the modeling techniques*
- *Share good (failure) practices through regional conferences/workshops*



Trend in South West Monsoon Rainfall

1. Annual rainfall =1182.8 mm
2. south-west monsoon rainfall (June to Sept)= 877.2 mm(74.2%)
3. High variability in time and space -- floods & drought



Increase/Decrease in rainfall in mm in 100 year for each of 36 subdivisions in the south-west monsoon season. Different levels of significance are shaded with colors



Trend in Rainfall

- Winter Season
- Pre monsoon
- Post Monsoon
- Annual

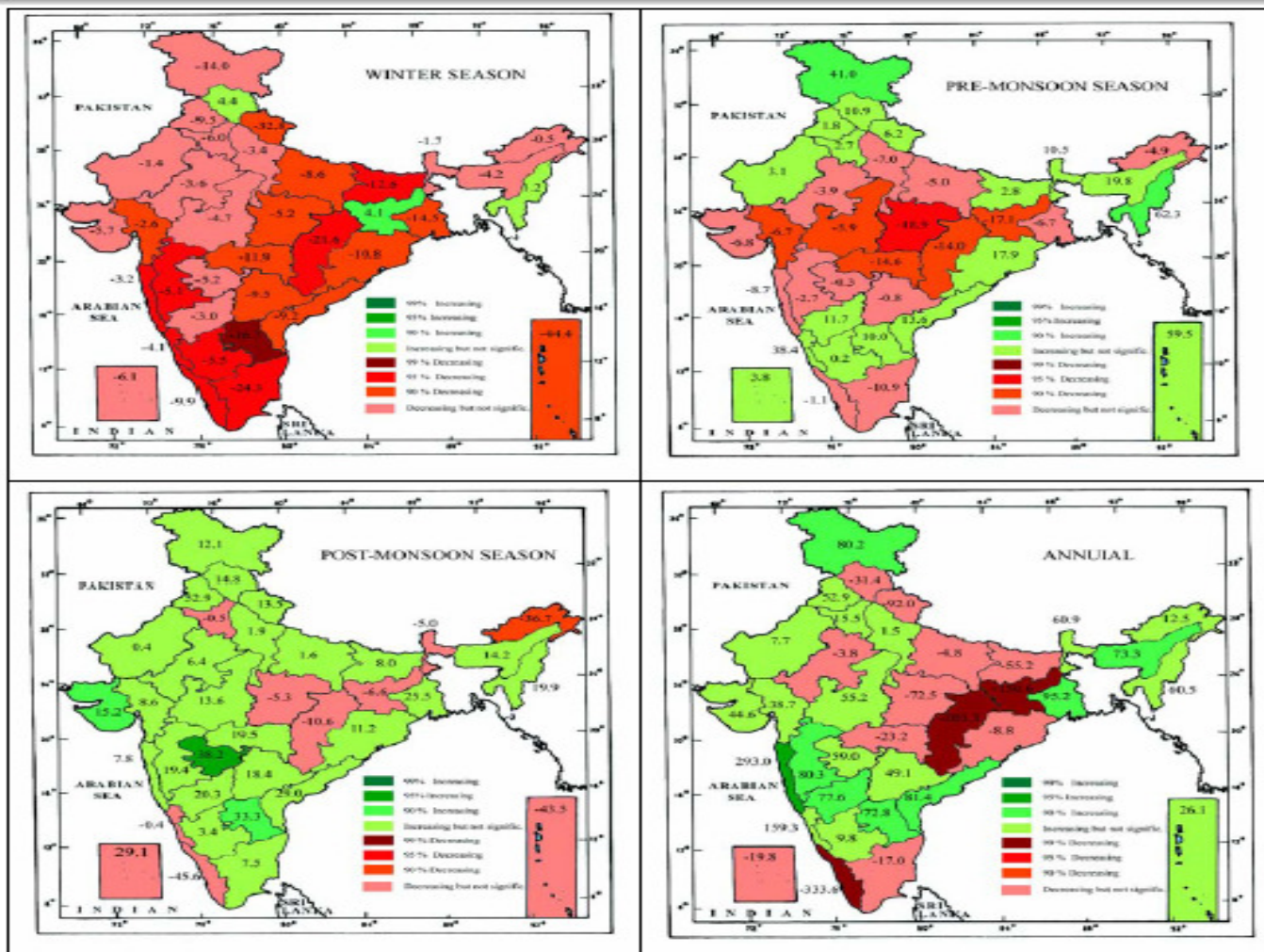


Fig.12. Increase/Decrease in rainfall in mm in 100 year in each of 36 subdivisions for the winter, pre-monsoon, post-monsoon seasons and annual. Different levels of significance are shaded with colors

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Trend in Mean Annual Temp.

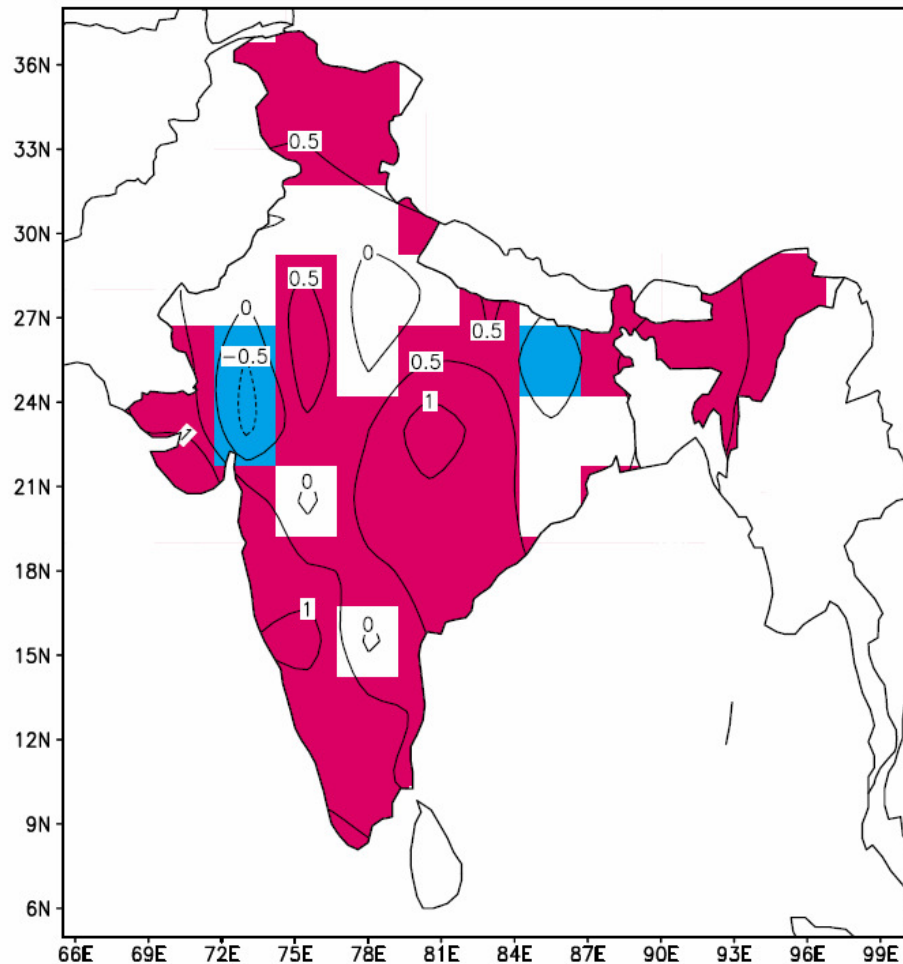


Fig 7: Spatial Pattern of Trend ($^{\circ}\text{C}/100$ years) in Mean Annual Temperature Anomalies (1901-2009). Areas where trends are significant are shaded (red : warming, blue : cooling)



Trans-boundary and international coordination (MRC)

- **Bilateral MOU were signed between the neighbouring countries for sharing of meteorological forecast and data.**
- **Close coordination between meteorological communities of the neighbouring countries in respect of knowledge sharing by conducting workshops/seminars, trainings, joint projects etc.**



specific issues

•Challenges in Quantitative Precipitation Forecast for Flood Forecast

- 1.The forecast should be time and space specific.
 - 2.It should not be an underestimate otherwise there will be an avoidable loss of life and property.
 - 3.It should not be also an over estimate as same may result in unnecessary displacement of population resulting in diminishing confidence in forecasts and warnings.
- Inadequate network in Himalayan region
 - Integration of Radar and Satellite data in NWP models.
 - Sea level rise



Co-operation

- Training and capacity building in modeling for Demonstration project
- Model for computation of different components of water balance of river basin including trend.



Thank You



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