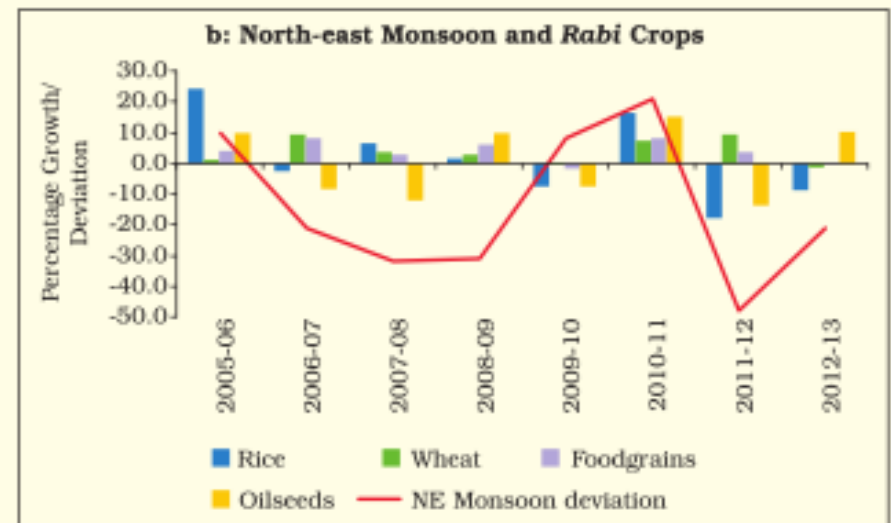
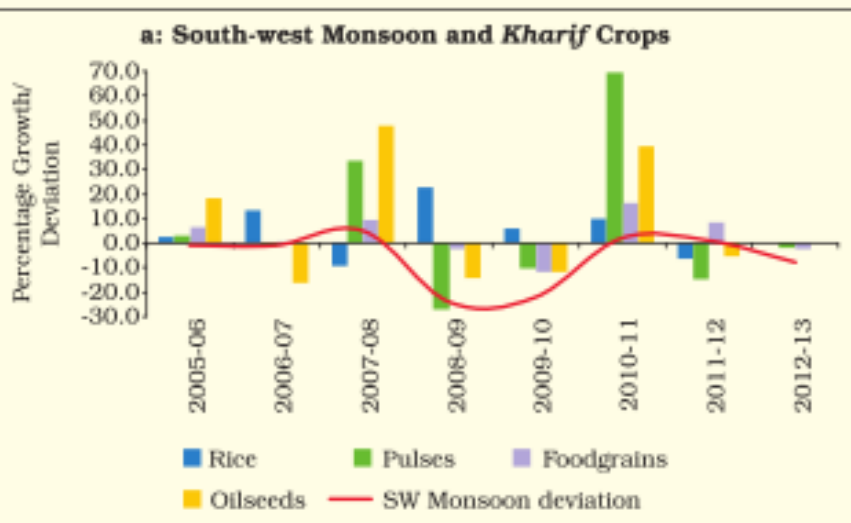


# **Drought Conditions and Management Strategies in India**

*BMS Rathore  
GV Subramanyam*

# We have a serious issue at hand

- ❖ The area facing desertification about **82 million ha**. **16 per cent** of India's geographic area, mostly arid, semi-arid and sub-humid is drought-prone
- ❖ 1987 drought in India damaged **58.6 million hectares of cropped area affecting over 285 million people**
- ❖ High temporal and spatial variability in rainfall and wide variations in physiographic and climatic conditions
- ❖ 3 major droughts, in **2002, 2004 and 2009**. The **2002 drought reduced the sown area by 12 million hectares the food grain production by 38 mt**, thus leading to a 3.2 per cent decline in agricultural GDP



# But we have started to cope well

- Shift in perception about drought : **‘crisis of an urgent nature’ to a risk based management issue (GoI 2012).**
- The capacity to cope with adverse impacts steadily increasing due to improved policies , institutional capacities and programs.
- Though no separate policy on Drought , **but part of National Policy on Disaster Management 2009 & National Disaster Management Guidelines- 2010**
- Based on culture of preparedness , mitigation and response.
- Improved institutional response : MHA nodal Ministry ; MoA for droughts and other Ministry & Deptt

# Drought monitoring and early warning systems

**IMD-ESSO**-monitors rainfall situation throughout the year: daily, weekly/monthly/seasonal scales; prepares rainfall reports for the use of different state/central government agencies; set up **130 Agro-Meteorological Field Units (AMFUs)**

**Early Warning Agencies** - the Central Water Commission, National Remote Sensing Centre and National Rainfed Area Authority are other key early warning agencies; NCMRWF- issues weekly crop advisories

**Indices used for drought monitoring:** Since 2013 using Standardized Precipitation Index (SPI) to monitor drought on monthly basis ( this cover all 3 types), NDVI also used in addition.

**Vulnerability Assessment:** National Agricultural Drought Assessment and Monitoring System (NADAMS) project provides near real-time information on prevalence, severity level and persistence of agricultural drought at state/district/sub-district level. Presently being implemented in 13 states; Drought atlas for India is being developed by National Atlas and Thematic Mapping Organisation (NATMO)

# Preparedness through Programs

## Some Programs and Schemes

- **Seeing watershed as key bio physical unit for drought proofing & resilience :** integrating lessons from SLEM
- **The Green India Mission-** aims to restore 10 Mha in 10 Years with a project cost of about US\$ 8 billion; focus on restoration of eco system services, using landscapes and watershed units.
- **Integrated Watershed Management Programme** - targeted development of 75 million hectares of rainfed/degraded area in a phased manner during 2007-2027.
- **The Mahatma Gandhi National Rural Employment Guarantee Scheme** - annual outlay of appox. US\$ 8.23 billion: strong focus on land, water and afforestation activities
- **Mission for Sustainable Agriculture** ; including climate smart agriculture, ***National Food Security Mission*** , ***National Mission on Micro Irrigation among others.***
- ***Making use of Traditional Knowledge Systems in programs /Missions***

# Future Road Map :Need for knowledge & skills management

## National Level

- Further strengthening of the observational network for drought,, improved capacity in drought forecasting incl. medium and long range forecasting
- Developing mechanism for **context specific and need based forecasting including local language** for better awareness & understanding.
- Improvement in **ICT in an integrated manner** for tackling the multifaceted challenge of drought at various spatial scales;
- **Improved coordination** among ministries and departments;

## Regional Level

- Enhancement of **real time monitoring capabilities at a regional level** through training and joint monitoring programmes;
- Improvement in **methodologies and analytical tools for drought analysis and vulnerability assessment** at local and regional level;
- Organization of joint training programmes to build human capacity in improved resilience towards drought

*Mother of all plants,  
Firm “Earth” upheld by Eternal Law,  
May she be ever beneficent and gracious to us  
As we tread on her. ( Athrvaveda Hymn to Earth , 17)*

***Thanks!!!***