

IWMI's Global Drought Program – Strengthening Agriculture Resilience and Improving Food Security



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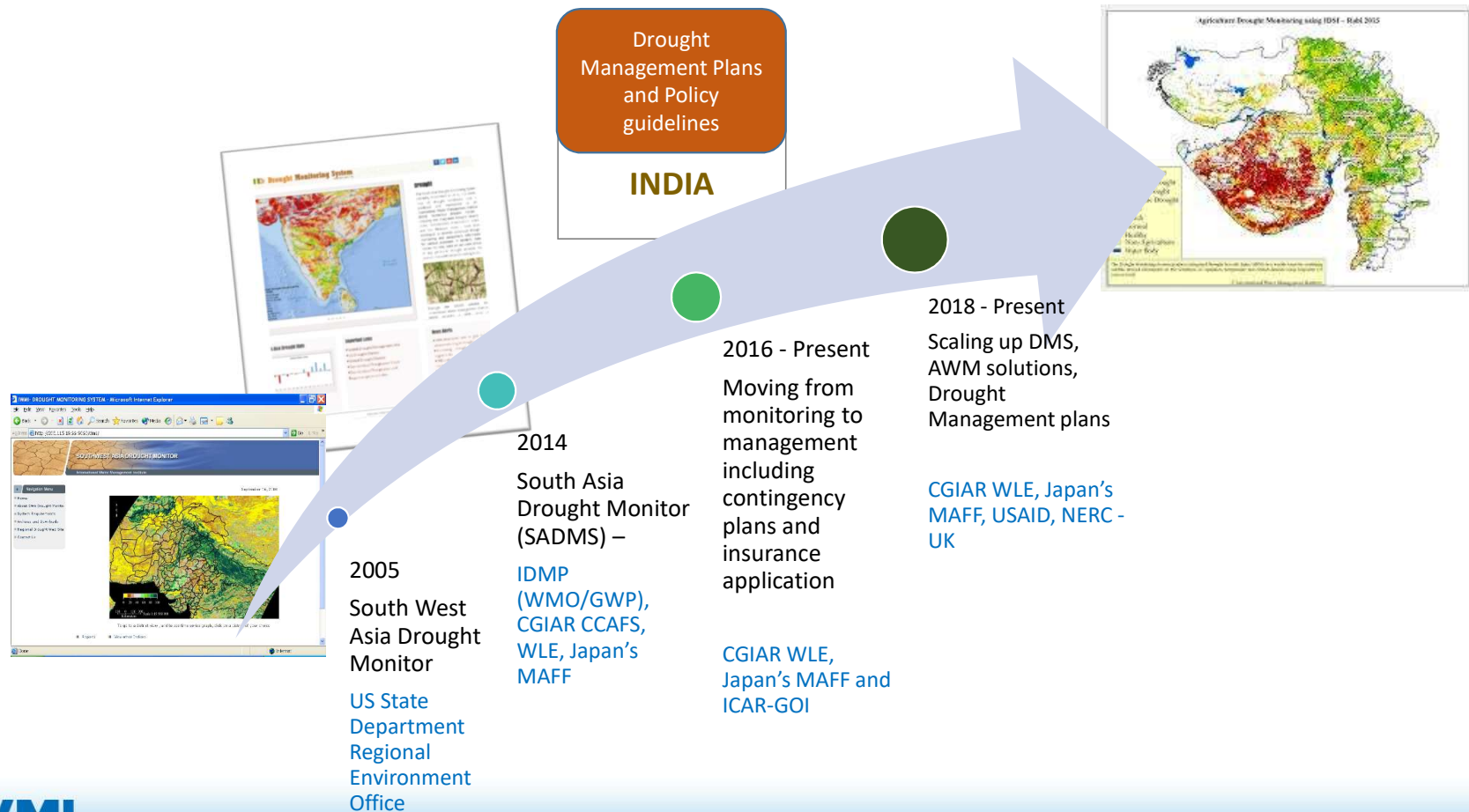
Research Group Leader: Water Risks and Disaster
International Water Management Institute (IWMI), Sri Lanka
21 May, 2019

Copernicus Emergency Management Service – Annual Meeting, Stresa, Italy

OVERVIEW

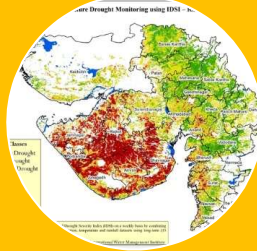
- **Goal** - build climate resilience, reduce economic and social losses, and alleviate poverty in drought prone regions through an integrated drought risks management
- **Impact** – Promote science-based products (monitoring and forecasting system) for improved water management interventions to stabilizing the access to water and food security; Supports on policy making for sustainable development under the future drought risks.
- **Partnership** – regionally coordinated drought mitigation efforts, sub-national knowledge products and capacity building

History of drought programme implemented by IWMI



IWMI's Integrated Drought Risk Management (IDRM) Framework

Monitoring & Forecasting / Early warning



- Understanding drought risk for planning;
- Indices/ indicators linked to impacts and action triggers;
- Feeds into the development/delivery of information and DSS

Vulnerability & impact assessment



- Identifies who and what is at risks and why?
- Involves monitoring/archiving of impacts to improve drought characterization
- Coping capacity of the communities

Mitigation & response planning and contingency measures



- Pre-drought program and actions to reduce risks (short and long-term);
- Operational drought contingency plans during drought disasters;
- Safety net and social program, research and extension

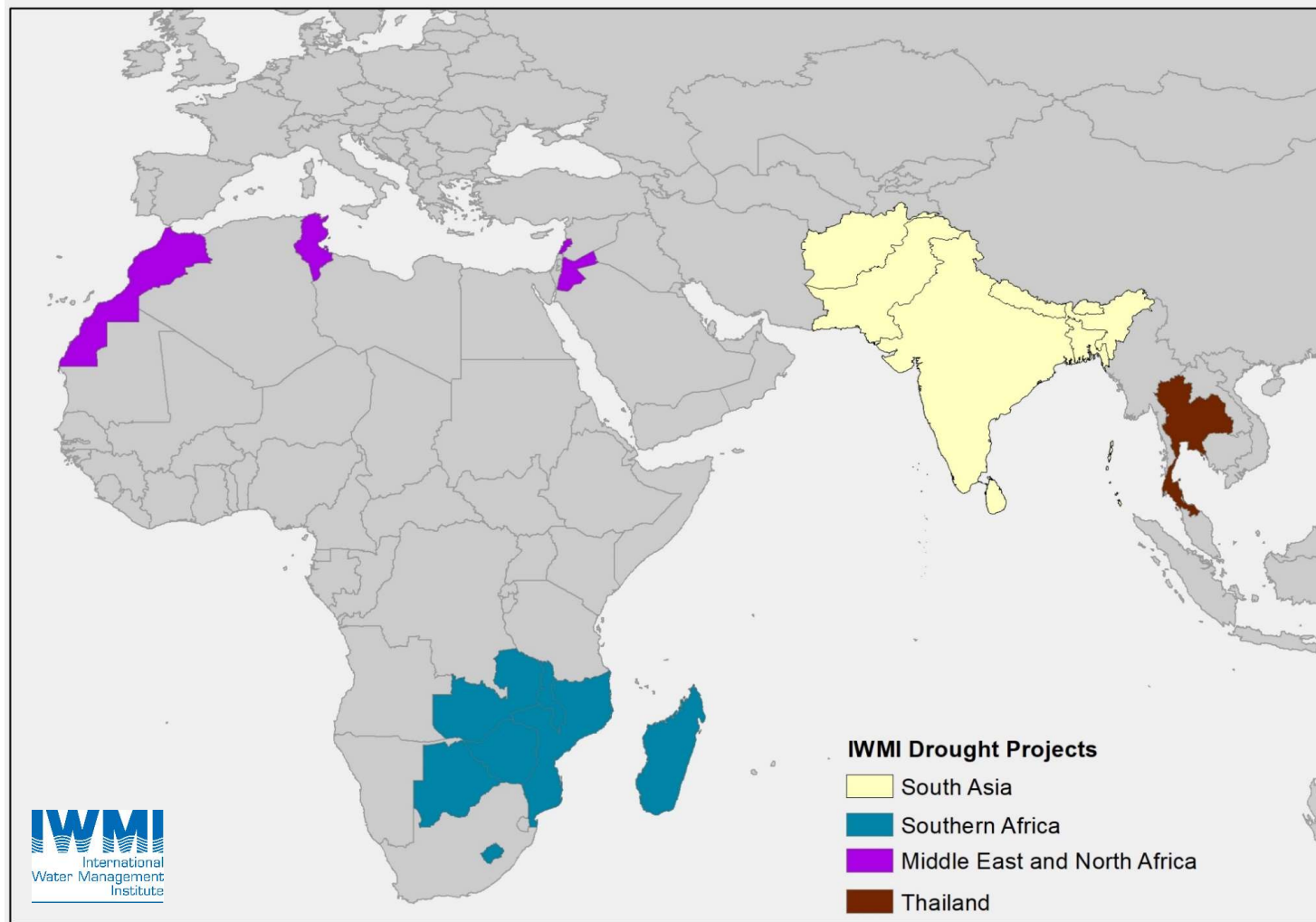
Three pillars of drought risks management

- Meteorological, Hydrological, and
- Agricultural Droughts
- Drought bulletin

- Drought vulnerability
- Impact evaluation
- Risk transfer using index insurance

- Drought declaration
- Support national policies

IWMI's ongoing and future drought resilience projects



South Asia



RESEARCH
PROGRAM ON
Water, Land and
Ecosystems

MAFF
Ministry of Agriculture,
Forestry and Fisheries
農林水産省



Southern Africa



MENA



USAID
FROM THE AMERICAN PEOPLE

Thailand



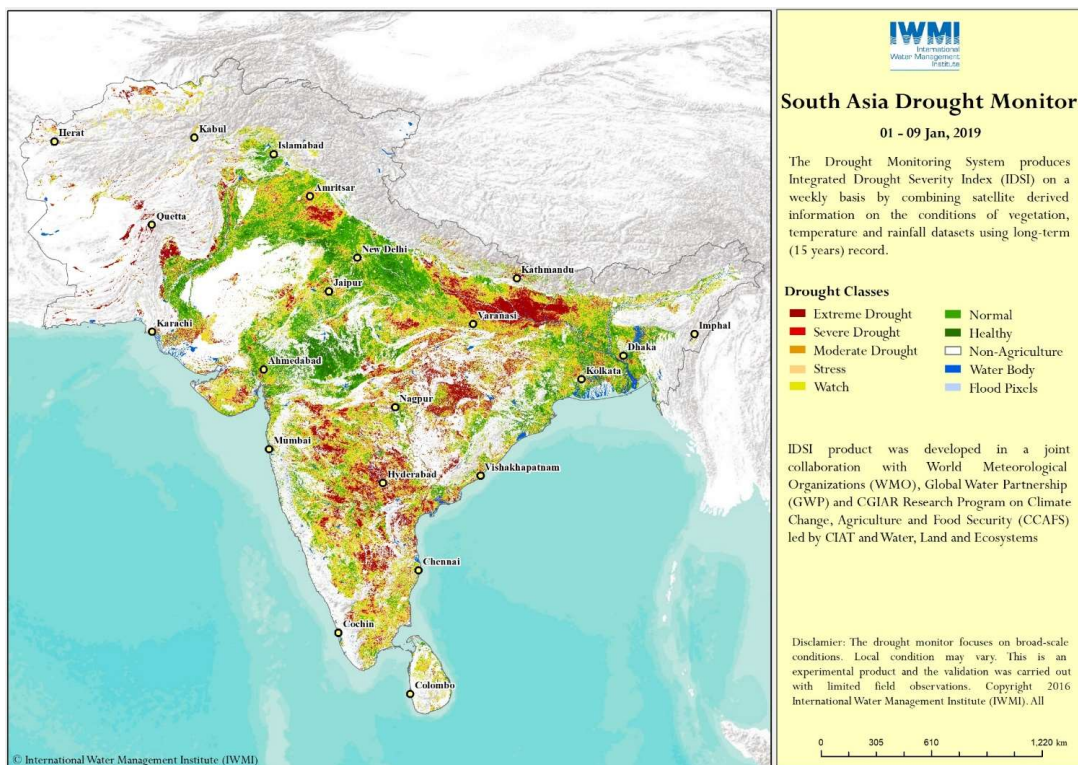
**Centre for
Ecology & Hydrology**
NATURAL ENVIRONMENT RESEARCH COUNCIL

Drought monitoring, planning and management

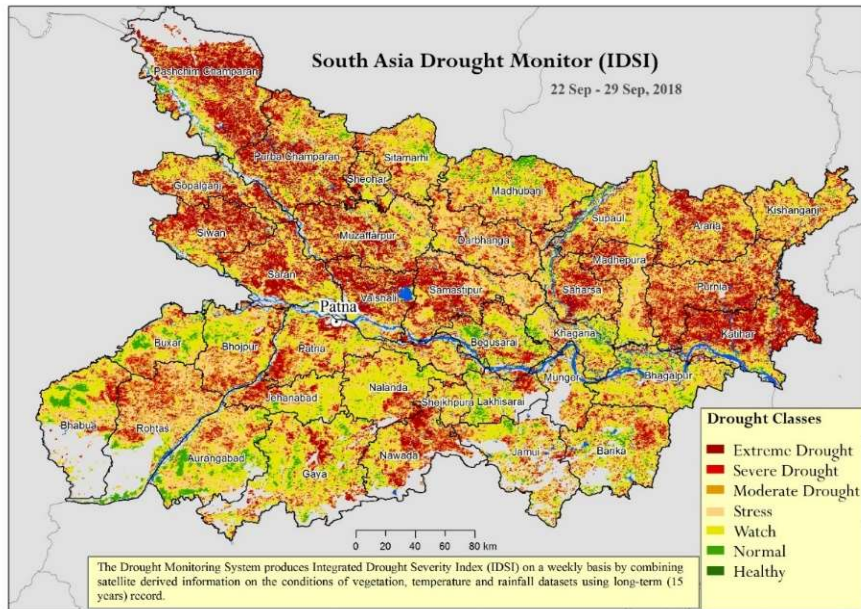
Key objective is to strengthen research and improve currently operational South Asia Drought Monitoring System (SADMS) for drought planning, monitoring and management

2018 achievements

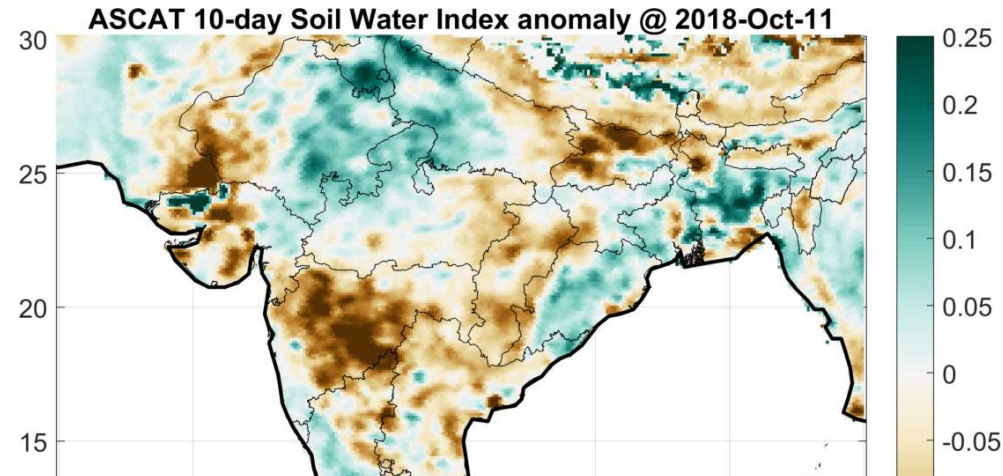
- SADMS has published 11 drought bulletin during the Kharif season in collaboration with CRIDA
- SADMS Bulletin published in India Meteorological Department for wider access
- CRIDA/IWMI in collaboration with State Department validated the IDSI and dynamic contingency plans advised in Maharashtra, Andhra Pradesh and Telangana;
- Drought bulletin shared to Bihar, Eastern UP;
- > 3,500 visitors browse SADMS Portal in 2018



SADMS providing warning Bihar (India) on drought like situation...



- IWMI advised Dept. of Agriculture in early September, wide spread drought in Bihar;
- Knowledge products presented to high-level decision makers;
- However, lack of interest from govt. to utilize the scientific information and strengthening drought contingency plans;
- On Oct 16, 2018 govt. declared 23 districts for relief support



hindustantimes

Tuesday, Oct 16, 2018

206 blocks in 23 Bihar districts declared drought-affected

A decision on declaring 206 blocks drought-affected was taken at a high-level meeting, chaired by Bihar chief minister Nitish Kumar, after submission of reports by agriculture, animal husbandry and fishery, energy and water resource departments.

Updated: Oct 16, 2018 15:12 IST

Vijay Sivaroop
Hindustan Times, Patna



File photo of Bihar chief minister Nitish Kumar during an official meeting. The state government has declared over 200 blocks in 23 districts as drought-affected. (File photo)

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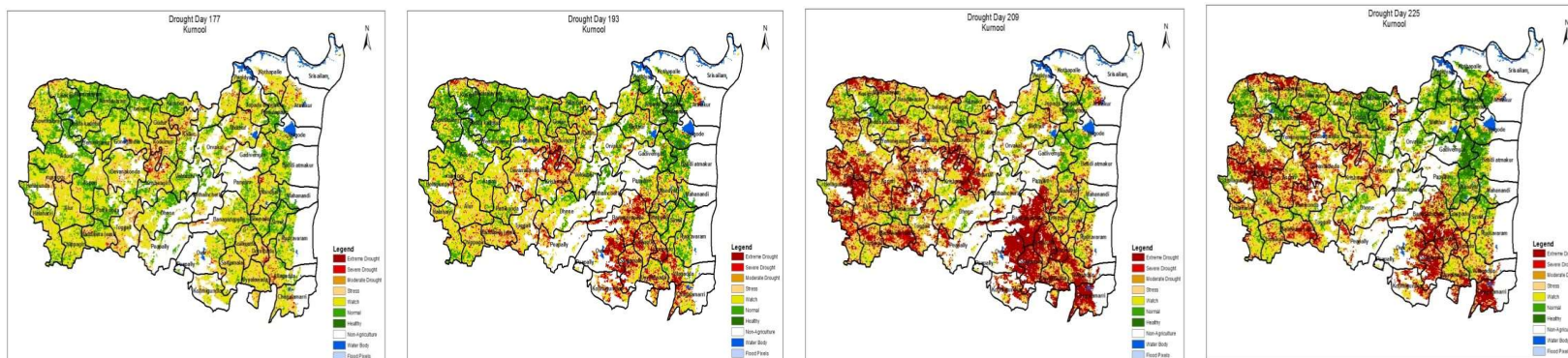
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The Bihar government on Monday declared 206 blocks in 23 of the 38 districts of the state as drought-affected following reports of deficient rainfall and drying of crops.



Drought Management & Contingency Plans - IMPACT

June – Aug 2018



**SADMS – Integrated
Drought Severity
Index (Weekly
product)**

**Site: Kurnool, Andhra
Pradesh, India**

Rainfall:

- 38 days & 64 days for 2.5mm & 10 mm threshold rainfall

RS Drought Indices:

- IDSI was successfully evaluated and it has shown good correlation to the field observation
- Drought severity noticed in mid-July, a follow up contingency plan advised to farmers to mitigate drought risks

Preparedness and real time measures taken up:

- Drought tolerant varieties
- Irrigation
- Harvesting Water for protective irrigation
- Spraying of KNO₃

Crop yields

- Pigeon pea: Nil to 8 q/ acre
- Maize: 20-24 q/acre with delayed sowing and irrigation. Crop failure in case of shallow alfisols and sown with onset of rains
- Setaria: 0-2 q/acre
- Jowar: 0-4 q/acre

Amravati



Aurangabad

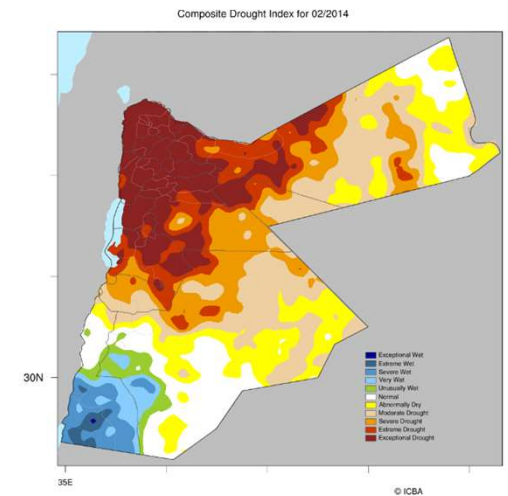
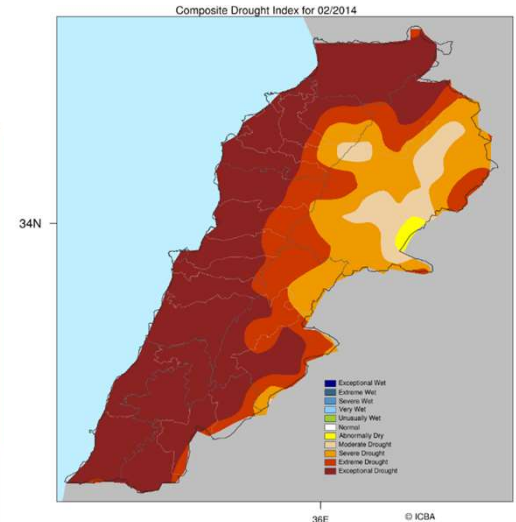
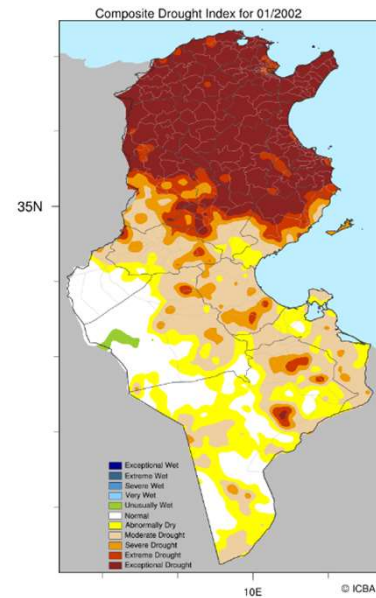
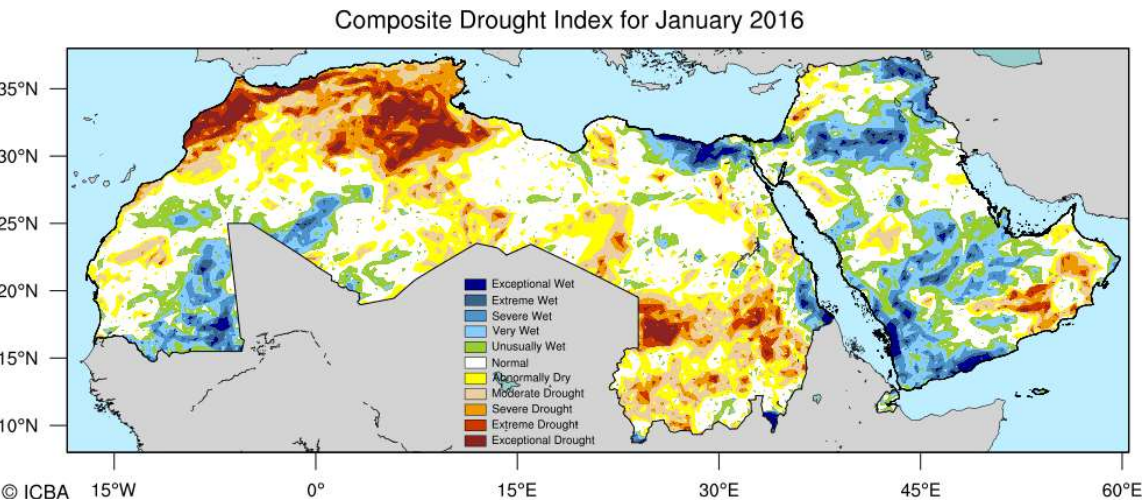


Drought Management & Contingency Plans - IMPACT

- With drought preparedness plans, farmers were able to mitigate drought risks.
- Example including Ridge and furrow sowing, BBF for Soybean; Sprinkler & Drip irrigation; Harvested Water for protective irrigation
- Crop yields assessment:
 - 7-8 q/ acre for Soybean and 5-5q/acre for Pigeon pea
 - Cotton: 12-14 q/acre










Operational Composite Drought Index – MENA Region



MENA region

Jordan, Lebanon,
Morocco and Tunisia

Drought Resilience partnership in South Asia

Key Activities		 		 		Progress
Drought monitoring indices and indicators from satellite data	✓	✓				Completed. Customization using Google Earth Engine and validation in progress
Drought Forecast and early warning; drought bulletin	✓		✓		✓	Experimental product developed. Presently evaluating the model performance
Product validation and stakeholders consultation	✓	✓	✓		✓	Ongoing efforts with stakeholders
Vulnerability assessment for 2 States in India					✓	Socio-economic survey in progress to determine drought vulnerable areas
Drought response and mitigation measures including contingency measures	✓	✓	✓			Case studies completed. Improving coordination on RTCP to mitigate drought risks; DRAMP framework ongoing
Impact evaluation on the advisory services and knowledge products		✓	✓			Pilot carried out with ICAR. ICT to disseminate information to farmers ongoing
Bundling drought tolerant-seeds with index insurance and weather advisory to smallholder farmers				✓		Ongoing discussion with partners to commission the activities and exploring funding opportunities
Capacity building, technology transfer, policy dialogue; research publications	✓	✓	✓		✓	Series of workshop/training planned until Dec 2021; Comm. products will be prepared.

Future Collaboration

- Improved drought forecast for better prediction skills in South Asia
- Experience from JRC-EU and other global partners to strengthen our initiatives in Asia and Africa
- Drought impact forecasting for financial resilience and early action (6 to 9 months)
- To promote regional cooperation and joint pilots through south-south partnership

Thanks

