The Role of Monsoon Prediction in Enhancing Climate Resilience in Sri Lanka

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Introduction

•**Significance of Monsoon in Sri Lanka**:
- Monsoon season brings significant weather-related challenges.
- Effective prediction of monsoon patterns is crucial for community resilience.
- Mitigating effects of extreme weather events.

Global Framework for Climate Services (GFCS)
- Enhance climate resilience by improving the availability, access, and use of climate services.
- Provides a structured approach for delivering climate information , Supports capacity building , Promotes the integration of climate services into policy and planning processes.

South Asian Seasonal Climate Outlook Forum (SASCOF)
- Facilitate the production and dissemination of seasonal climate outlooks for South Asia.
- Offers a platform for regional collaboration on seasonal forecasts, Enhances the accuracy and relevance of monsoon predictions through consensus-building.

Monsoon Forum (MF)

•Enhance the application of climate services in decision-making processes at National level.
- Provides a collaborative platform for stakeholders to assess forecasts and recommend improvements.
- Facilitates continuous feedback mechanisms between forecasters and end-users.
- Supports effective planning and risk management in climate-sensitive sectors.

Aim

- to explore the mechanisms and outcomes of monsoon prediction efforts in Sri Lanka, focusing on the role of the GFCS, the SASCOF, and the MF
- to highlight the importance of accurate monsoon predictions in enhancing community resilience, mitigating the effects of extreme weather events, and ensuring sustainable development.
- to showcase the Monsoon Forum as a successful model for collaborative climate governance

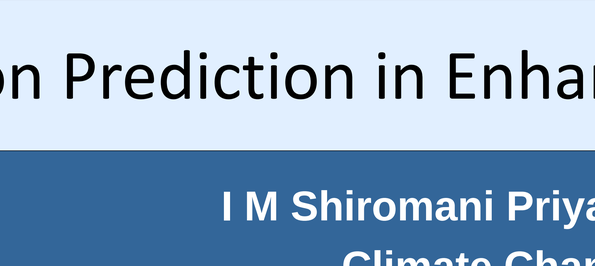
Data Sources:

- Monsoon forecasts by the Department of Meteorology (DOM).
- Feedback from various stakeholders including agricultural, health, and water management sectors.

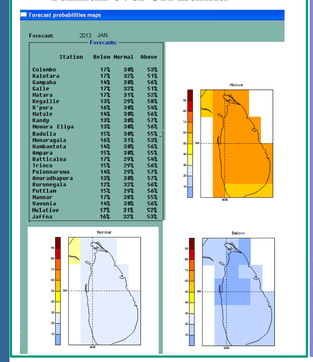
Methodology:

- Regular 3-monthly and monthly forecasts issued by DOM.
- Monsoon Forum for evaluating past performances and gathering recommendations.

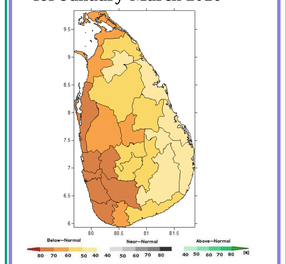
SASCOF Outlook OND 2022 | **National Outlook OND 2022** | **Observed RF during OND 2022 (anomaly %)**



Outlook for January 2013 rainfall over Sri Lanka

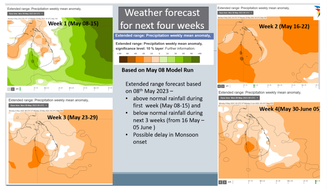


Probabilistic rainfall forecast for January-March 2016



District	Average rainfall (mm) - (JFM)	Probability %		
		Below	Normal	Above
Colombo	336.4	70	20	10
Kalutara	461.6	70	20	10
Galle	455.3	70	20	10
Matara	398.0	70	20	10

- DoM initiate Regular 3-monthly and monthly forecasts from 2013. Prediction is for whole country.
- From 2015 district wise probabilistic forecasts issued
- Weekly forecasts started since 2019 .



•Sectoral Impacts:

•**Agriculture**:
- Agro-met advisories based on seasonal weather outlooks.
- Coordination among various agricultural research and development institutes.

•**Health**:
- Mitigation of health impacts from adverse weather conditions.
- Coordination with Disaster Management Center (DMC) for preparedness.

•**Disaster Risk Reduction (DRR)**:
- Preparedness measures at national and local levels.
- Emergency planning and awareness programs.

•**Water Management**:
- Use of rainfall forecasts for flood and drought mitigation.
- Maximization of hydro power generation and irrigation services.

•**Energy**:
- Decisions to minimize impact on power sector.
- Accurate forecasting of system demand and renewable generation.

Agromet Advisories- based on the climatic forecasts from DOM

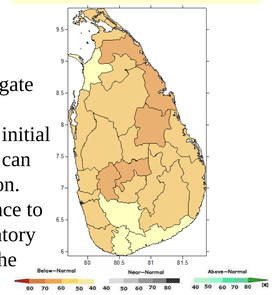
Below normal rainfall has been forecasted over most parts of the country

Cultivation Planning: Farmers should plan their activities to maximize rainwater use and mitigate below-normal rainfall impacts.

Land Preparation: Completing initial land preparation with early rains can save reservoir water for the season.

Water Schedules: Strict adherence to water issuing schedules is mandatory in all irrigation schemes during the season.

Probabilistic rainfall forecast for October 2022



Paddy Varieties Selection
- **Irrigated Systems:** Recommend 3½-month paddy varieties; select 3-month varieties under critical conditions.
- **Full Supply Level (FSL):** Use 4-month varieties if irrigation tanks are near full.
- **Rainfed Farmers:** Choose 3-month varieties and start land preparation before seasonal rains.

Source : Agriculture Department, @ 28 Monsoon forum, 2023

- Prediction-Based Measures: DMC has prepared for worst-case scenarios for two monsoon seasons based on Department of Meteorology predictions.
- Two-Pronged Approach: Implemented national policy and local emergency preparedness with stakeholder and community engagement.
- Stakeholder Involvement: Ensured high preparedness by involving all relevant stakeholders in the planning process.
- Local-Level Involvement: Grama Niladari (GN) Divisions, through divisional secretaries, conducted hazard and risk analyses, identified needs and gaps, and prepared contingency plans

Sirasa Gammadda Programme

Source : Disaster Manegement Center, @ 28 Monsoon forum, 2023

Conclusion

- Monsoon prediction plays a critical role in enhancing societal resilience.
- Continuous improvement in forecast accuracy and stakeholder engagement is essential.
- The Monsoon Forum model can be replicated in other monsoon-affected regions globally.

Future Directions:
- Ongoing investment in meteorological sciences.
- Strengthening links between forecasters and end-users.
- Emphasis on international collaboration for improved climate services.

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