

## **Sub-Theme: Managing Water in Climate Related Risks**

### **Topic: Climate Change-Erratic Precipitation**

#### Background

Climate change is fundamentally altering precipitation patterns across India, manifesting as increased variability in rainfall intensity, timing, and spatial distribution. The growing incidence of short-duration high-intensity rainfall events alongside prolonged dry spells, has amplified both flood and drought risks, often within the same basin or region. These changes challenge traditional assumptions of water availability, infrastructure design, agricultural planning, and disaster preparedness. Further, Erratic precipitation directly affects surface runoff and groundwater recharge, reservoir operations, urban flooding and drainage, agricultural productivity, and ecosystem health. Managing this risk is central to climate-resilient water management, as adaptation strategies must consider uncertainty, changing rainfall patterns, and extremes rather than relying only on historical averages events. This session aims to highlight precipitation variability as a key driver of water-related climate risk and to explore practical ways to manage its impacts.

#### Objective:

- a. Improve understanding of emerging trends in precipitation variability and their impacts on hydrology.
- b. Review the limitations of current planning, design, and operational frameworks under changing rainfall conditions.
- c. Highlight risk-informed approaches for managing floods, droughts, and water scarcity caused by erratic precipitation.
- d. Identify adaptation strategies and policy measures to strengthen resilience across sectors and scales.

#### Expected Outcome:

- Focus on erratic precipitation as a core climate risk for the water sector.
- Identification of priority adaptation measures for managing flood and drought risks.
- Policy-relevant insights for informed planning, operational practices, & investment decisions.
- Inputs to strengthen climate-resilient water management strategies at basin, state, and national levels.