



A REVIEW ON NEED OF APPLICATION OF ENSEMBLE TECHNIQUES FOR STREAMFLOW FORECASTING IN INDIA



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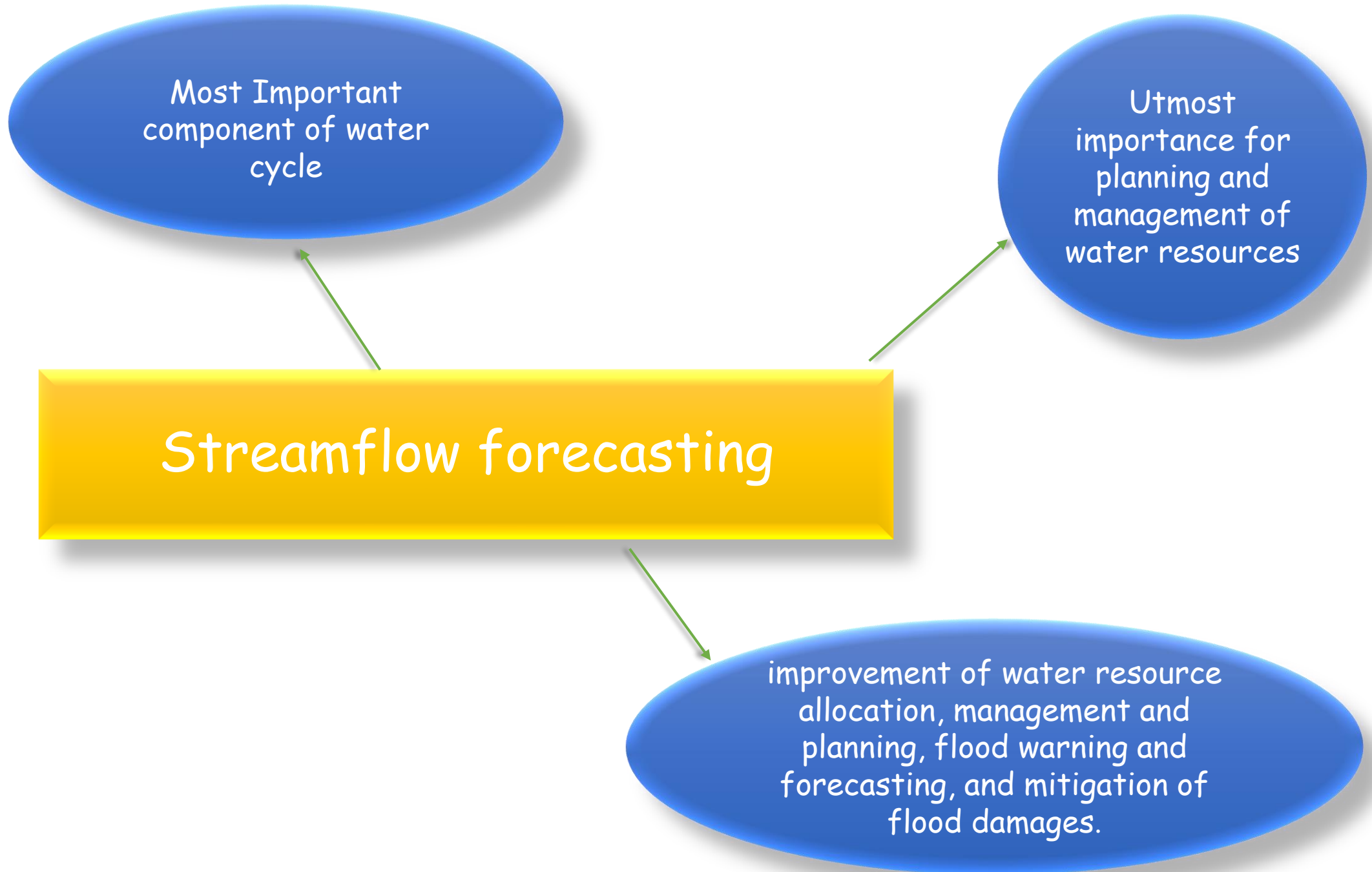
Sardar Vallabhbhai National Institute of Technology, Surat.

Most Important
component of water
cycle

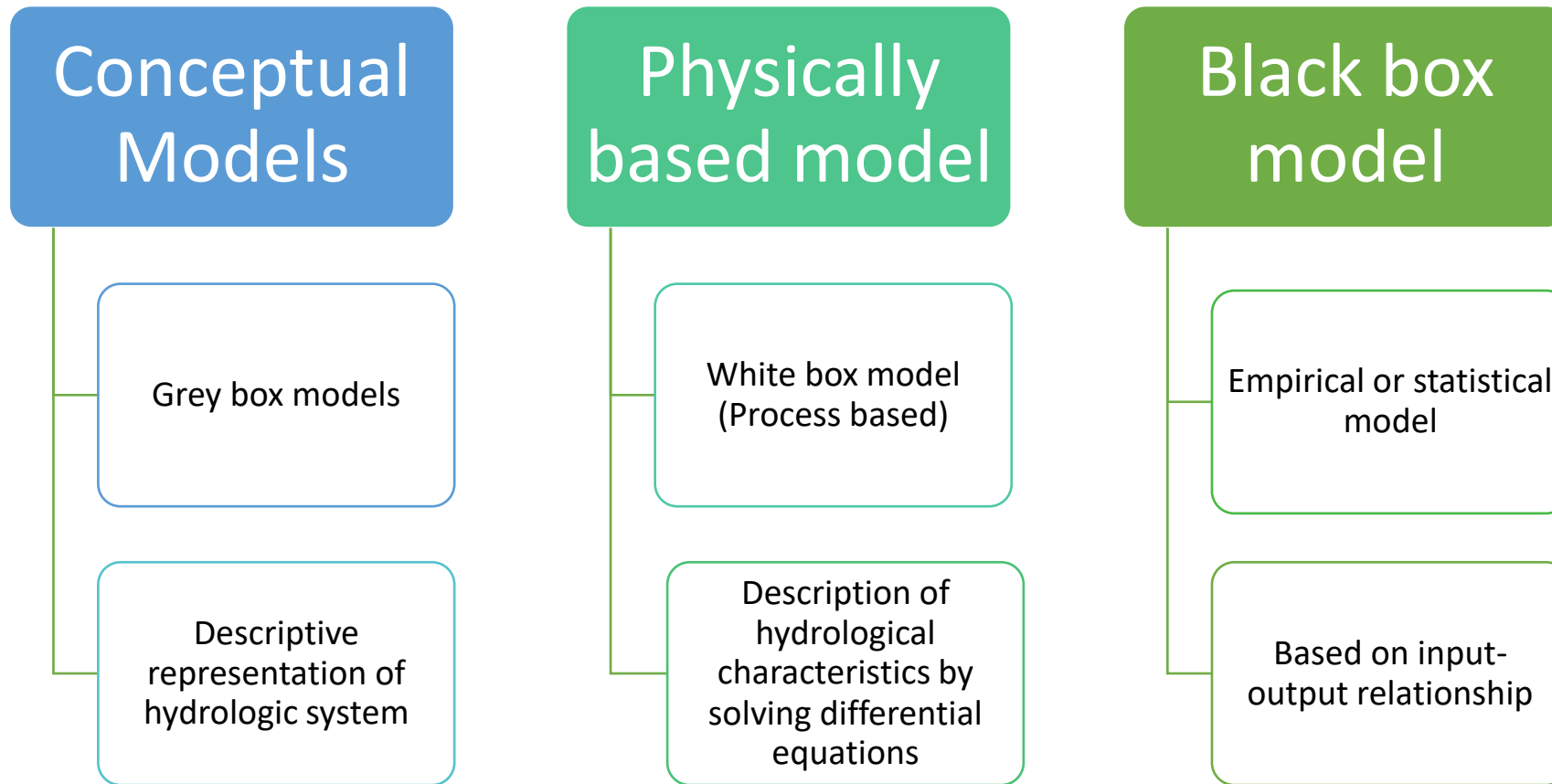
Utmost
importance for
planning and
management of
water resources

Streamflow forecasting

improvement of water resource
allocation, management and
planning, flood warning and
forecasting, and mitigation of
flood damages.



CONVENTIONAL STREAMFLOW FORECASTING



Present streamflow forecasting techniques in India



- ✓ Central Water Commission
- ✓ Indian Meteorological Department
- ✓ Rainfall-based mathematical modelling for flood forecasting
- ✓ Hydrologic and hydrodynamic modelling for real time prediction
- ✓ Uncertainties are not considered
- ✓ Deterministic forecasting



HEC-HMS
River Analysis System

🕒 THIS STORY IS FROM MAY 16, 2018

IMD issues thunderstorm warning in Delhi-NCR

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Met dept went overboard in issuing severe storm warning for Delhi: Official

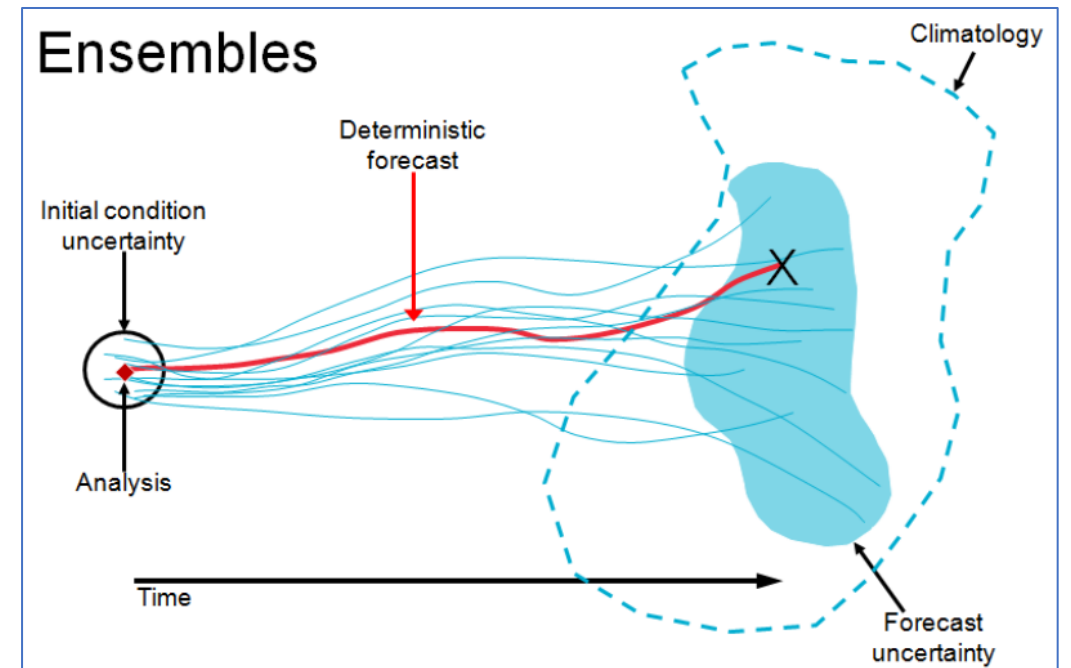
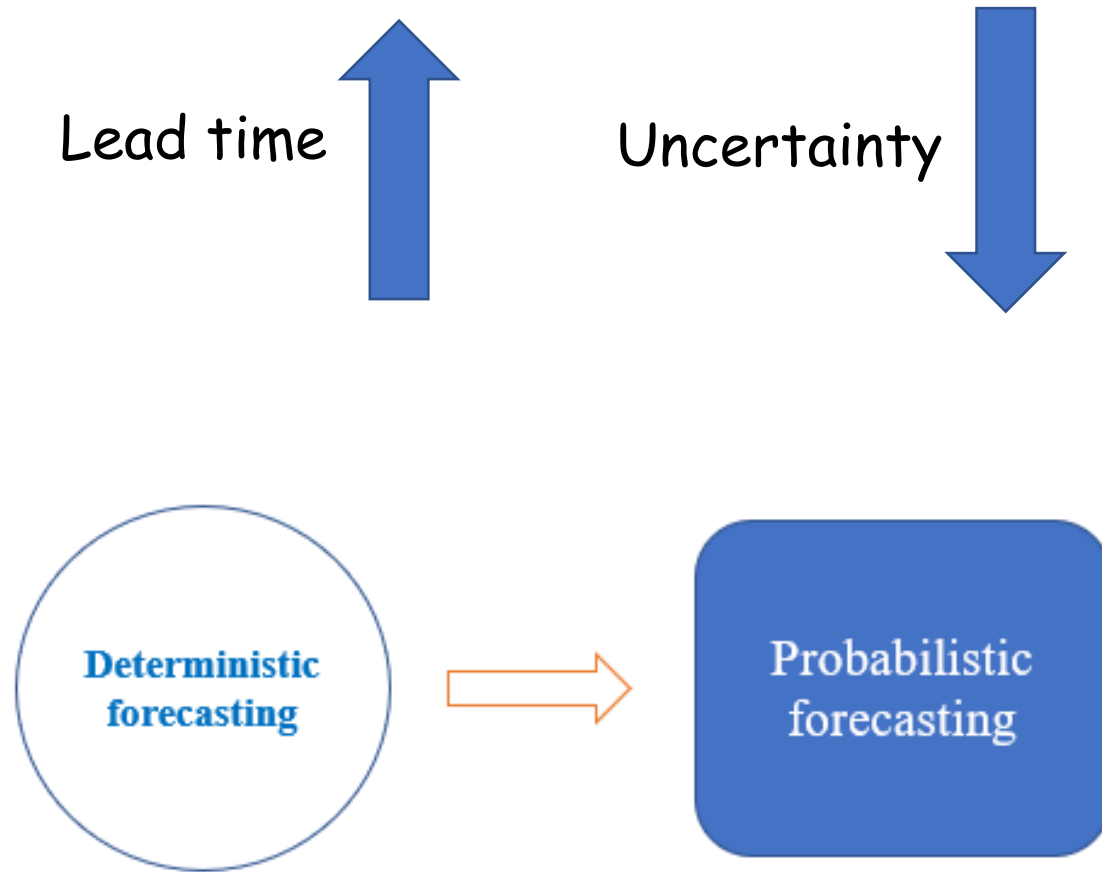
The India Meteorological Department had issued an alert for May 8 forecasting thunderstorm in parts of north India, including Delhi, but there was no extreme weather activity as predicted.



Delhi Weather History for 20 May 2018

		Conditions	
Time		Temp	Weather
02:30	Sun, 20 May	29 °C	Haze.
05:30		28 °C	Haze.
08:30		32 °C	Haze.
11:30		38 °C	Haze.
14:30		40 °C	Scattered clouds.
17:30		39 °C	Haze.
20:30		32 °C	Clear.
23:30		29 °C	Clear.

NEED OF ENSEMBLE FORECASTING TECHNIQUE IN INDIA



Schematic of ensemble
forecasting approach



Weather Prediction



Hydropower

Applications of
Ensemble streamflow
forecasting



Issue of flood alerts and warnings



Drought estimation



Reservoir operation

Remarks



- ✓ Reliable results by ensemble forecasting techniques
- ✓ Developed countries have adopted ensemble approach fully
- ✓ Accurate streamflow forecasting
- ✓ Indian agencies such as IITM and NCMRWF has started working using ensemble approach and country has wide scope to adopt the technique fully.

