Integrated Information System for Flood Control and Water Management

Proposal for an Inter-agency Initiative

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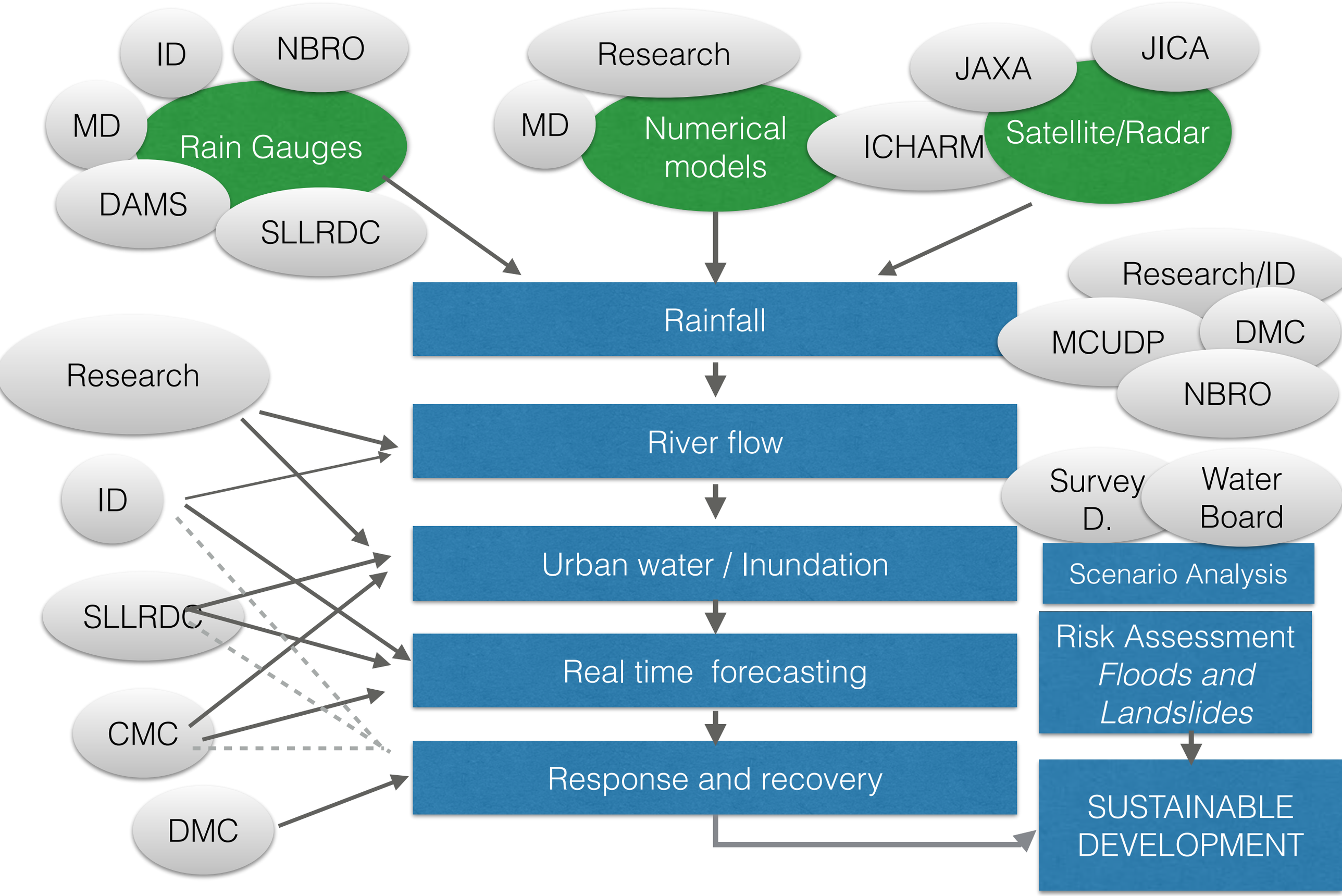
Visiting Professor: Peradeniya University

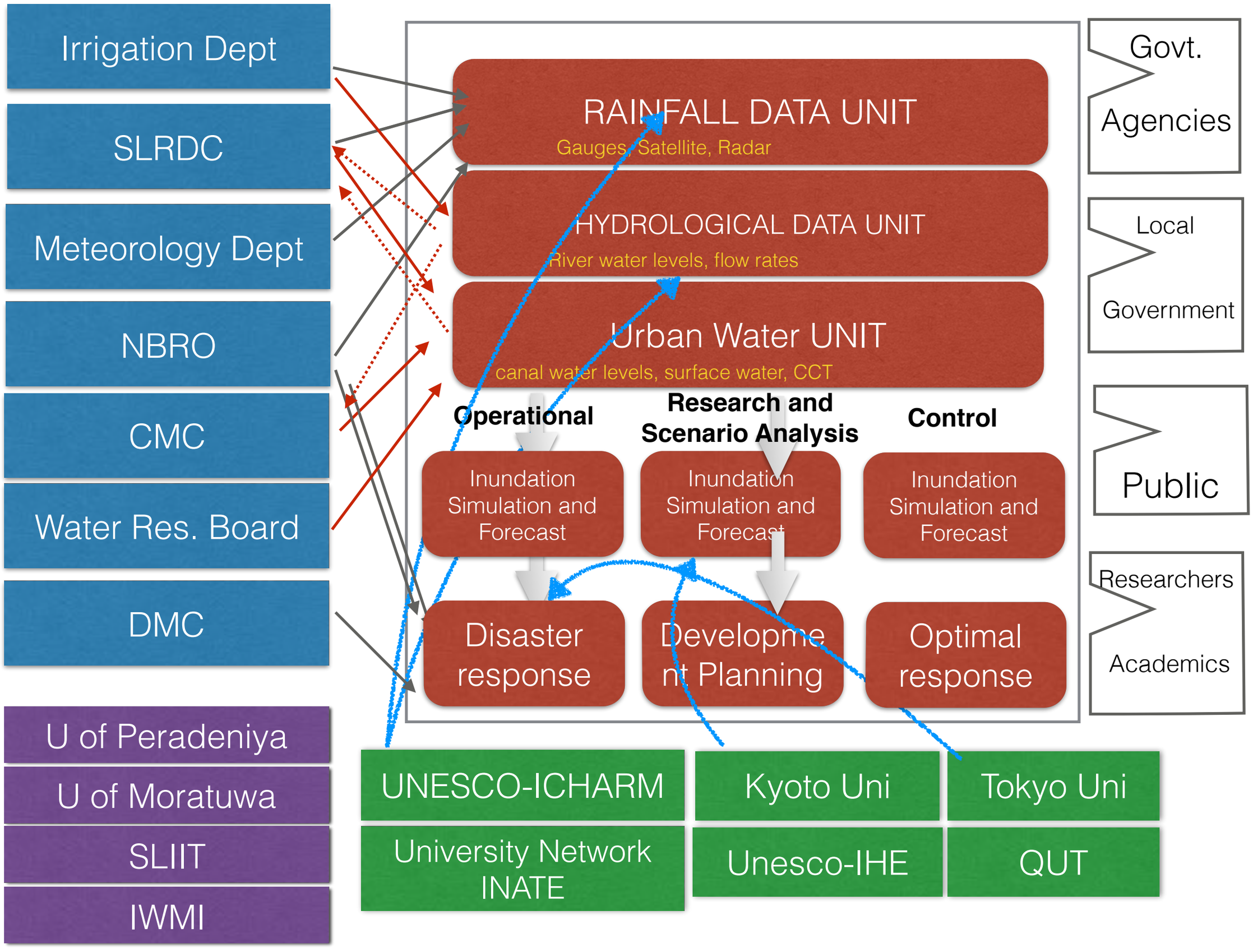
Major Stakeholders



Functions of the system

- Monitoring: Rainfall and river levels; street inundations
- Collection: Integration of data from different sources; Point data and Gridded data
- Simulation and forecasting
- Real time dissemination and RT Control
- Short and long term risk assessment
- Most of the above would need continuous Research and Development

System Implementation



Sample Output

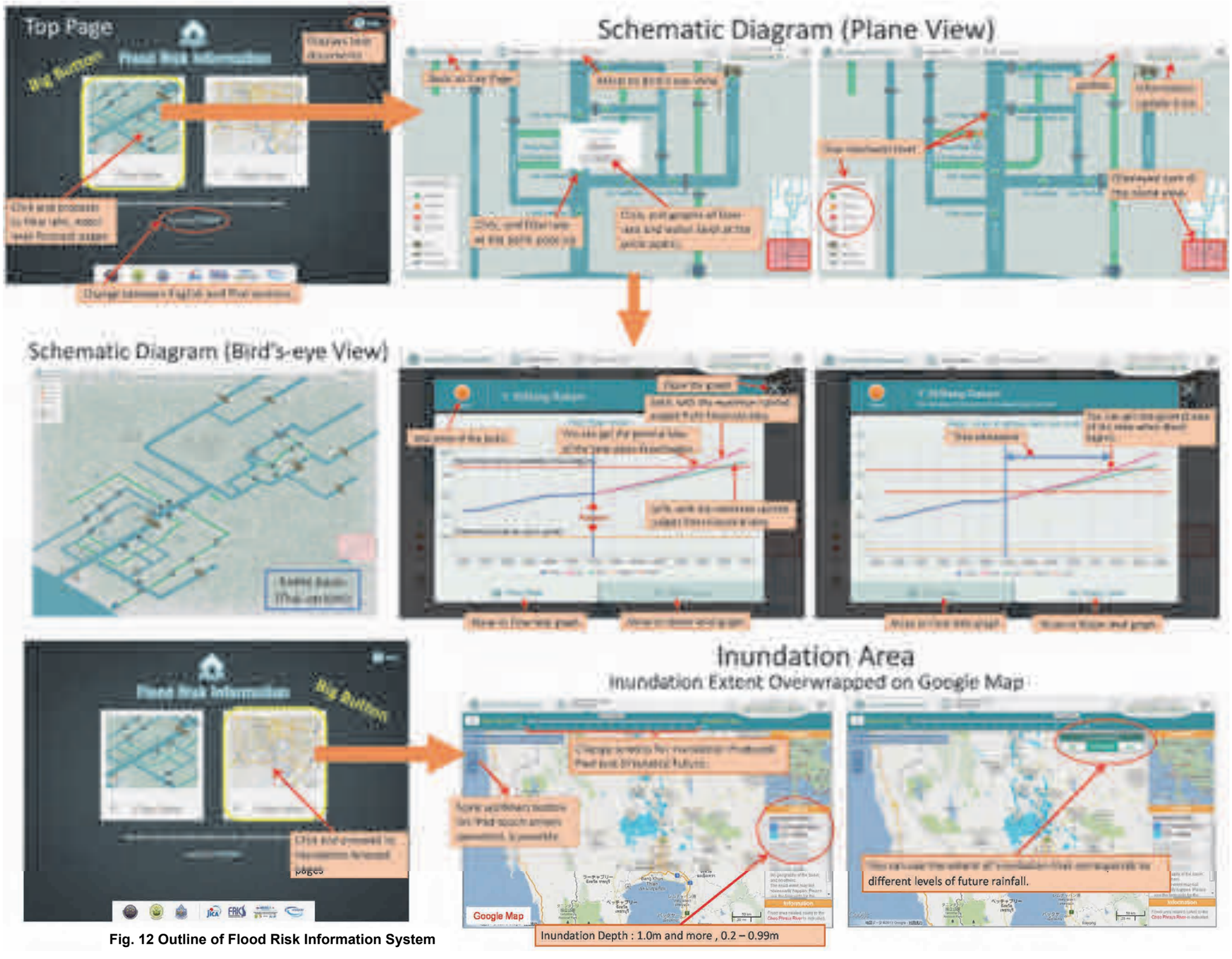


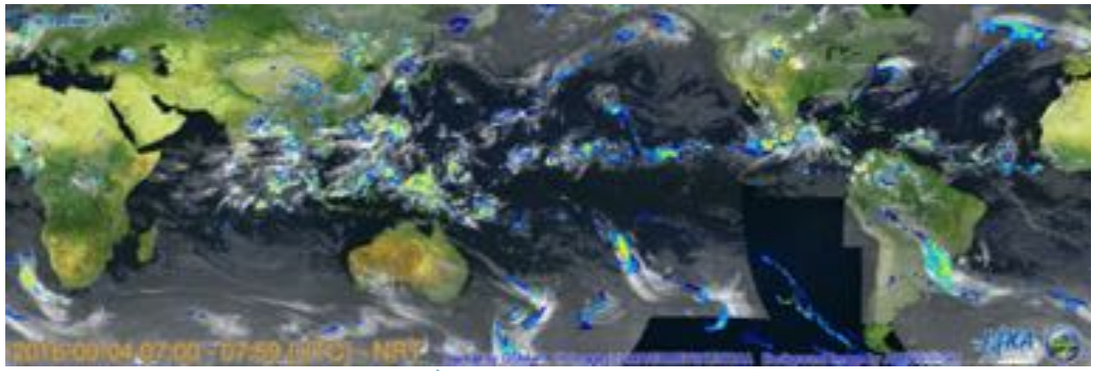
Fig. 12 Outline of Flood Risk Information System

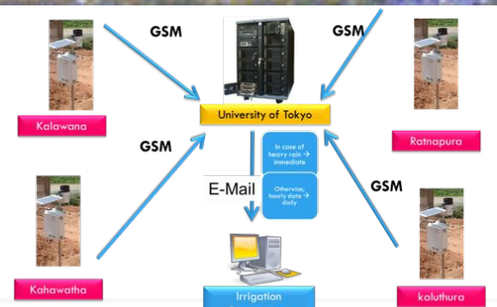
Rainfall

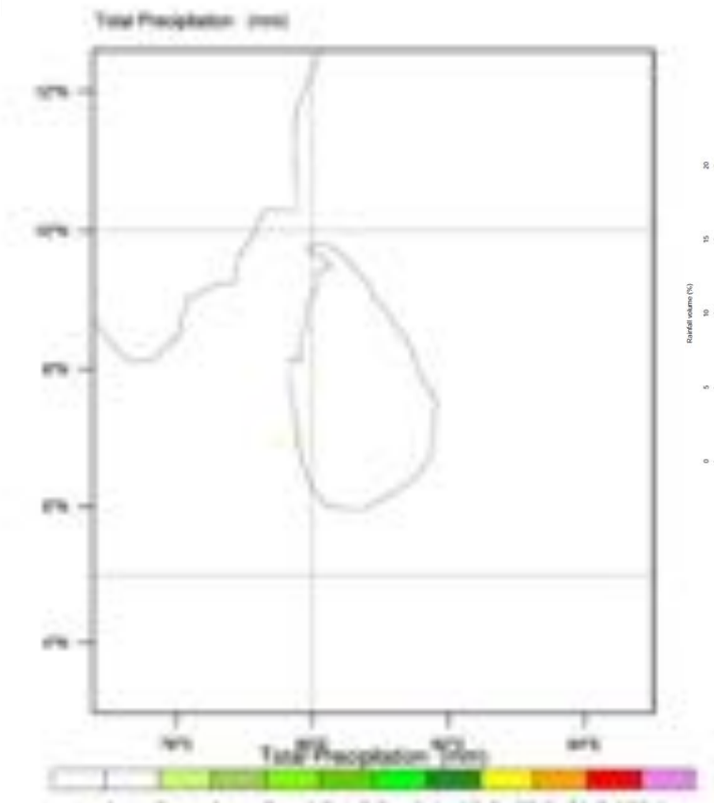
- Data Integration, High performance computing (cloud based servers and archiving): University of Moratuwa, LTL

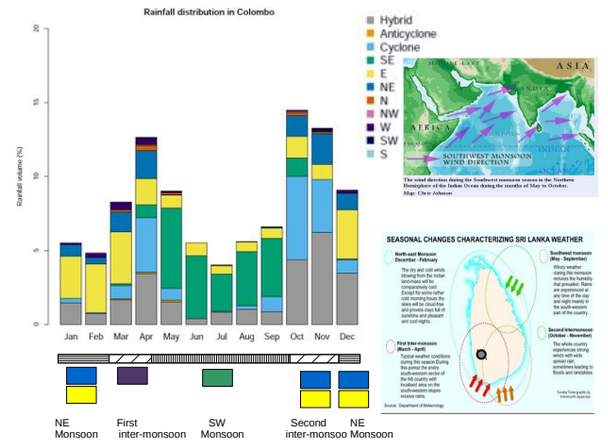
- Satellite Rainfall calibration: Irrigation Department, ICHARM, supported by Japan Aerospace Agency

- Real time weather forecast improvement by weather type based optimisation: Meteorology Dept, United Nations University,

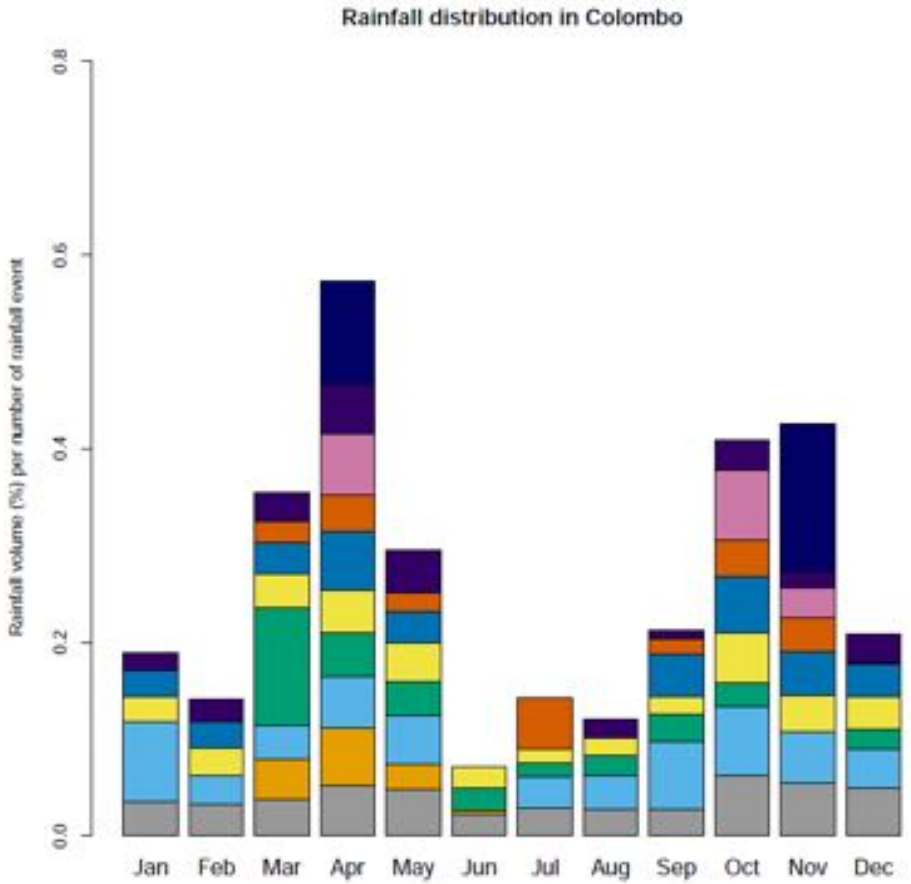


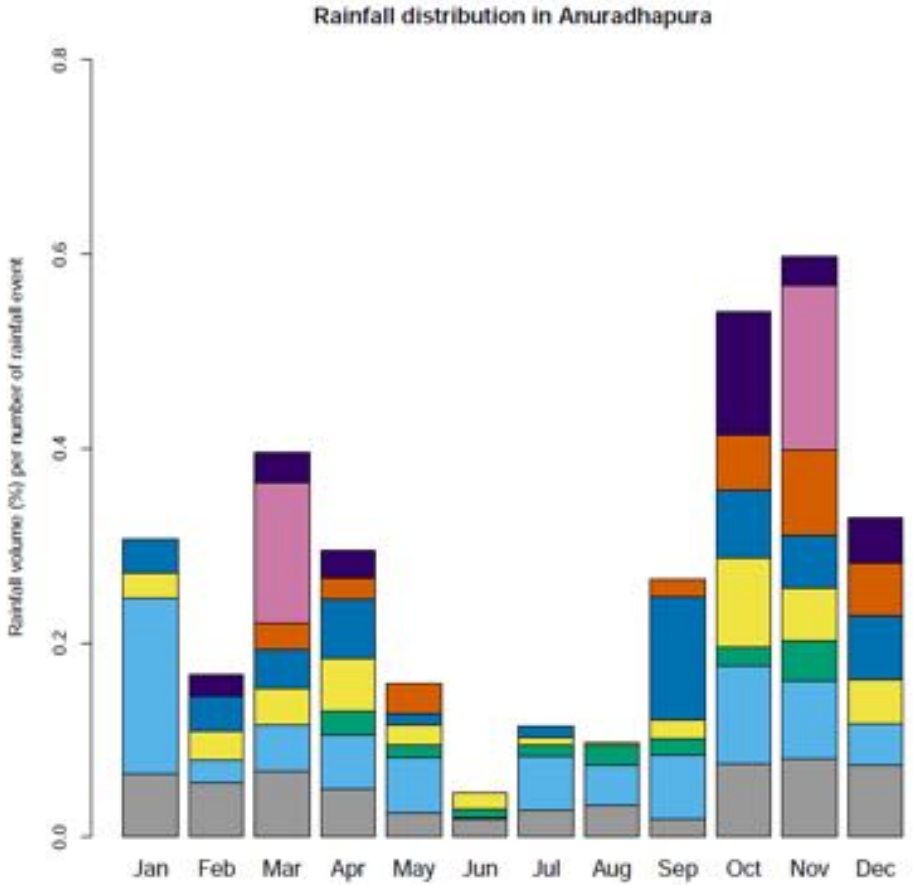


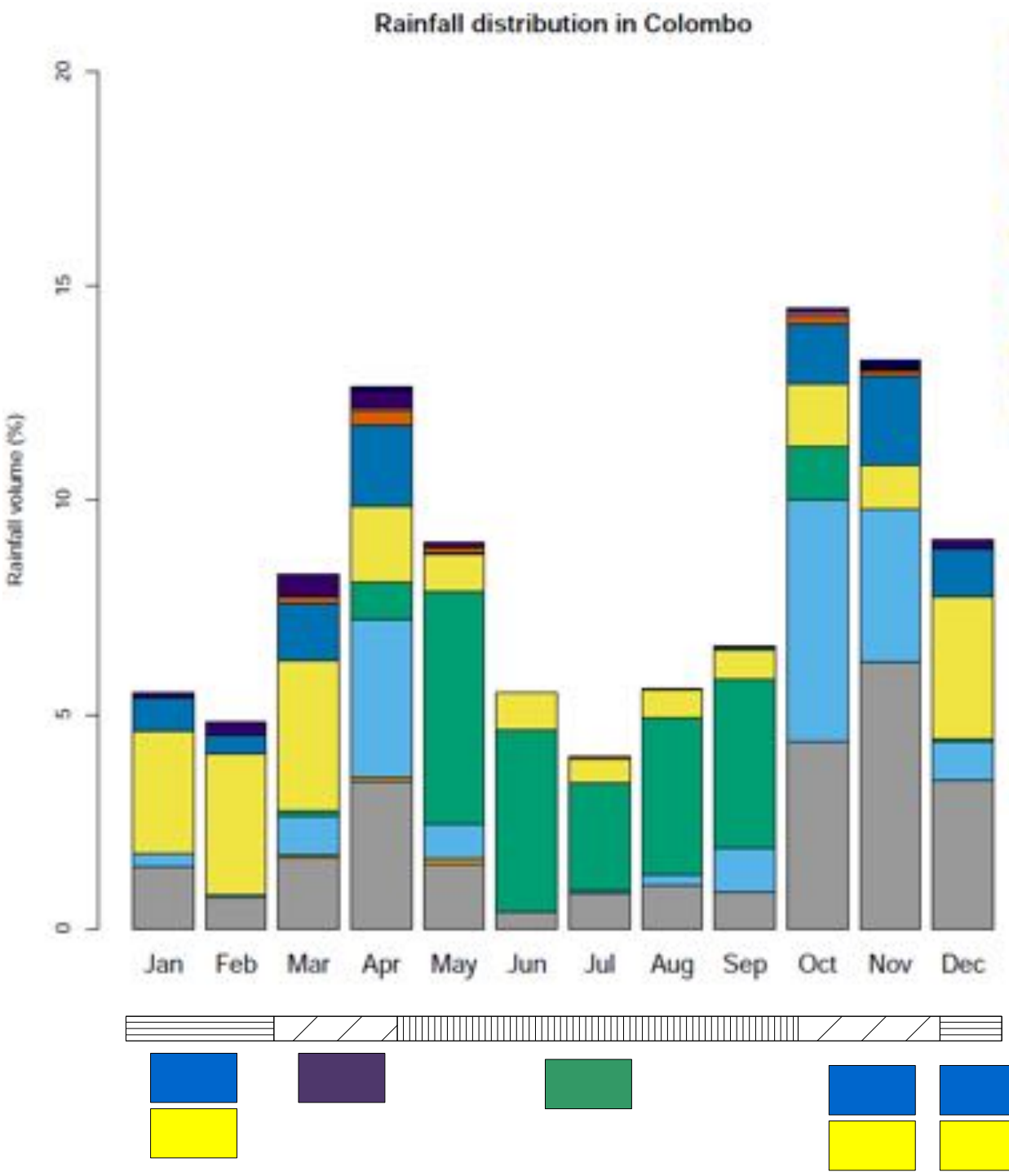


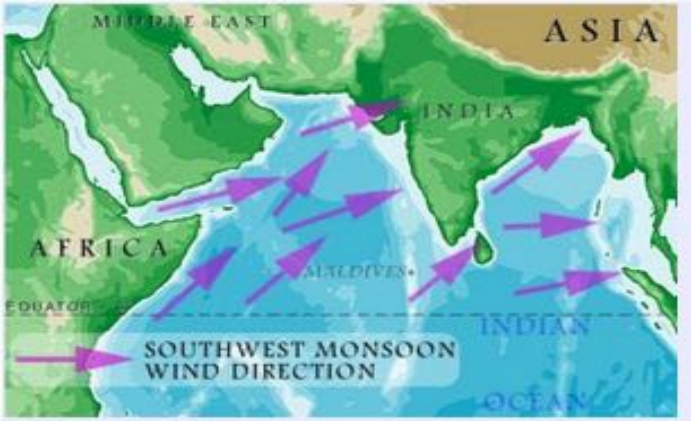


%volume per rainfall events



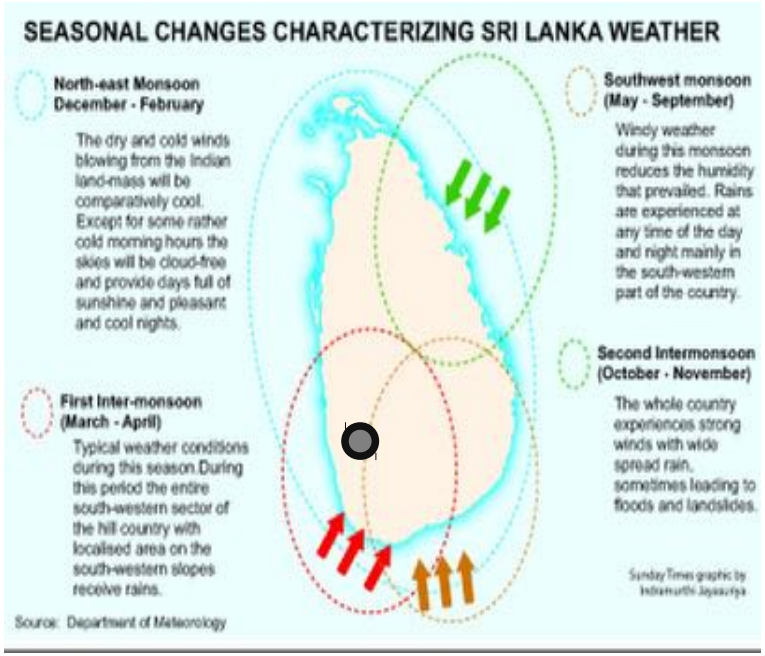






The wind direction during the Southwest monsoon season in the Northern Hemisphere of the Indian Ocean during the months of May to October.

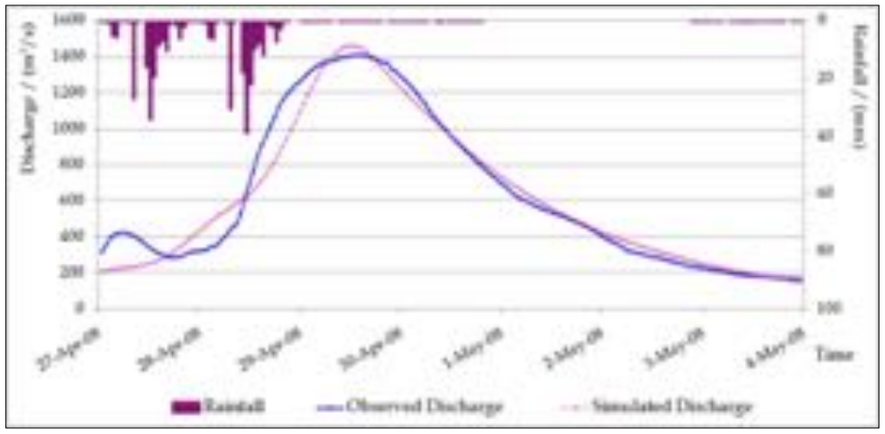
Map: Chris Johnson



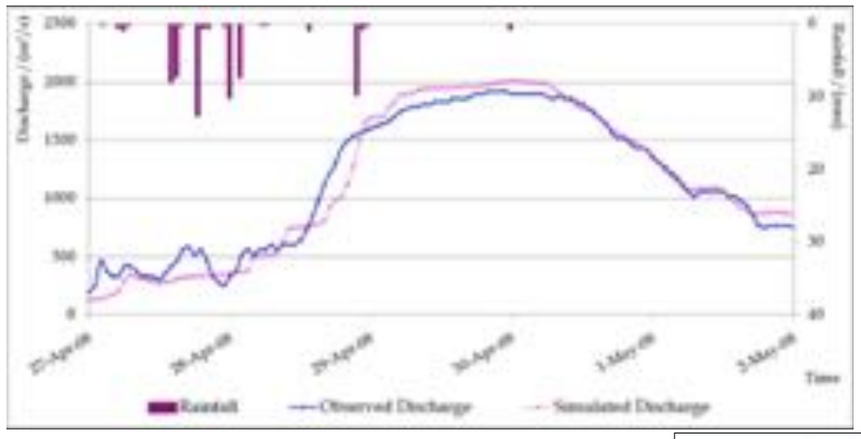
NE Monsoon | First inter-monsoon | SW Monsoon | Second inter-monsoo | NE Monsoon

River flow and Inundation

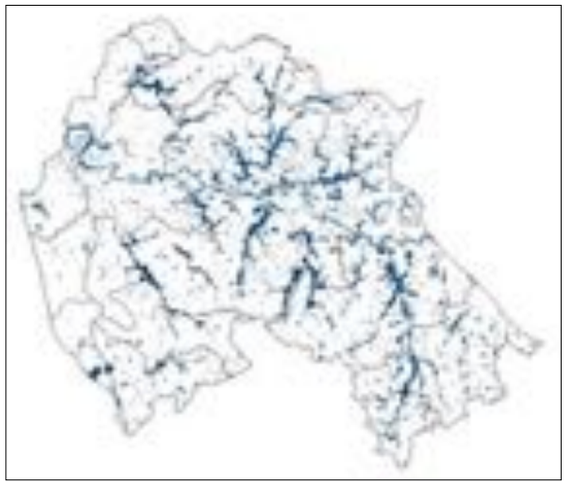
- Hydrology: HEC-HMS (UP, ID), SHER (NK, ID),
- Hydrodynamic:
  - MIKE -Denmark (SLLRDC, CMC, DHI)
  - FLOW-2D - US (UP, SLLRDC)
  - RRI-Japan (ID, IWMI, ICHARM)
  - RSM -South Florida(SLLRDC)



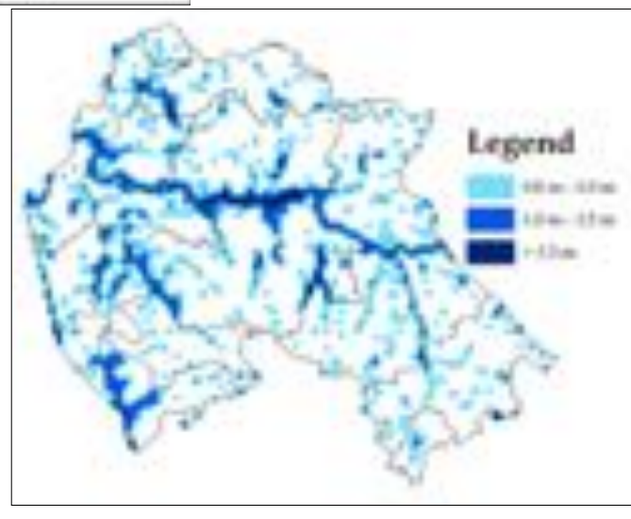
Hanwella, 2008, April-May



Nagalagam, 2008



Satellite



Model

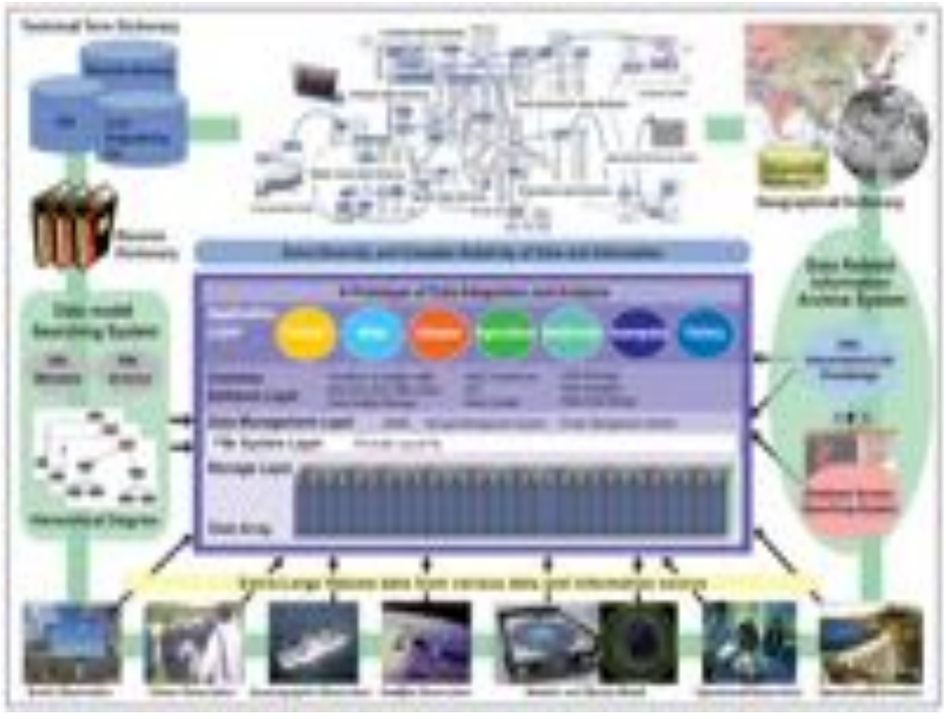
Data Management

- Data Base: Data Integration and Analysis System (Japan national system) Will be available through Int.Flood initiative demonstration project as reference system.

- Data Infrastructure and Archiving: SLIIT and UP

- GIS : Geoinformatics Center, Asian Institute of Technology, PGIS, University of Peradeniya, Directorate of IT and telecommunications, Airforce, DMC, IWMI)

DIAS
Data Integration & Analysis System



Risk Assessment

- Economic Risk Assessment: Damage to structures estimated by UNU and ID

- Expanding to total (structural, content and agricultural) losses being carried out under MCUDP (CECB, SLLRDC, ADPC)

- Expansion to population at risk with high resolution data. (UDA, Survey Dept, DMC, WB)