

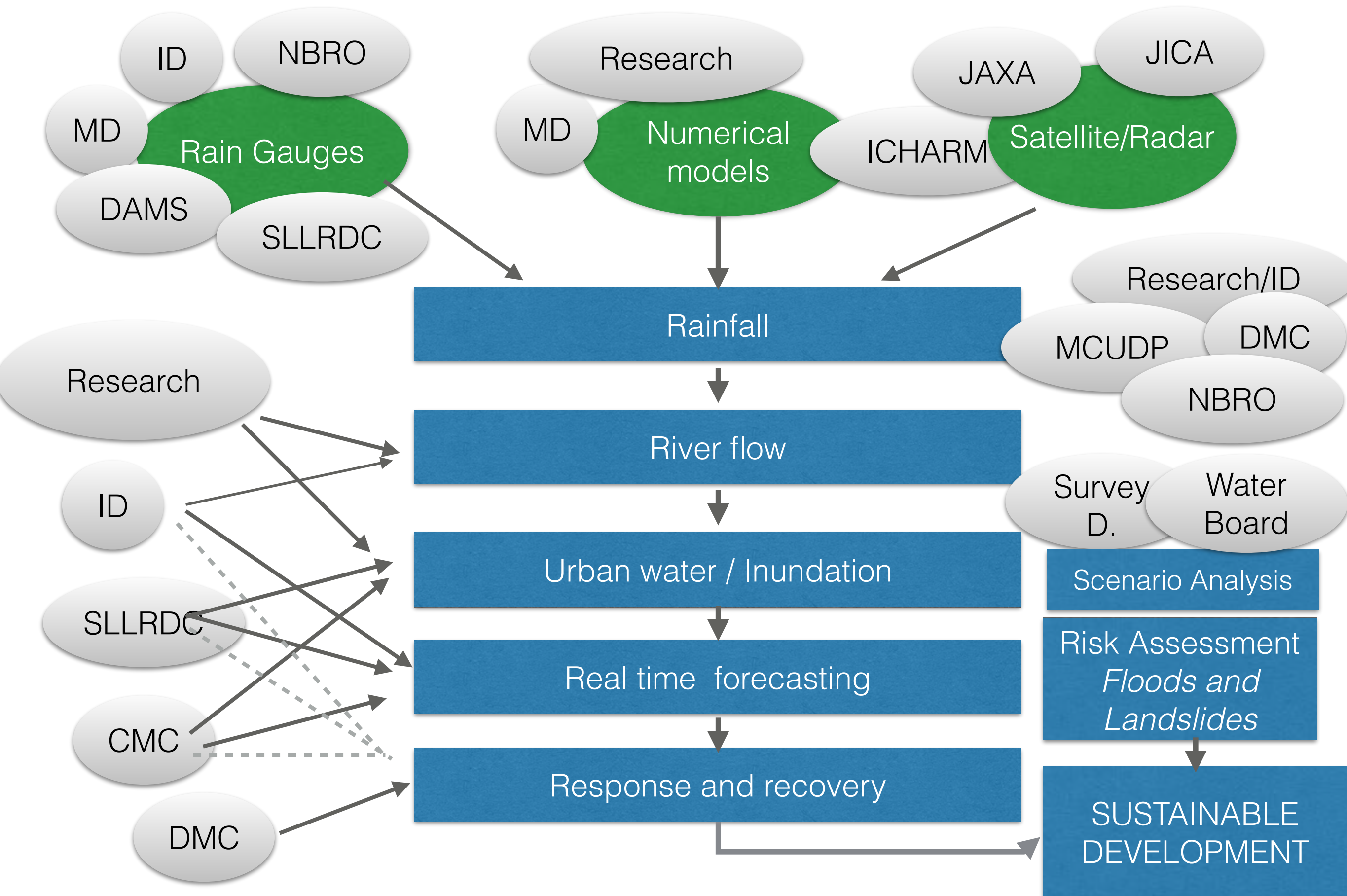
Integrated Information System for Flood Control and Water Management

Proposal for an Inter-agency Initiative

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Visiting Professor: The University of Tokyo, Japan
Visiting Professor: United Nations University, Japan
Visiting Professor: Peradeniya University

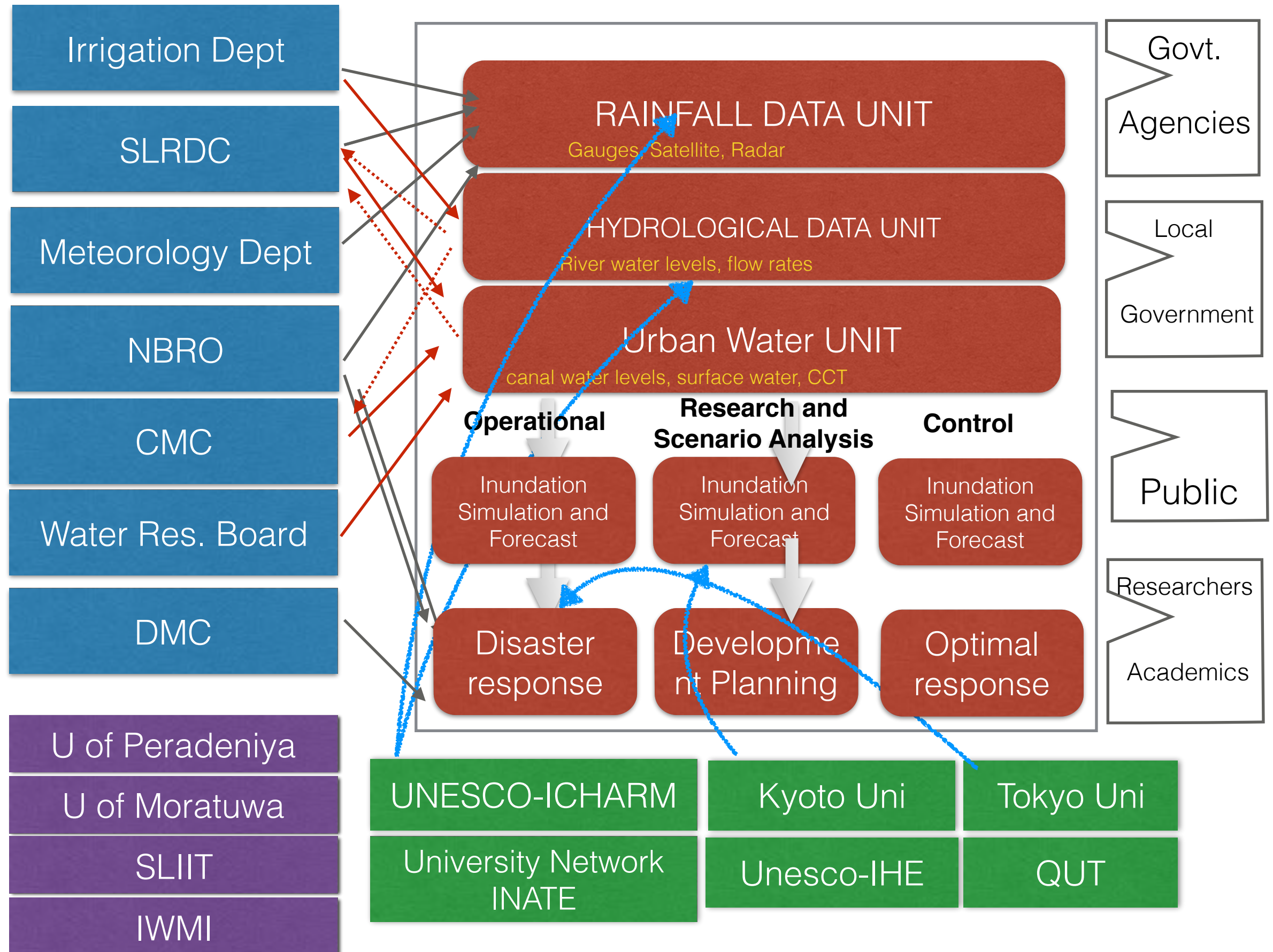
Major Stakeholders



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

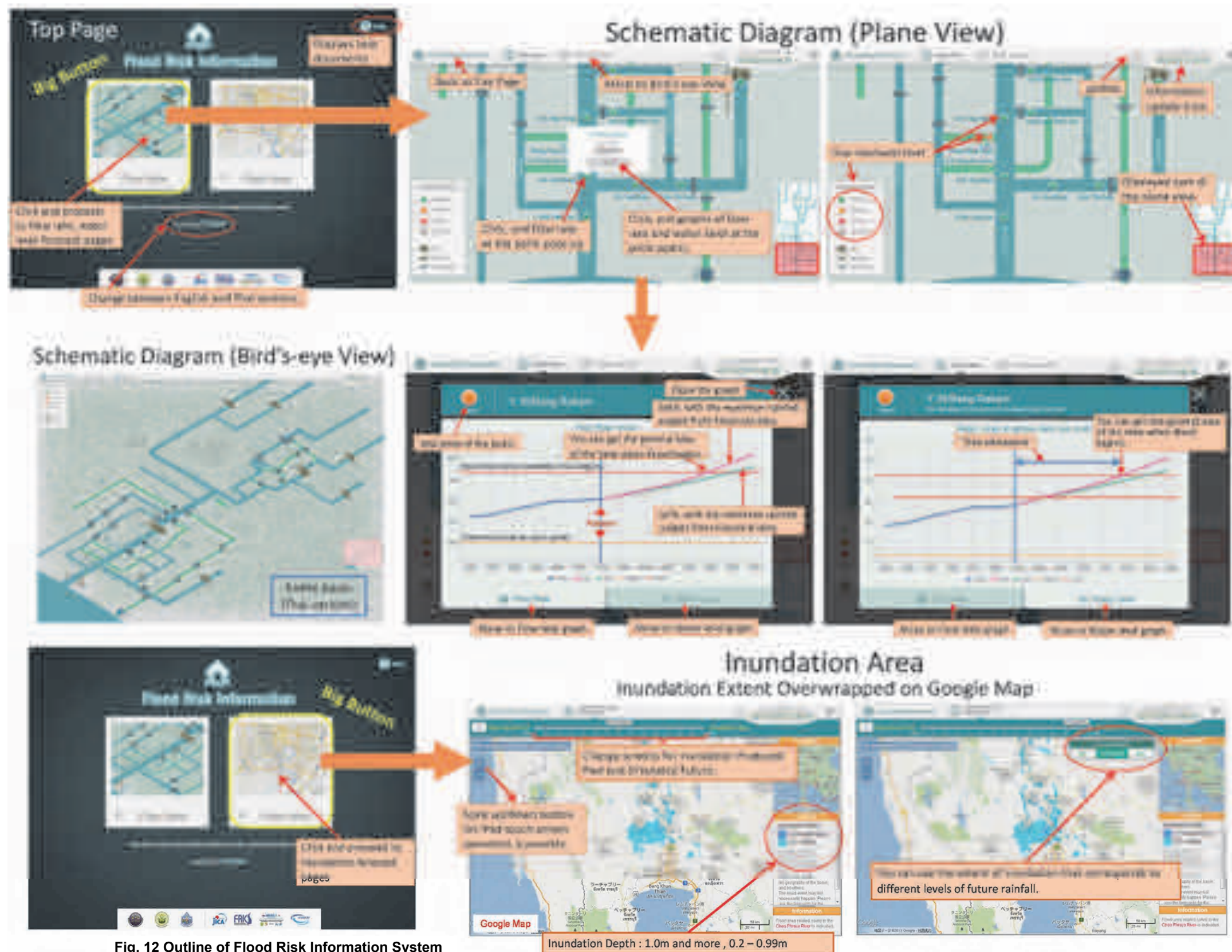
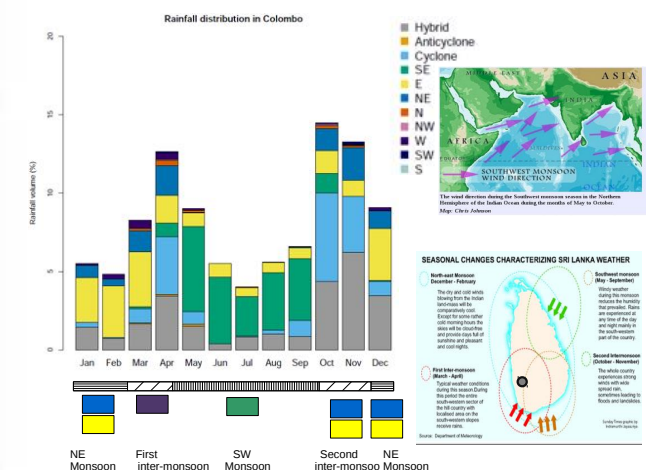
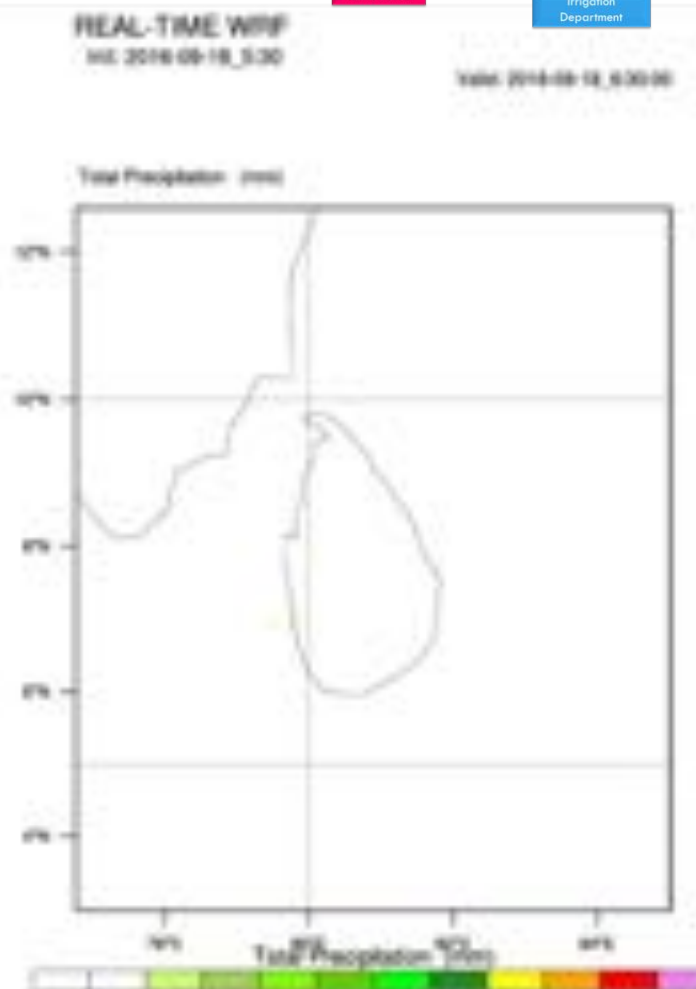
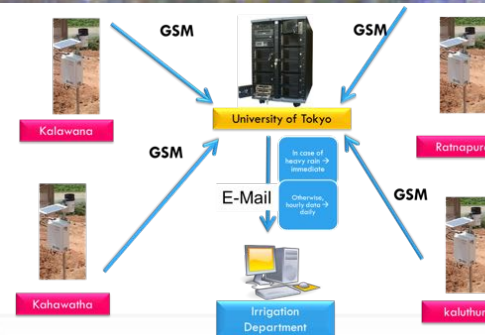
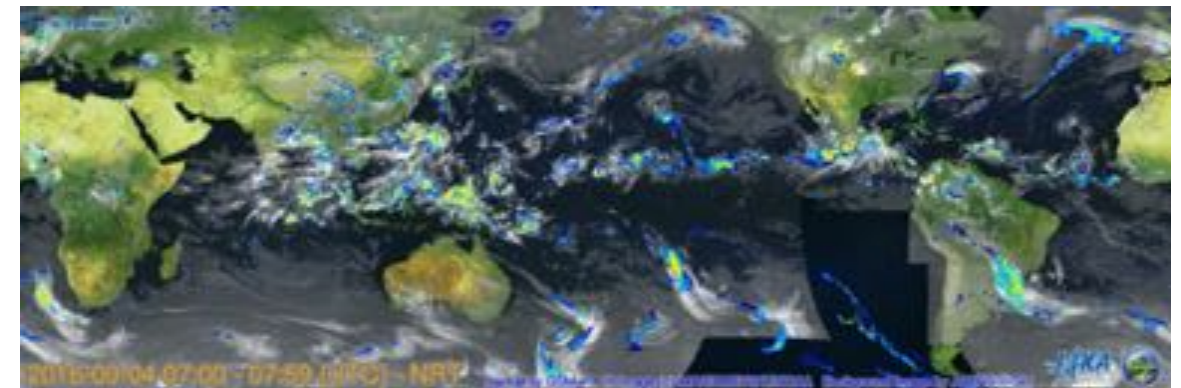


Fig. 12 Outline of Flood Risk Information System

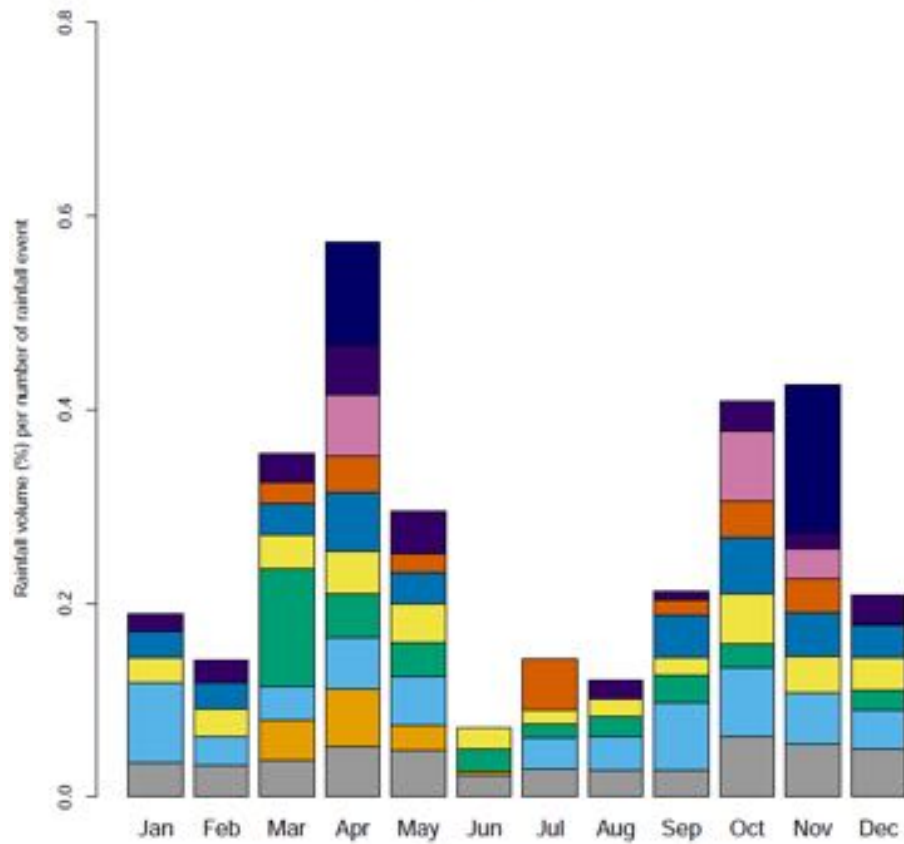
Rainfall

- 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,

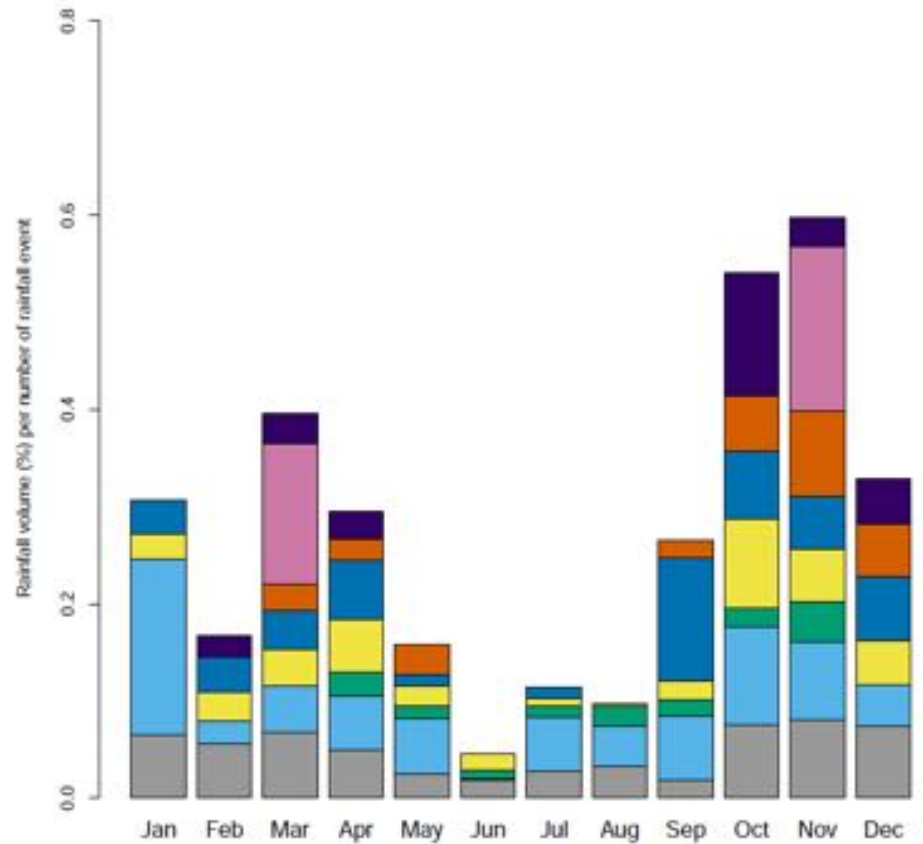


%volume per rainfall events

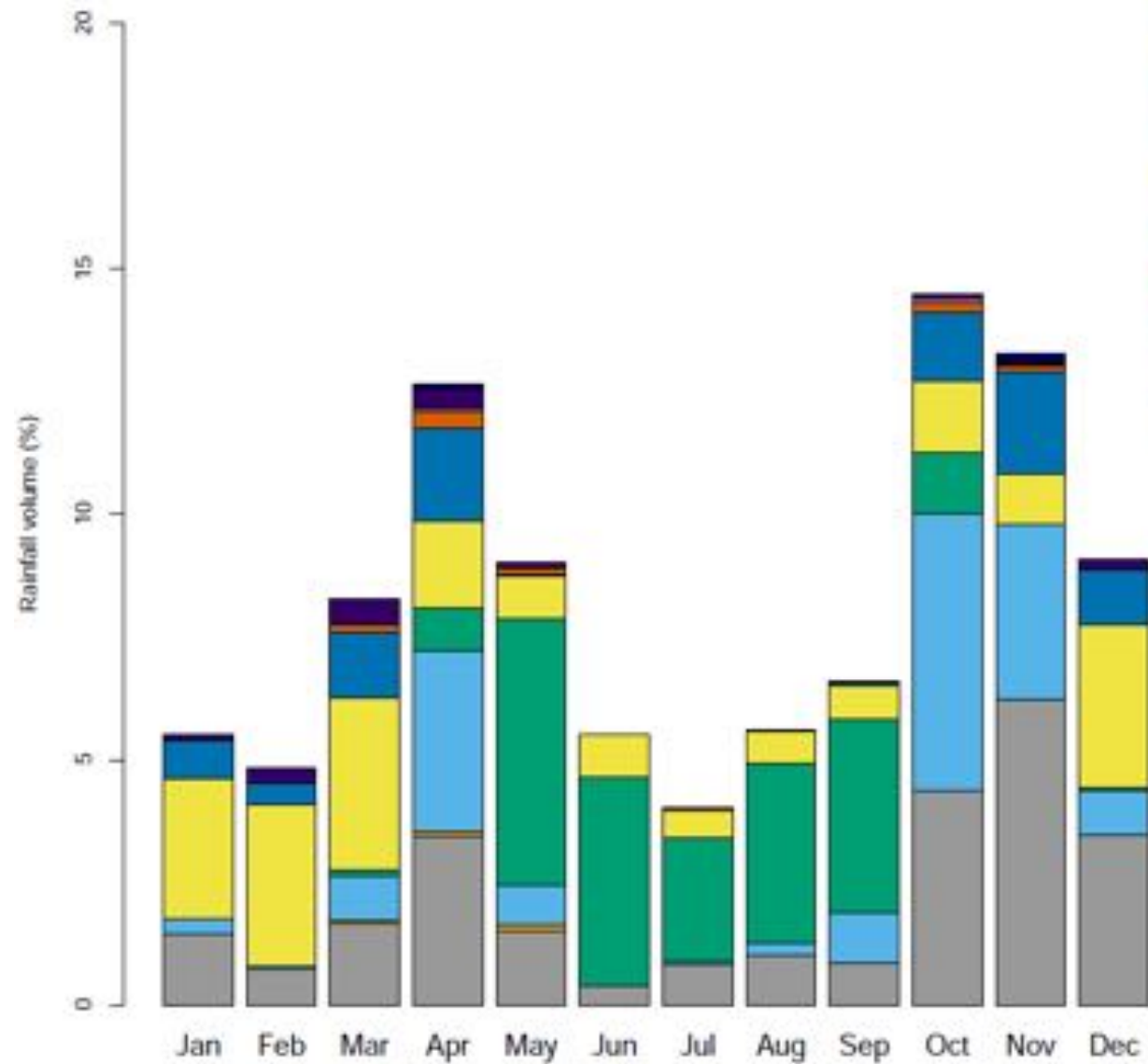
Rainfall distribution in Colombo



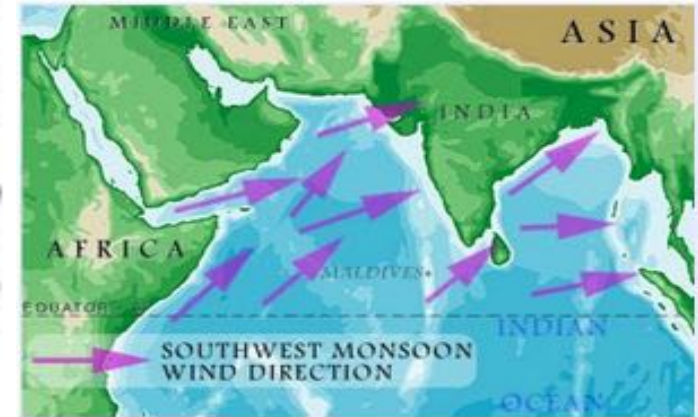
Rainfall distribution in Anuradhapura



Rainfall distribution in Colombo



- Hybrid
- Anticyclone
- Cyclone
- SE
- E
- NE
- N
- NW
- W
- SW
- S



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

SEASONAL CHANGES CHARACTERIZING SRI LANKA WEATHER

North-east Monsoon (December - February)

The dry and cold winds blowing from the Indian land-mass will be comparatively cool. Except for some rather cold morning hours the skies will be cloud-free and provide days full of sunshine and pleasant and cool nights.

Southwest monsoon (May - September)

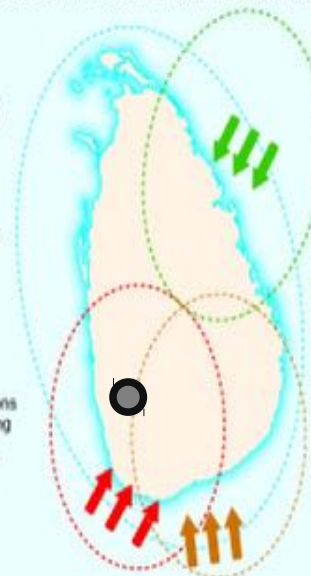
Windy weather during this monsoon reduces the humidity that prevailed. Rains are experienced at any time of the day and night mainly in the south-western part of the country.

First Inter-monsoon (March - April)

Typical weather conditions during this season. During this period the entire south-western sector of the hill country with localised area on the south-western slopes receive rains.

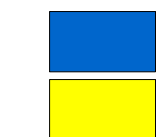
Second Intermonsoon (October - November)

The whole country experiences strong winds with wide spread rain, sometimes leading to floods and landslides.



Sunday Times graphic by Indramathi Jayasinghe

Source: Department of Meteorology



NE Monsoon



First inter-monsoon



SW Monsoon



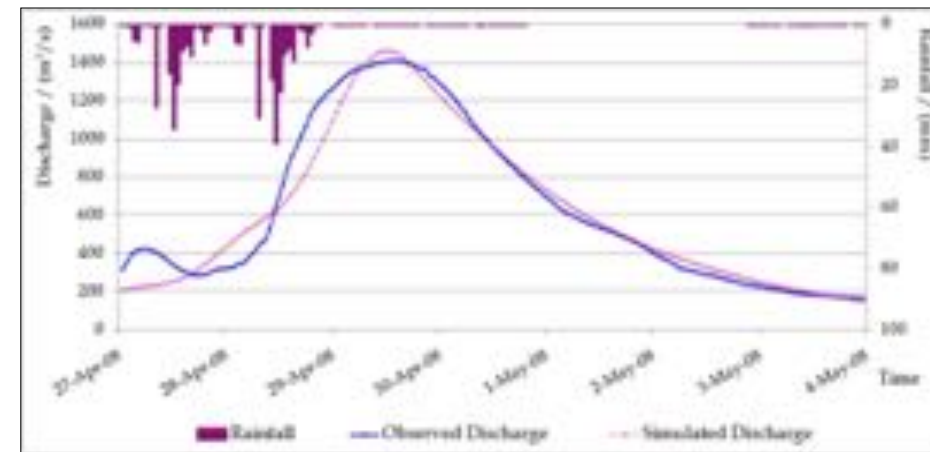
Second inter-monsoon



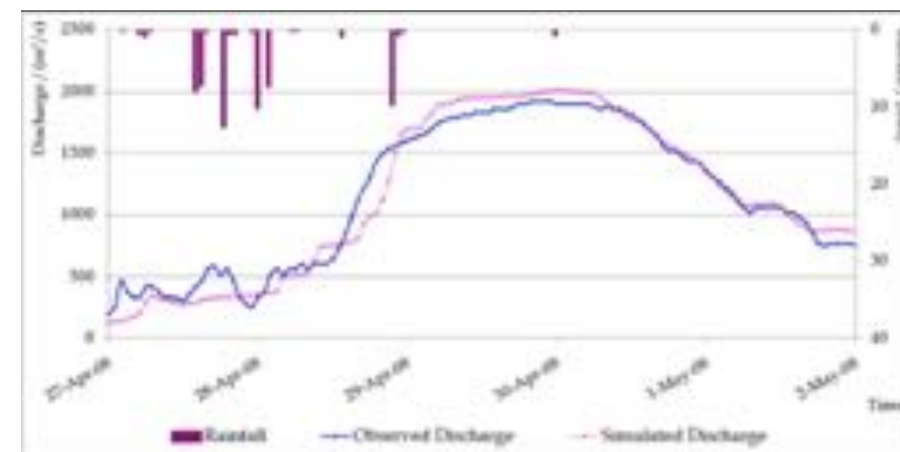
NE Monsoon

River flow and Inundation

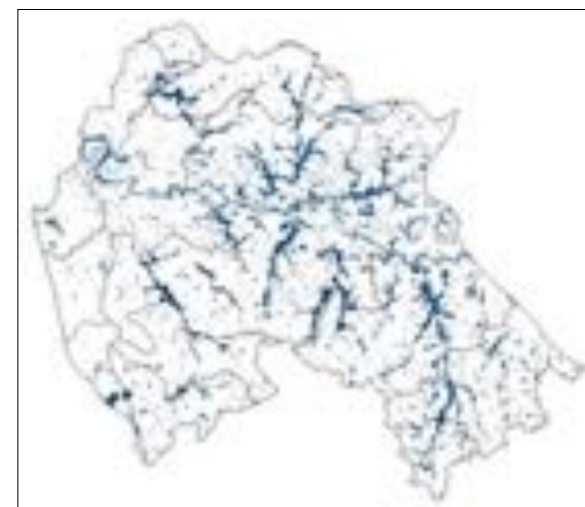
- Hydrology: HEC-HMS (UP, ID), SHER (NK, ID),
- Hydrodynamic:
 - MIKE -Denmark (SLLRDC, CMC, DHI)
 - FLOW-2D - US (UP, SLLRDC)
 - RRI-Japan (ID, IWMI, ICHARM)
 - RSM -South Florida(SLLRDC)



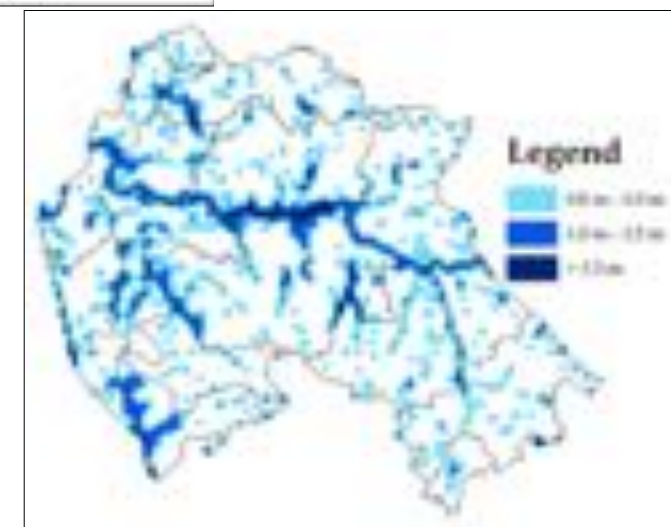
Hanwella,
2008, April-
May



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)



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)

