Joint WMO-IOC Technical Commission
for Oceanography and Marine Meteorology

The Expert Team on Waves and Coastal Hazard (ETWCH) forecasting systems

WMO

IOC/UNESCO

(#14) Coastal Inundation Forecast Demonstration Project

Val Swail, Boram Lee, Don Resio

Expected Outcomes

- Demonstrate cooperative work as a strategy for building improved sustainable operational forecast and warning capability for coastal inundation, combining extreme waves, surges and river flooding events

Key Activities

- Develop national sub-projects for countries with national agreement
- Review and update the CIFDP Implementation Plan (IP) and progres in national sub-projects, including technical recommendations, and identified national/regional requirements

Timeline/ milestones

- Project Steering Group meeting #4 (Feb'13)
- Phase 1 Review: CIFDP-B (Feb'13), CIFDP-DR (Dec'12),
- Initiate CIFDP-F phase 1 (Feb'13).
- Consider Indonesia (May'13),South Africa (May'13)

Who

- ETWCH, ESA, CHy

JCOMM-4 decision:

Overall actions derived under 8.2 (CIFDP implementation)
8.2.8 (liaison with related teams/activities)
8.2.9 (Exploring synergies with GODAE)

World Meteorological Organization
Working together in weather, climate and water

Coastal Inundation Forecasting Demonstration Project (CIFDP)

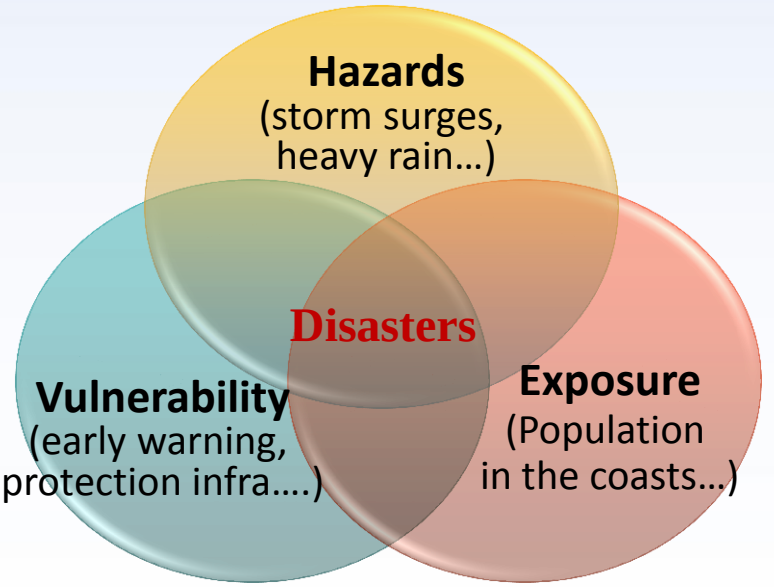
Val Swail[1], Don Resio[1] and Boram Lee[2]

[1]Co-Chairs, CIFDP Project Steering Group

[2]WMO Marine Meteorological and Oceanography Programme (MMOP)

Exposure to coastal inundation is large and growing

- Population is attracted to coasts by an abundance of local resources
  - Growing coastal population
  - Urbanising coastal zone
  - Tourism, recreation, retirement…
- In many parts of the world, the population is directly exposed to the coastal hazards and this will increase with Climate Change and Sea Level Rise.

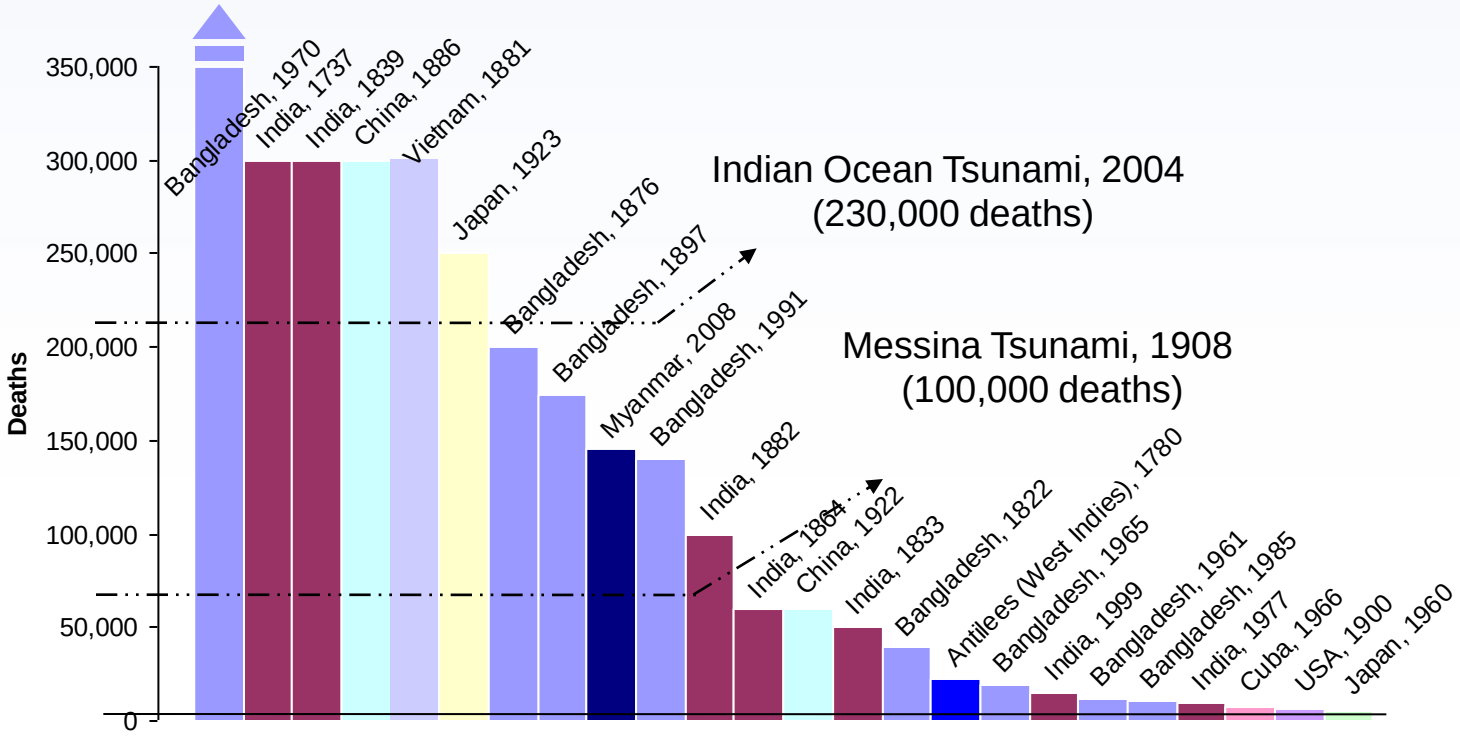


Disasters are more likely when Hazards and exposed population overlap with Vulnerability.

- A reactive approach to adaptation increase the vulnerability.

Casualties by Cyclones and Storm Surges

- Deaths in tropical cyclones in each year, for highest ranks in the history (with indication of relative level of casualties by major tsunami events). Most of fatalities in tropical storms are due to storm surges. All casualty figures are estimates and vary widely according to sources (Dube, 2007).



Demonstration Project: CIFDP

http://www.jcomm.info/CIFDP

To meet challenges of coastal communities' safety and to support sustainable development through enhancing coastal inundation forecasting and warning systems at the regional scale.

: building ***improved operational forecasts and warnings capability for coastal inundation****, that can be* ***sustained by the responsible national agencies***

- Identify and support end-user needs;
- Encourage full engagement of the stakeholders and partners in the CIFDP from early stages, for the successful development and implementation of this project;
- Transfer technology to the adopting countries;
- Facilitate the development and implementation of warning services;
- Support coastal risk assessment, vulnerability and risk mapping;
- Assist improved and informed decision-making for coastal inundation management

CIFDP: Benefit for Implementing Countries

http://www.jcomm.info/CIFDP

- Upon completion of national sub-projects of CIFDP:
  countries will implement an **operational system for integrated coastal inundation forecasting and warning**, providing objective basis for coastal disaster (flooding) management; contributing to saving lives, reducing loss of livelihood and property, and enhancing resilience and sustainability in coastal communities.
- Upon completion of each Phase of the Project:
  countries will be provided with valuable **input to the assessment and awareness of the issues of coastal inundation management** within its governments. It would also assist the countries to advance steps toward the integrated forecasting and warning services.

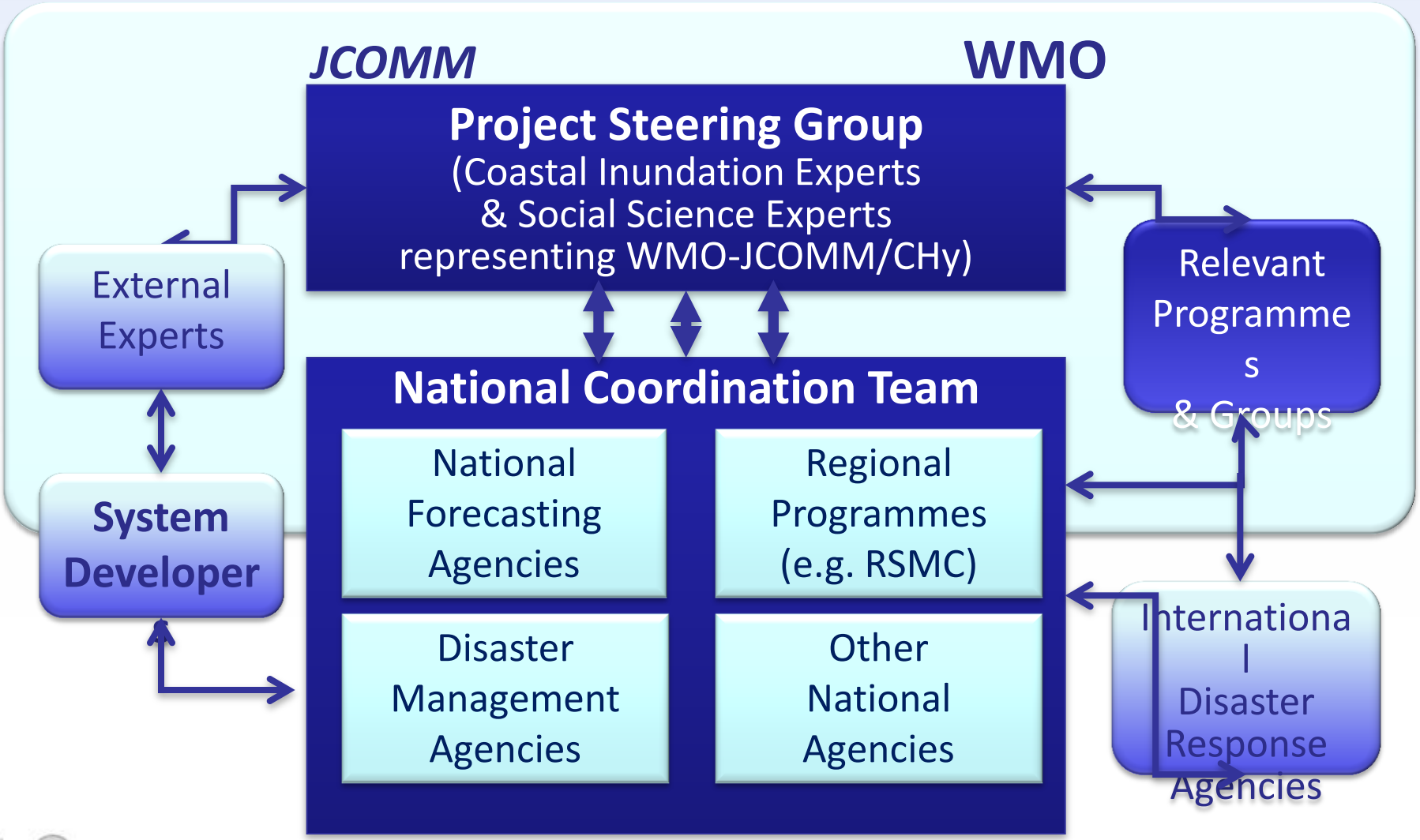
Strategy for CIFDP implementation

http://www.jcomm.info/CIFDP

- CIFDP is implemented through **national sub-projects**, launched for a country that meets the essential requirement: national agreement
- CIFDP sub-projects are designed based on **users' perspectives and requirements**, considering existing and available open source techniques. Final products of the Demonstration Project should be operated and maintained by national operational agencies which have the responsibility/authority for coastal inundation warnings;
- The procedures/best practices developed through sub-projects should be applicable to other (neighbouring) countries with common issues and interests, and should be closely linked to and cooperating with related projects and activities.

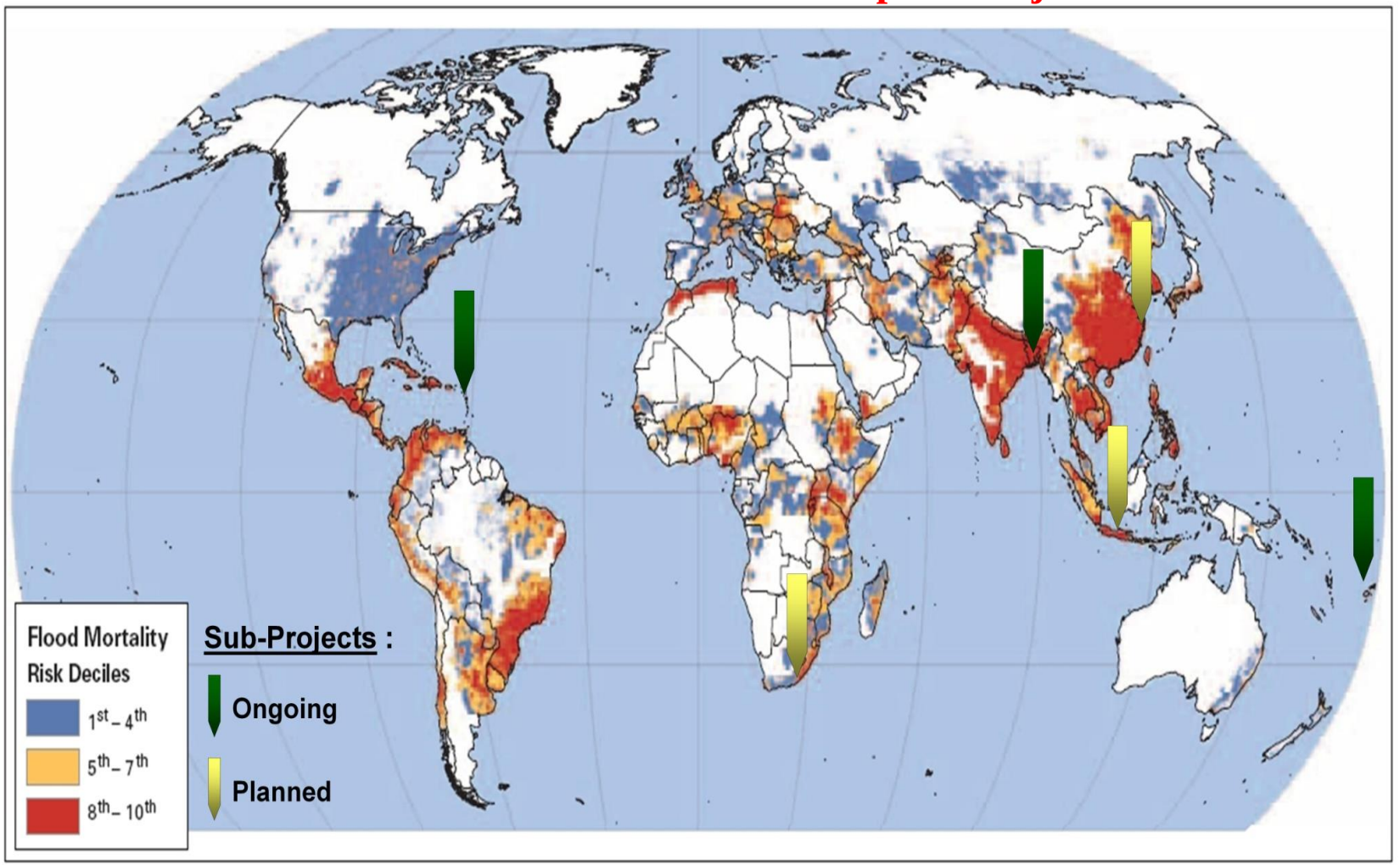
CIFDP Implementation: Key Players

http://www.jcomm.info/CIFDP



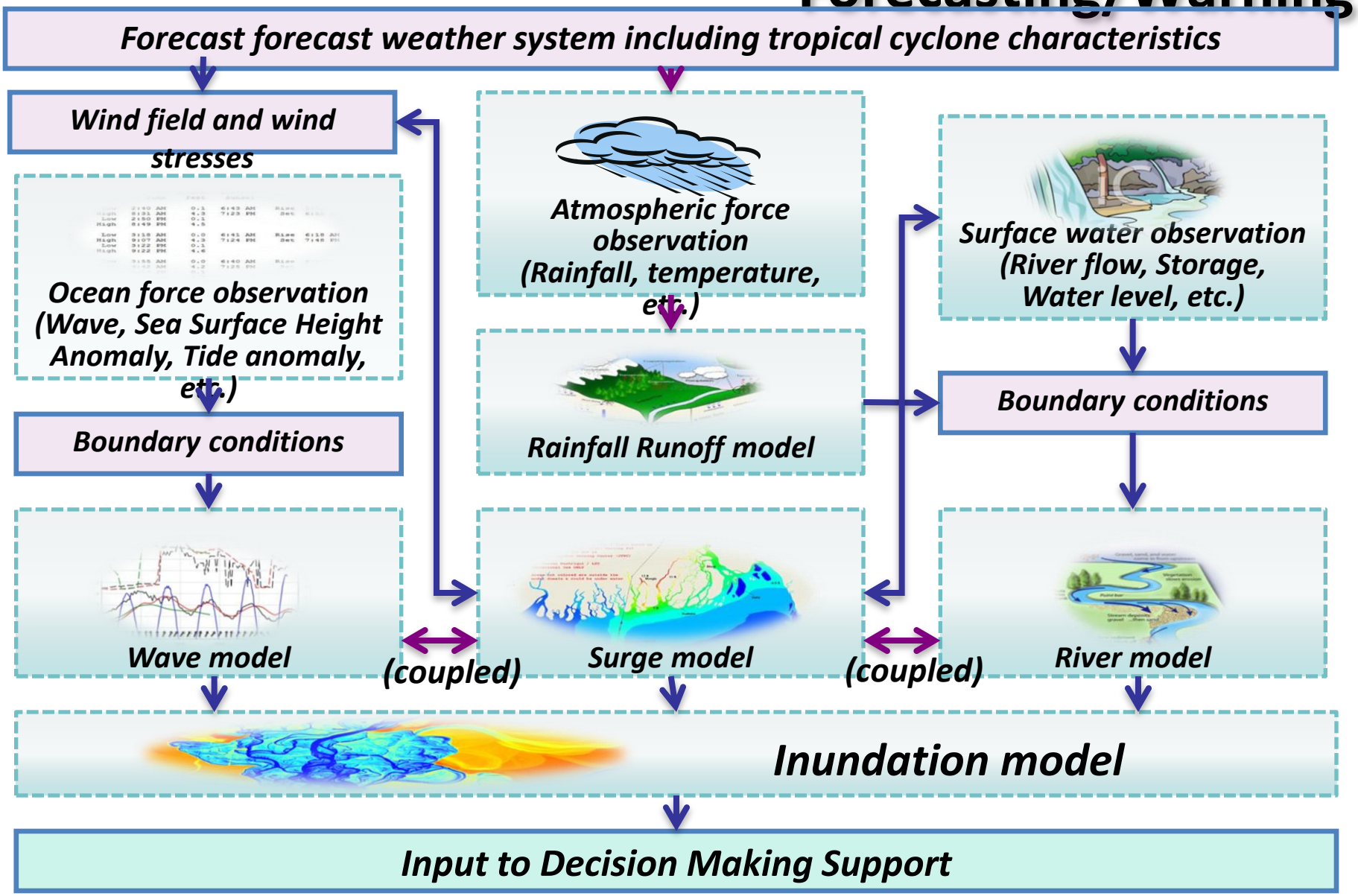
CIFDP Implementation

http://www.jcomm.info/CIFDP



Natural Disaster Hotspots: A Global Risk Analysis. World Bank, 2005

CIFDP: Technical Development for Coastal Inundation Forecasting/Warning



CIFDP: Project Implementation

http://www.jcomm.info/CIFDP

The project will be implemented in a phased approach that leaves scope for adjustment in the next phases to fit the prevailing requirements:

Phase 0 : Project **preparation**

Phase 1 : Information gathering – Project Adaptation

Phase 2 : System Development / **Implementation**

Phase 3 : Pre-operational testing

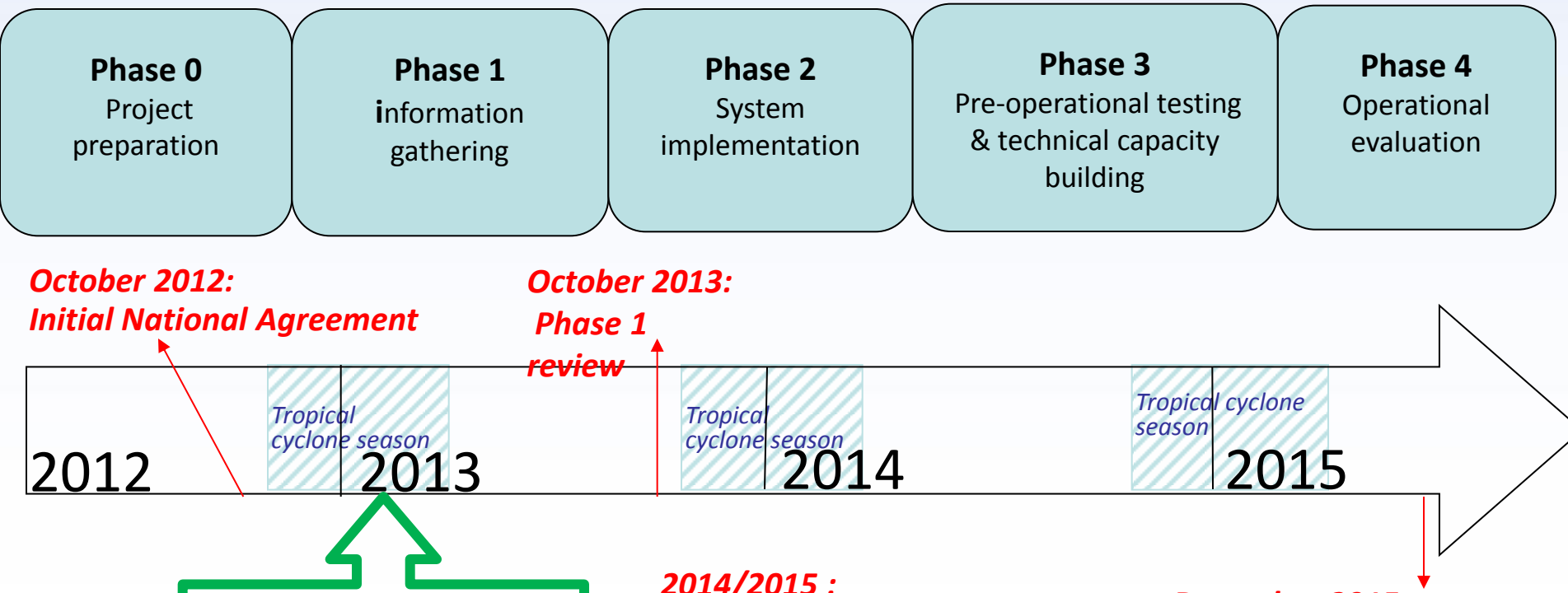
Phase 4 : Live Running and **Evaluation**

Organization of the Users & Technical Workshop

http://www.jcomm.info/CIFDP-FSW

- Key partner institutions :
  - **Fiji Meteorological Service**
  - National Stakeholders (Disaster Management, etc.)
  - RSMCs, SPC/SOPAC, SPREP, PI-GOOS
- Outcome includes:
  - Information gathering / assessment / gap analysis
  - **Definitive National Agreement (DNA)**
  - Working arrangement: National Coordination Team (N

Fiji sub-project: Provisional Timeline



CIFDP: Project Steering Group (PSG)

http://www.jcomm.info/CIFDP

- Val Swail, Co-chair – Metocean modeling & forecasting expert
- Don Resio, Co-chair – Metocean modeling & forecasting expert
- Kevin Horsburgh – Chair ETWCH
- Linda Anderson-Berry - Social science expert
- Jamie Rhome - Metocean modeling & forecasting expert
- Paula Etala - Metocean modeling & forecasting expert
- Monika Donner – Hydrological modeling & forecasting expert
- Deepak Vatvani - Hydrological modeling & forecasting expert
- Dr. S.H. Fakhruddin - Hydrological Modelling and Forecasting Expert

The PSG will work closely with the WMO Working Group on Societal and Economic Research Applications (SERA) to address social and economic aspects.

The Project Steering Group (PSG) is supported by WMO/JCOMM Secretariat.


The End
Courtesy of Don Resio