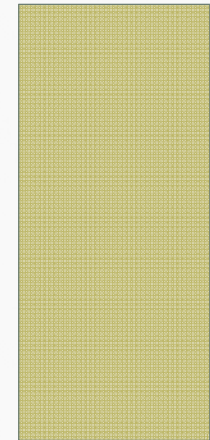
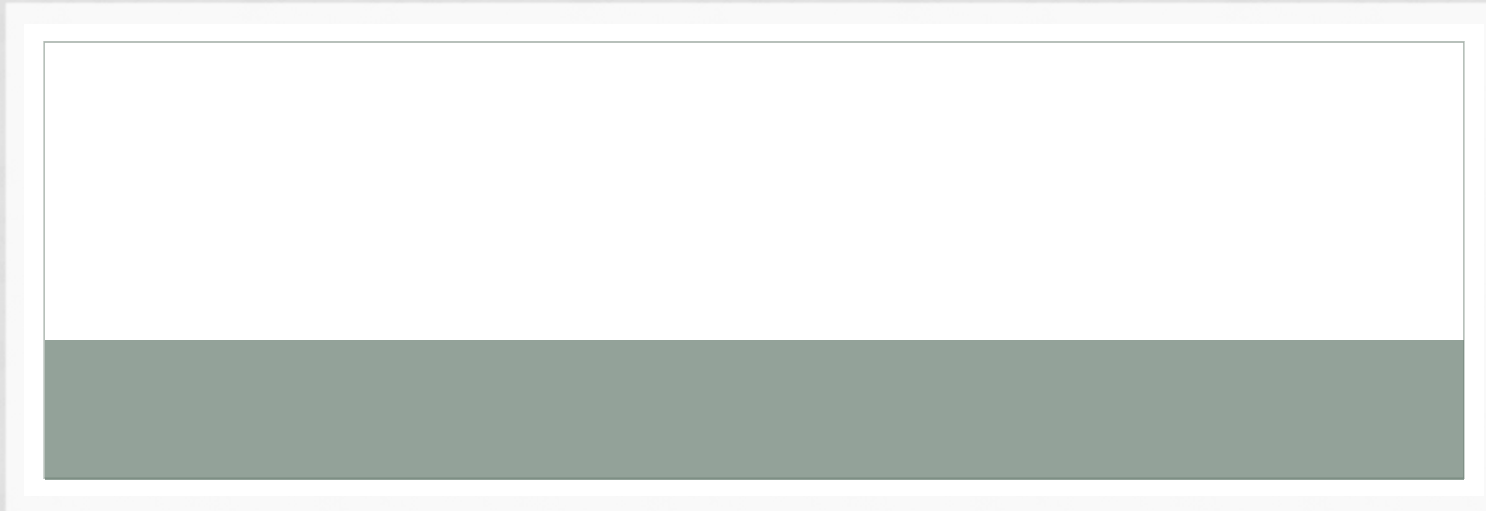


INTEGRATED WATER RESOURCE MANAGEMENTS IWRM

SAFE WORKSHOP & EARTH OBSERVATION WORKING
GROUP

10-12 DEC 2012

SO IM MONICOTH



BACKGROUND

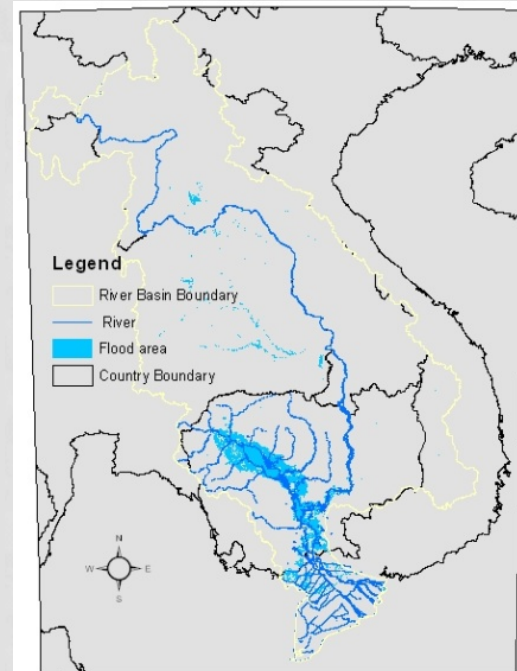
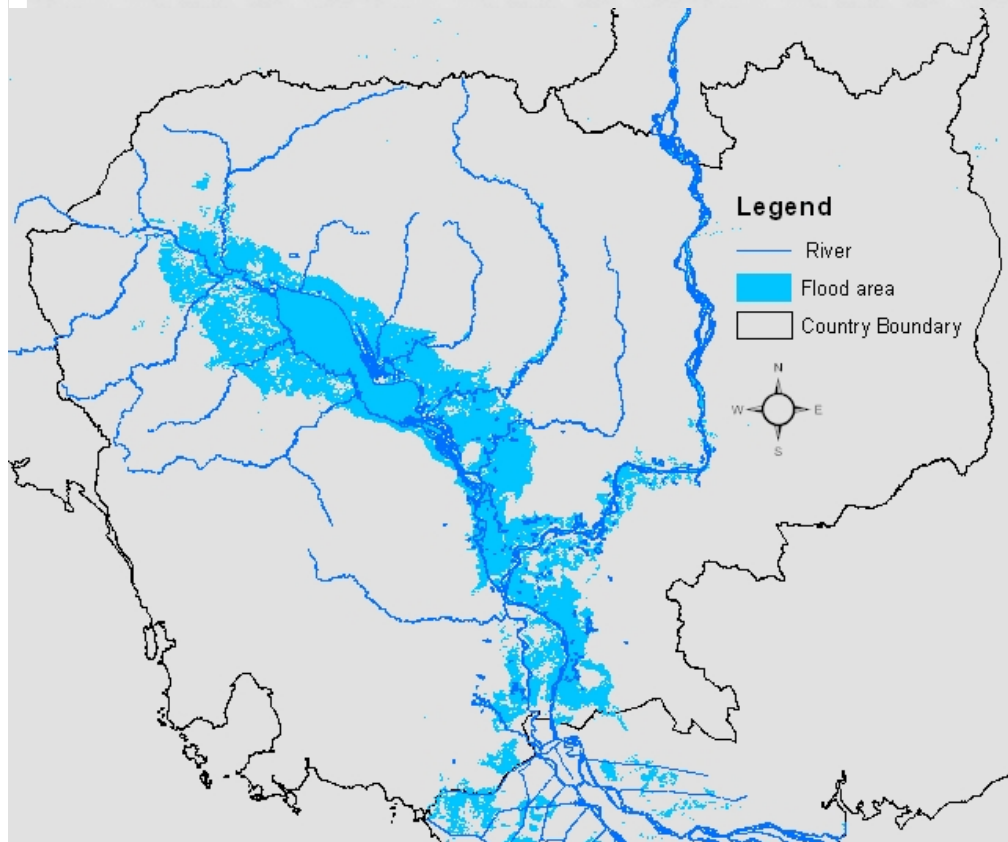
Cambodia is a country which has abundant water resources such as rivers, lakes, undergrounds and seas etc, which are sources for national economic development such as agriculture, industry enterprises, hydropower, navigation, culture and tourism to support eco-system and daily living. Cambodia Mekong River extent include Tonle Sap Lake and Tonle Sap River as well as affluent of rivers which play an important role in maintaining and supporting eco-system and providing basic resources for developing national economy.

- Surface water has approximately 75,000 million cubic meter excluding watershed in coastal zone and underground 18,000 million cubic meters.
 - This quantity of water is a hundred times more than the current water used in the country.
- The average annual rainfall from 1,400mm to 3,500mm.
- Each year Mekong River Discharge around 475,000 million cubic Meters through Cambodia to the South China Sea.

Flooded areas (or flood plains) along the Mekong and TLS rivers extend from Stung Treng upstream hydrology station to the Great Lake outlet via Phnom Penh and occupy some 28% to 33% of the total area of the country (181,035 km²) depending on annual flood magnitude. These flood plains effectively become the temporary or permanent inundation of Cambodia according to their duration and depth of flooding.

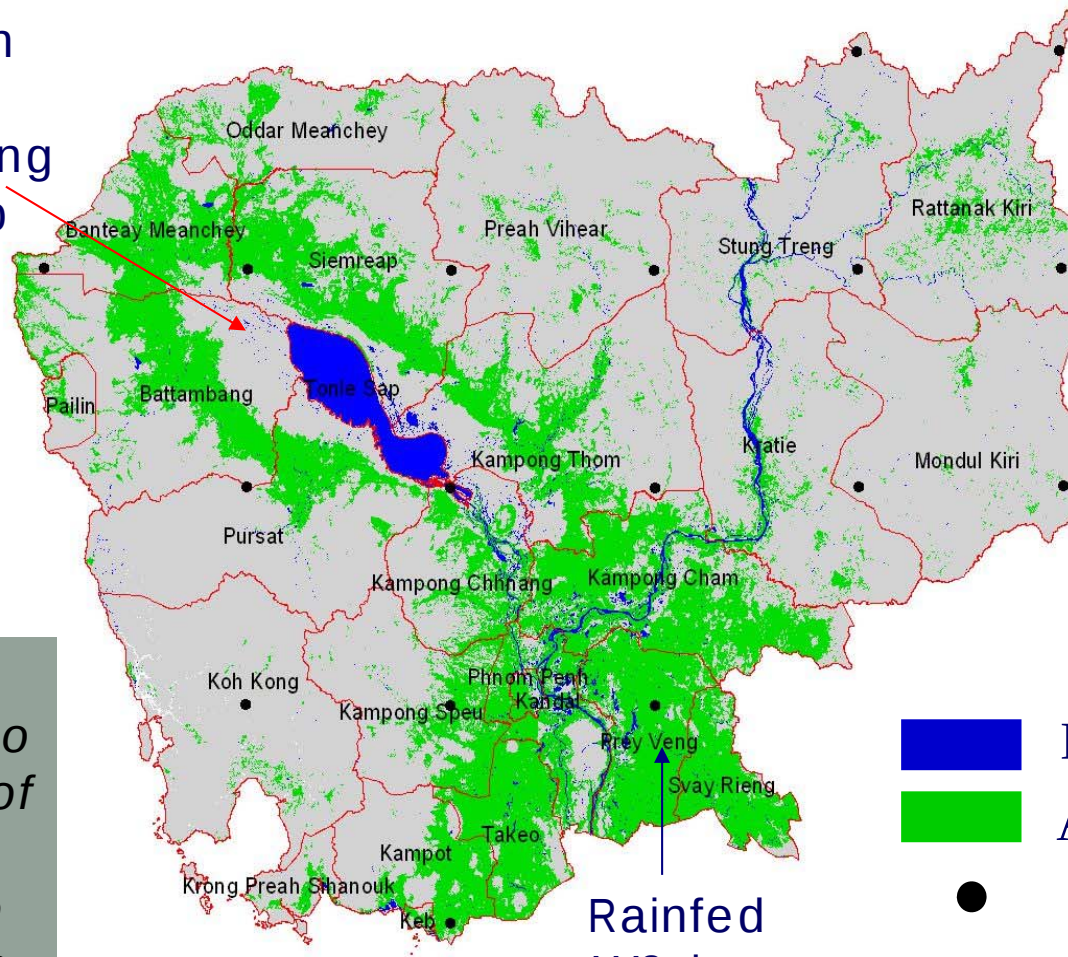
FLOODED/INUNDATION AREA CAMBODIA

The Great Lake alone increases four-fold in area from 250,000 ha (2,500 km²) in dry season to about 1,000,000 ha (10,000 km²) in an average year and to about 1,350,000 ha (13,500 km²) in a wet year.



DISTRIBUTION OF AGRICULTURE LAND IN CAMBODIA

Recession
rice (8%),
surrounding
Tonle Sap



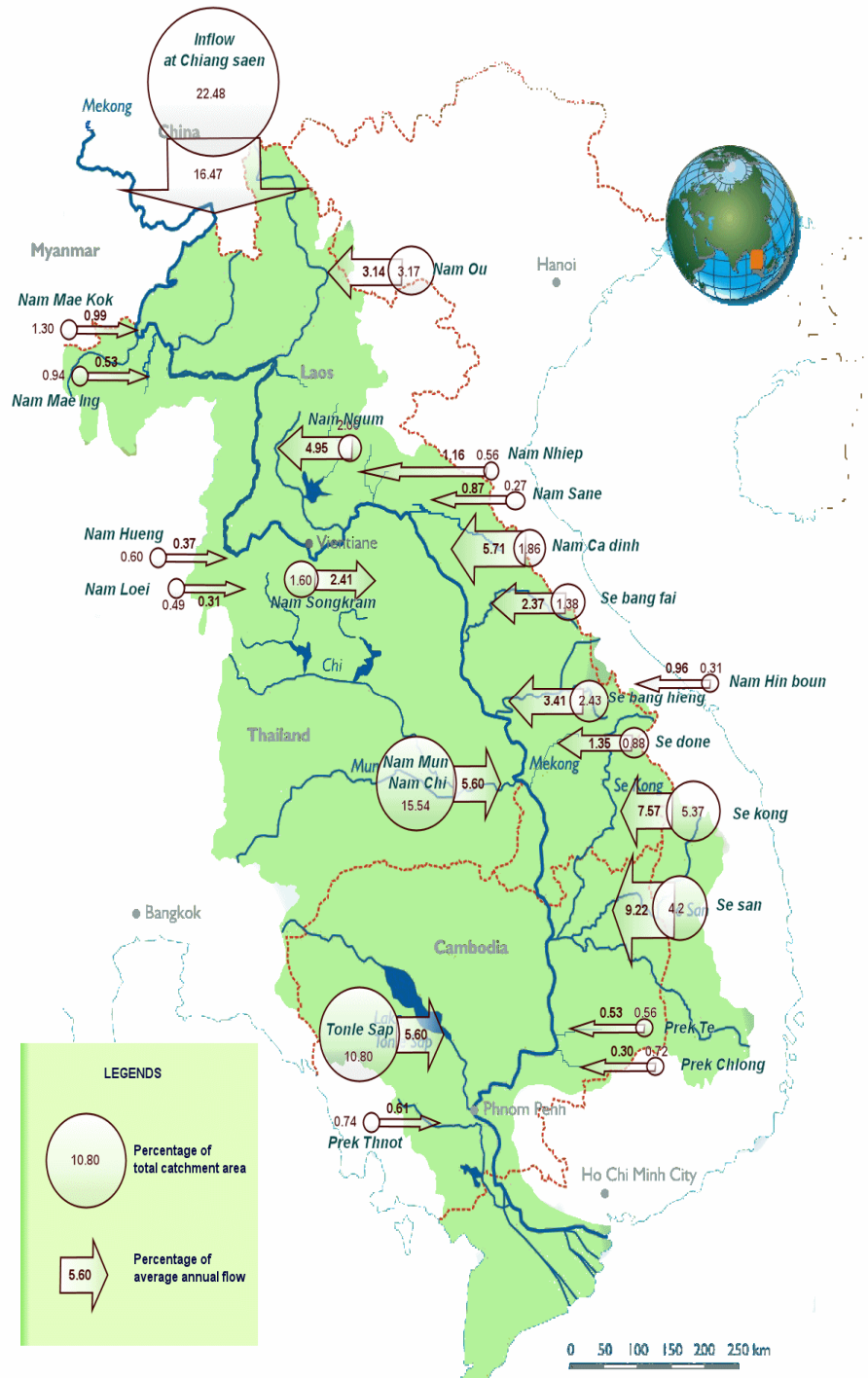
Flood and
Drought are
two main
climate
hazards in
Cambodia

*Rice alone
contribute to
about 80% of
total
agriculture
production*

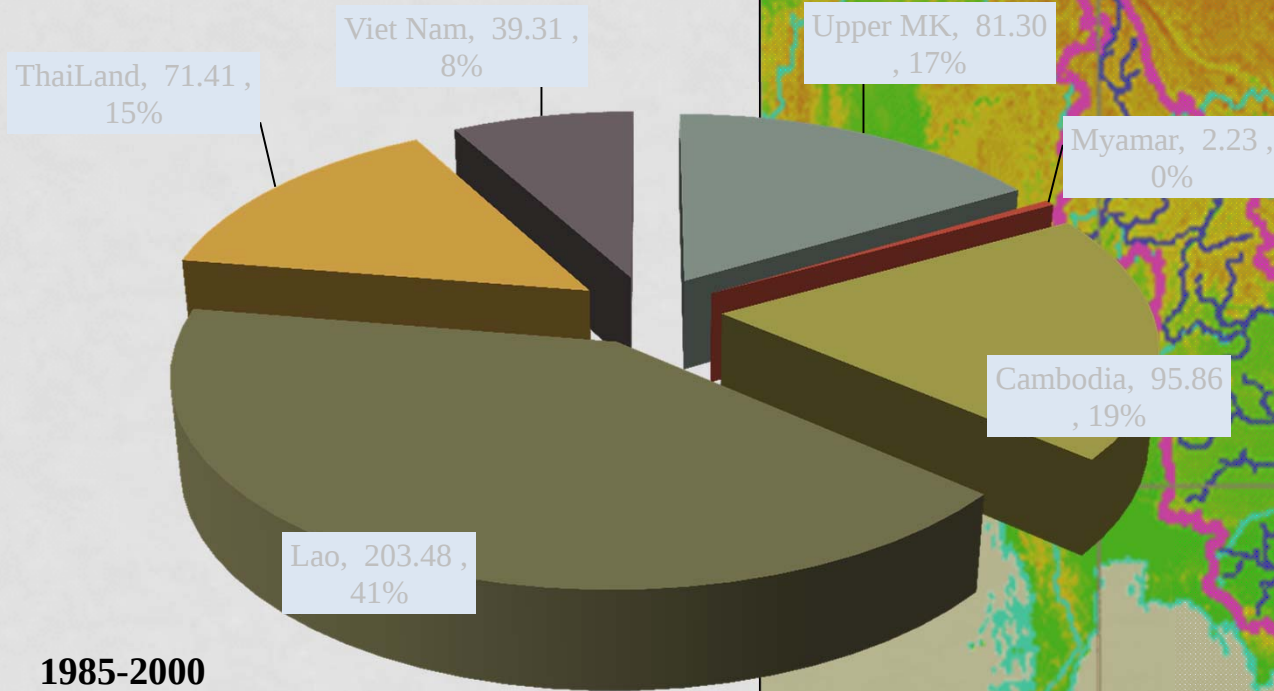
- Lake/Main Rivers
- Agricultural lands
- Grid PRECIS

Rainfed
WS rice
(85%)

- Contribution of each tributary as yearly total and in **dry & wet** seasons flow into Mekong river basin



- Summarized for **countries.**



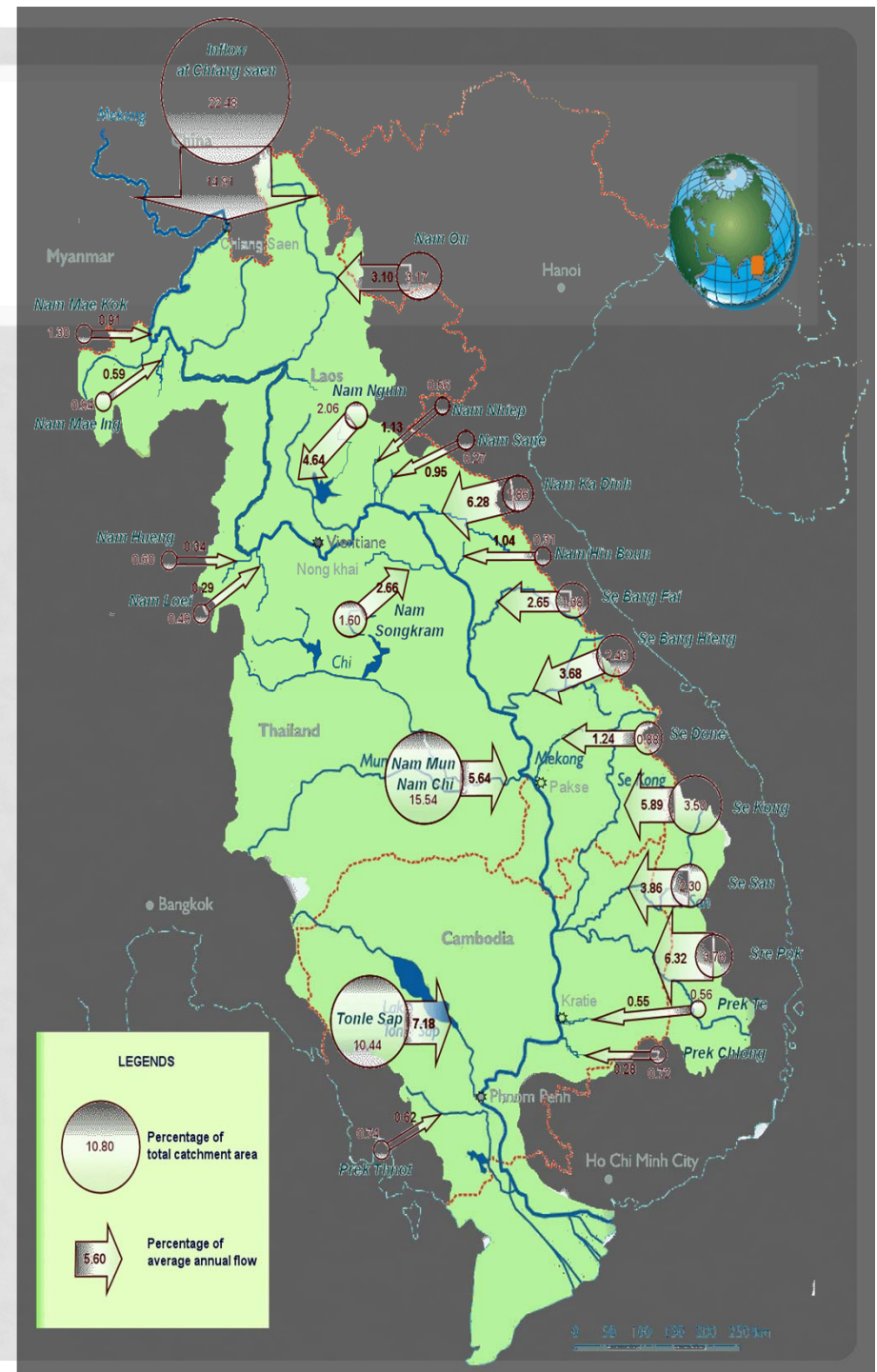
WHAT DO WE NEED TO DO? DEFINE COMMON INTEREST AMONG
COUNTRIES IN THE REGION **FOR IWRM**

- How can the region support adaptation to ongoing environmental changes?
- Do we need a regional database for management of water and hazards, and if so, what should it contain?
- Which role can the newly established disaster management centre play?

Flood Mitigation need End-to-End Forecast Process



- Regional Flood forecasting System Contribution and sharing near real time Hydro-Meteorology data to each Countries



INSTITUTIONAL RESPONSIBILITY

Ministry of Water Resources and Meteorology MOWRAM is general to conduct and manage the water resources in Cambodia, in particular:

- To define the policies and strategic development of water resources in order to serve the exploitation, development, and sustainable conservation at the national and international level consistent with the policy and programs of the Royal Government of Cambodia.
- To study and research the potential of water including surface underground and atmospheric and order to establish the science technique.
- To prepare the short, medium and long term plans of the exploitation, development, and conservation of water resources and meteorology to serve the national economy and living standard of the Cambodians including cities and rural.
- To manage and supervise all of the direct and indirect exploitations on water resources in the rational manner and minimizing of the disaster reduction which will happen.

CONT.

- To draft/make the law major principles and regulated to the management of water resources, and monitoring of the implementation process.
- To collect and compile the document and to exploit the meteorological and hydrological data to serve other sectors which are related to the national and international level for the benefit of the national and international society.
- To support and advise technical necessities to private sector, organization, communities and all people who are the related to the improvement and exploitation of water resources
- To expand and provide new technologies to have the measures for training, improvement and extension.
- To strengthen and expand the national and international collaboration in sector of water resources and meteorology.
- To participate to implement the concerned works with Mekong basin consistent with the obligations of the ministry.

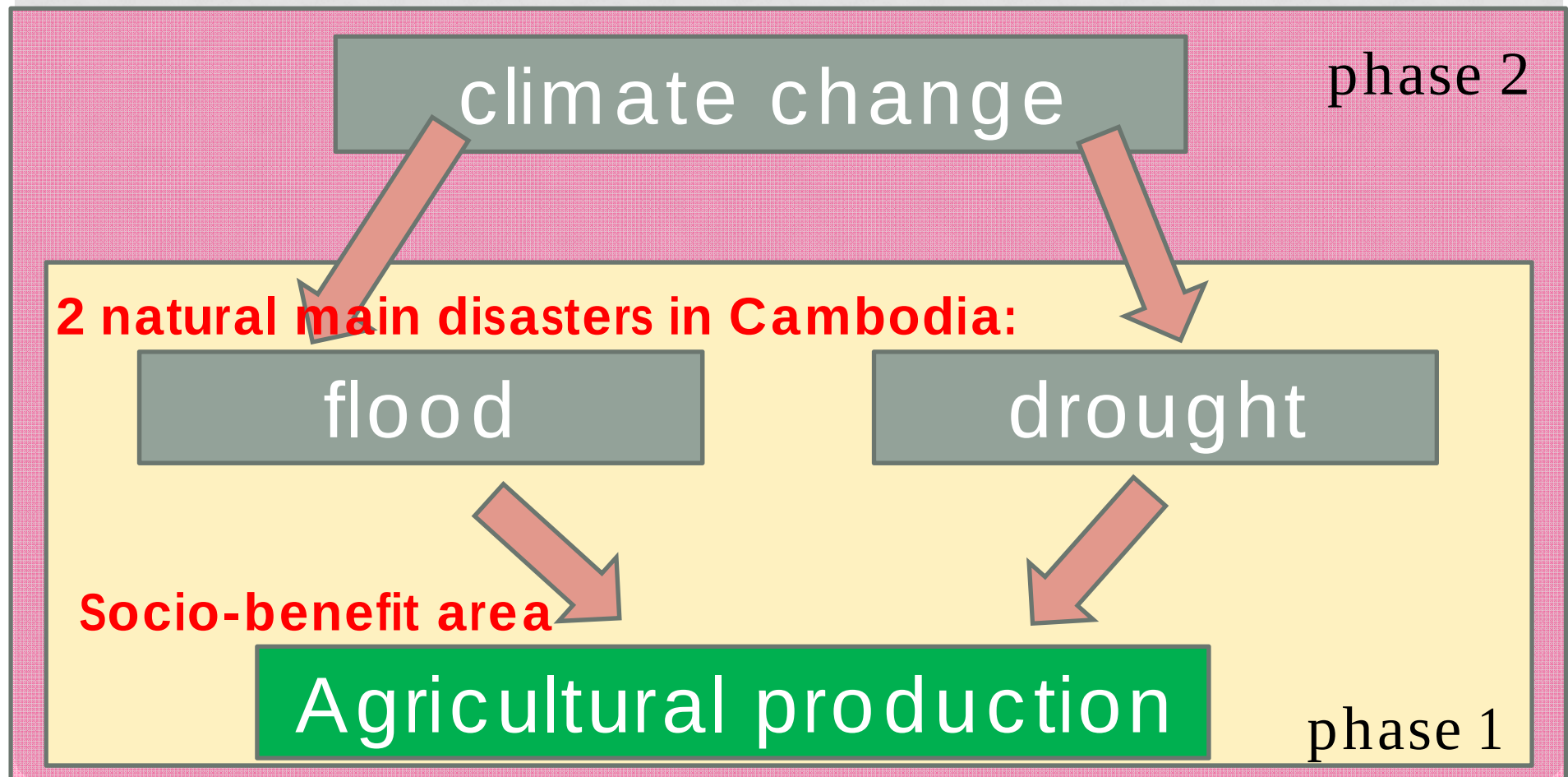
The structure of the Ministry and lists the responsibilities of its Central Level organizations, including the three Administrative and six Technical Departments.

- The 10 functions and roles listed for MOWRAM as a whole, eight relate to policy, strategic planning, data collection, studying, managing and supervising, coordination and regulatory functions, while two might be considered to include programmed/project implementation, either planning or execution.
- The 40 listed responsibilities of the six Technical Affairs Departments and the planning and International Cooperation Department (PICD) reflect MOWRAM's functions and roles with 30 being related to policy, coordination and regulatory functions and 10 related to programmed/ project implantation.

THE 5 MAIN GOALS OF MOWRAM

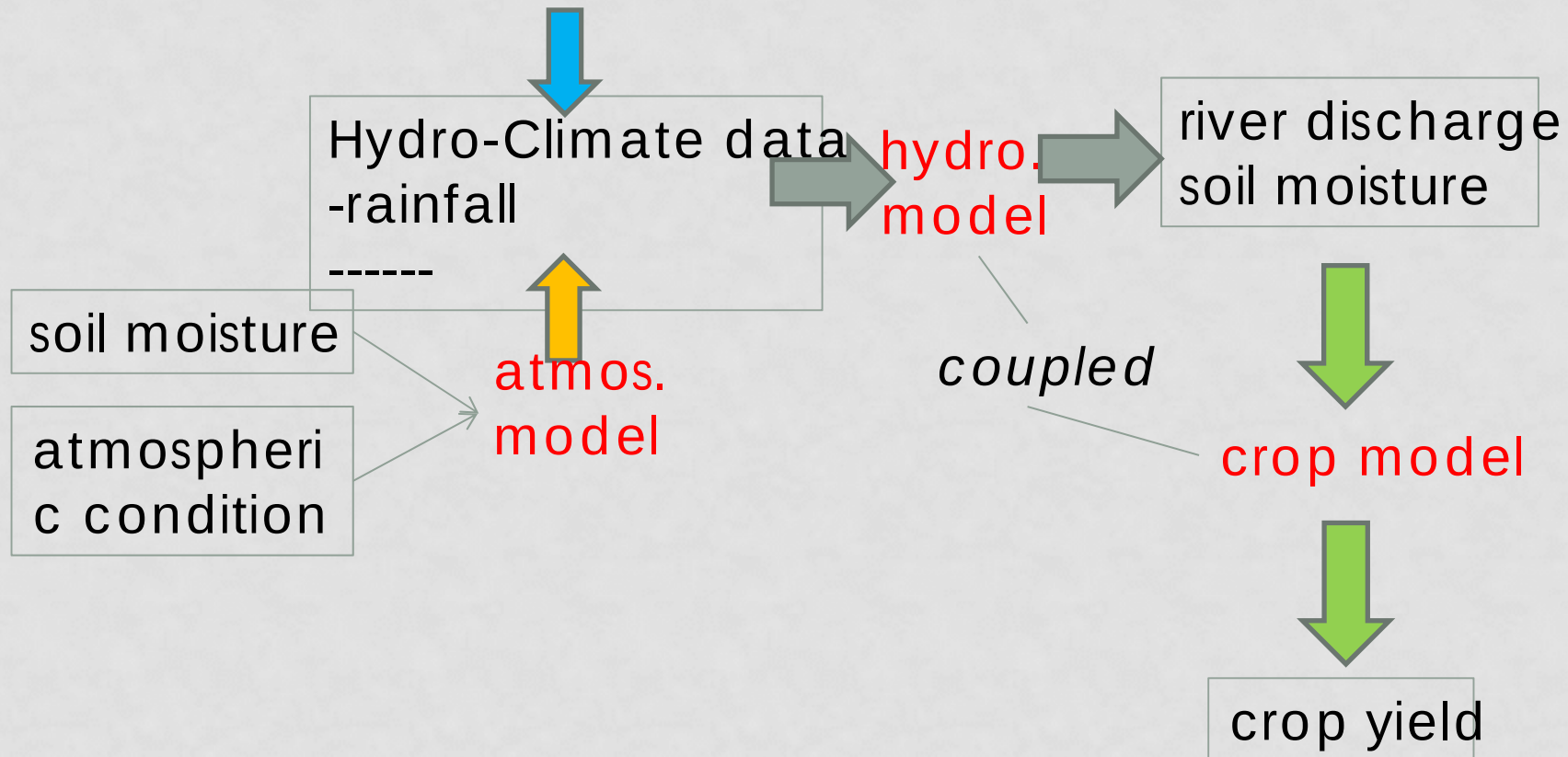
Strategic work	Main goals 2009-2013
1. Water resources development and management	1.1 water resources is effectively managed and developed to achieve equity and sustainability for the benefit of citizen 1.2 Implement irrigation system
2. Flood and drought management	2. Impact on people's lives and property by flood and drought has been reduced.
3. Pushing law, provision, and water sustainability	3. water management law was adopt to manage and develop water with effectiveness and equity.
4. Manage water resources and meteorology information	4. water resources are developed and managed base on enough data and information
5. Administration and human resources development improvement	5. Strengthen and improve management system, capacity technical and human resources of

- By using the achievement of Phase 1, (1,2 strategic work)
Phase 2 develops capacity of the assessment of the climate change and adaptation to the climate change.



near real time obs.

GSMaP + in-situ



Current condition + Future condition under the climate change

To achieve Strategic Development Plan on 2009-2013 MOWRAM has to Improve irrigation capacity by using irrigation system by 1% equal to 25,000ha a year in addition to the potential irrigating capacity on the area 1,120,246 ha the existing irrigation systems and construct new irrigation structures to areas which have potential water to cultivate two crops per year to increase the income and provide job to farmers in rural area.

Indicator, ha	2008,ha	2009 Estimated ha	2010 Forecast ha	2011 ha	2012 ha	2013 ha
25,000	1,120,246	1,145,246	1,170,246	1,195,246	1,220,246	1,245,246

Cambodia has made progress on establishing a policy framework for water resources in line with global commitments under the World Summit on Sustainable Development WSSD. The Law on Water Resources Management building on the National Policy on Water Resources Management and the Strategic Plan on Water Resources Management .The Water Law is set within the framework of IWRM, recognising the different sectoral interests in water while calling for greater coordination and the need to balance social and environmental considerations. In addition, the Water Law includes several articles that deal directly with rights, organisation and participation of Integrated Water Resources Management (IWRM).

Thank you for your
attention.