THE 4th INTERNATIONAL COORDINATION GROUP MEETING OF THE GEOSS ASIAN WATER CYCLE INITIATIVE (AWCI)
Kyoto, Japan, 4 - 7, February 2009

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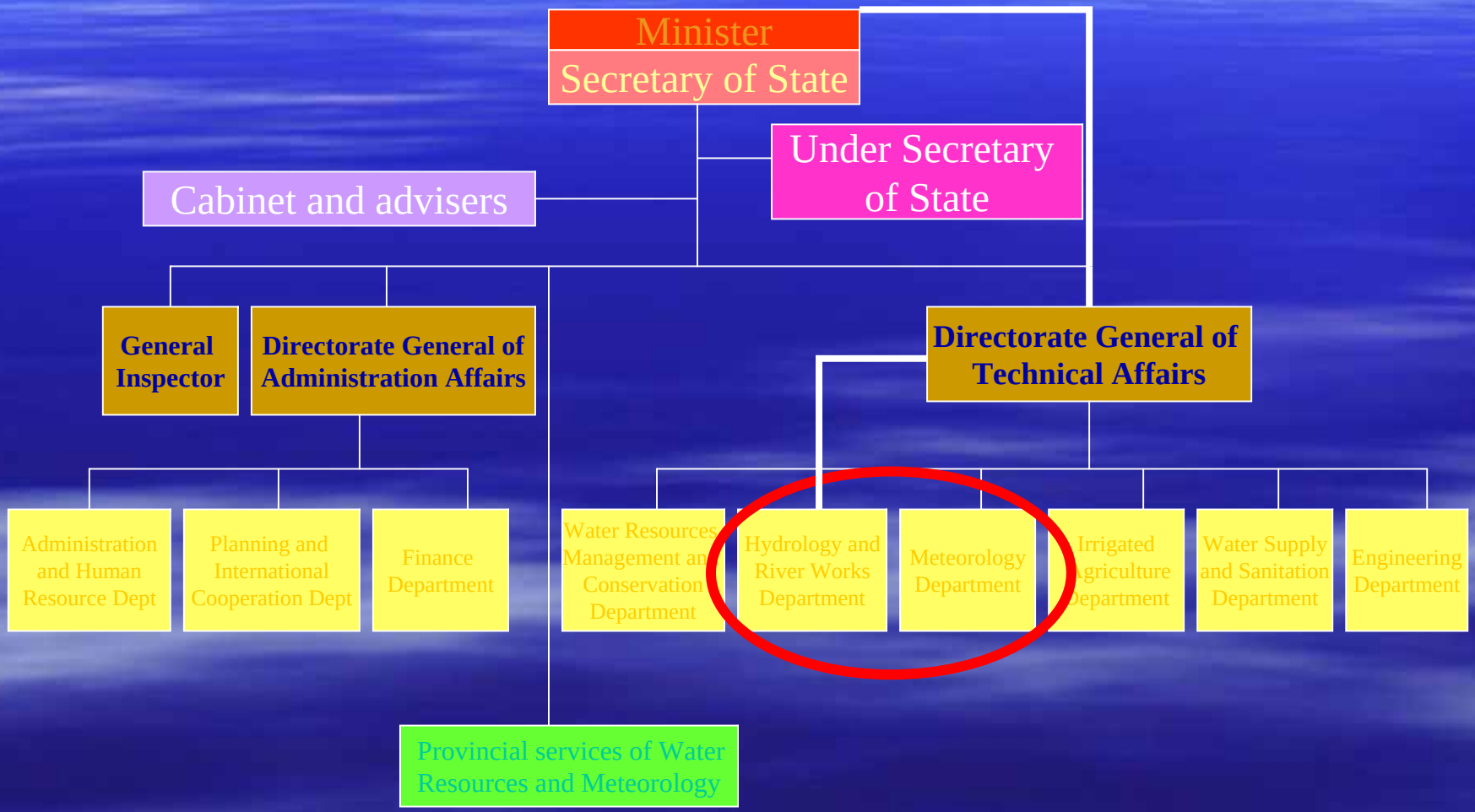
Content

Organization Chart of the Ministry of Water Resources and Meteorology



I. METEOROLOGY

1. Meteorological Synoptic Stations

(1) The present situation

21 Synoptic observation station 9 with AWOS

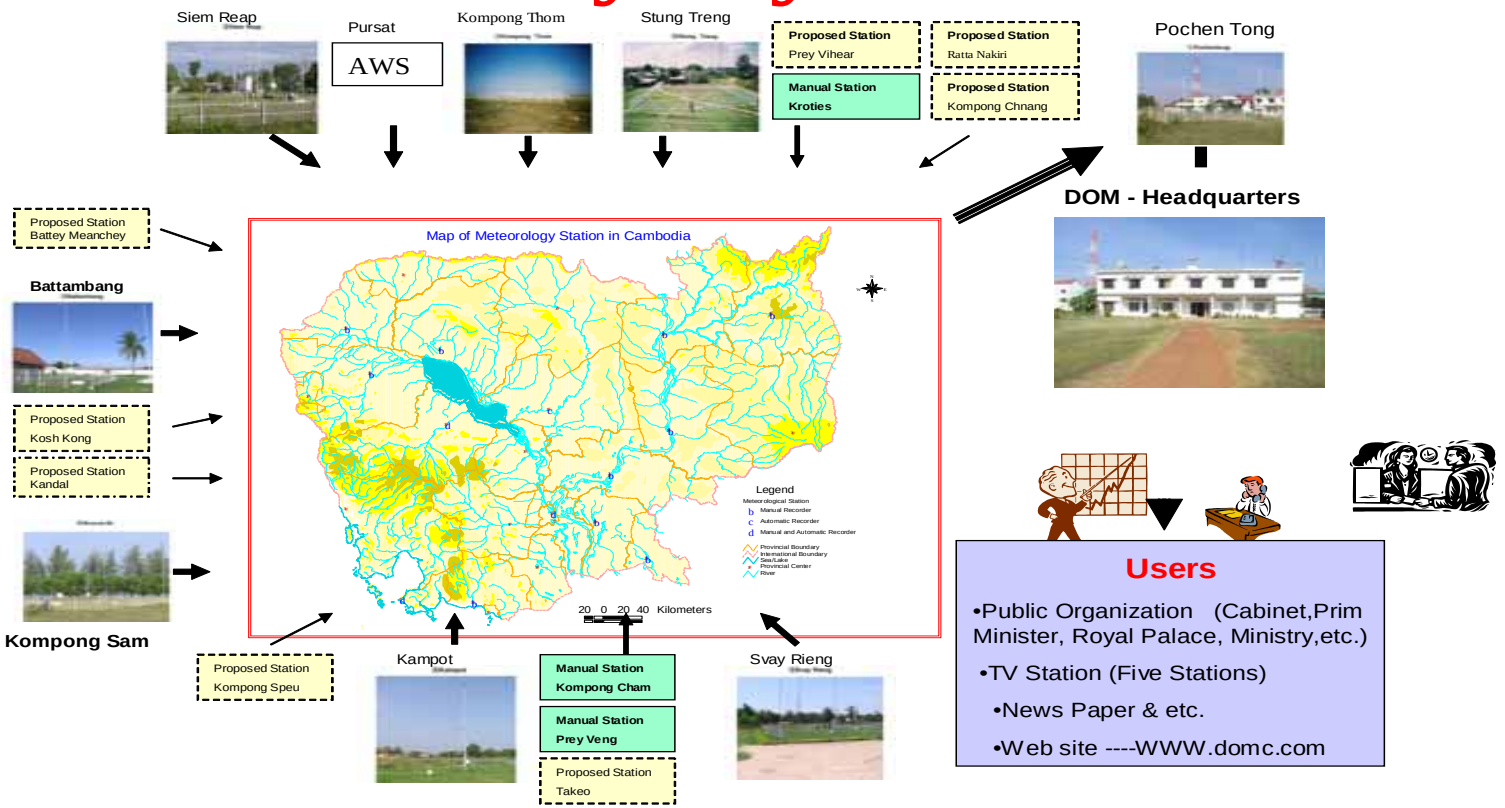
16➔Only manual by Observer **➔Old / broken**

8➔AWS / Observer **➔PC problems**

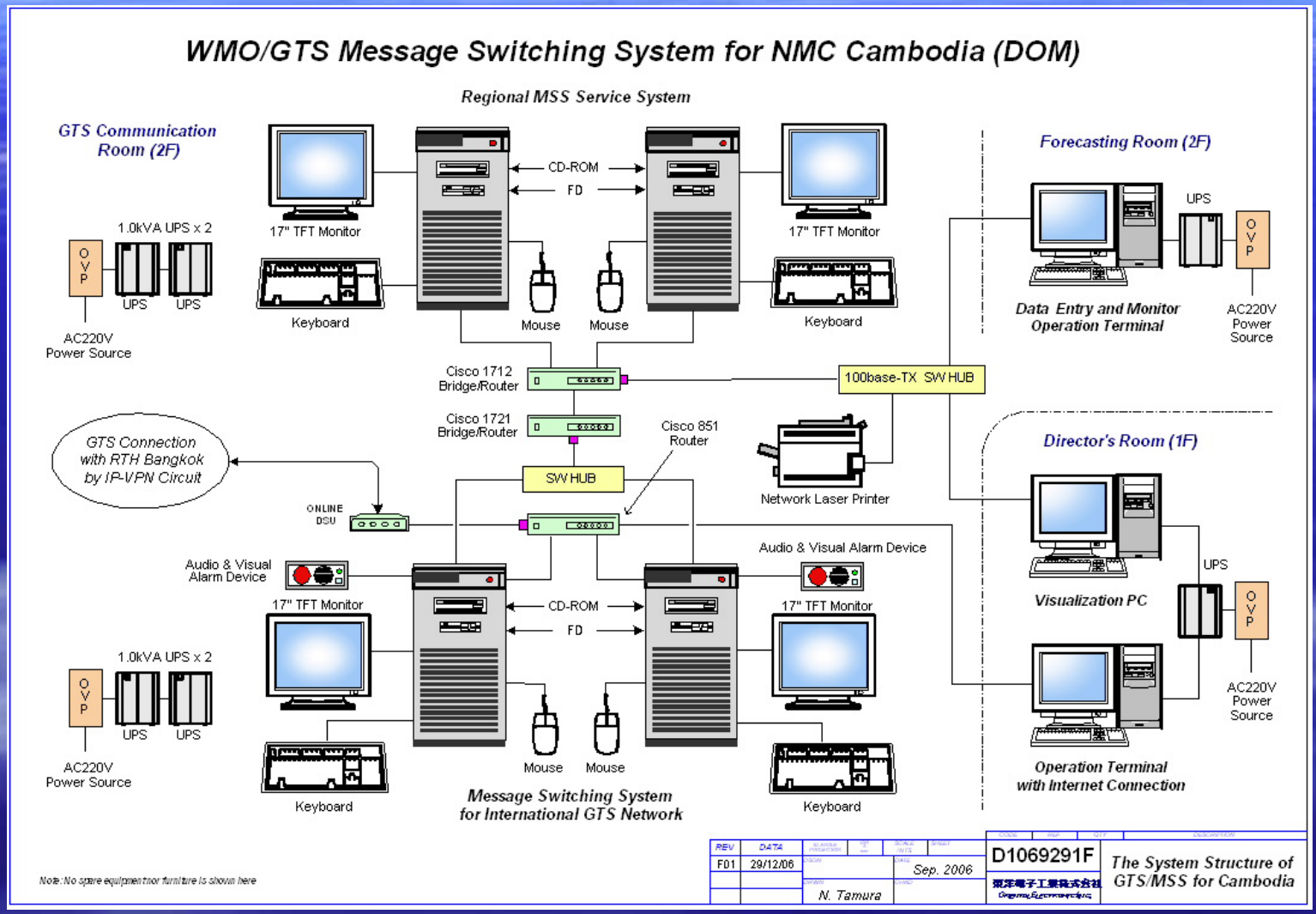
(2) The DOM Staff

4-Master, 6-Enginer, 15-Bachelor, other are support staff.

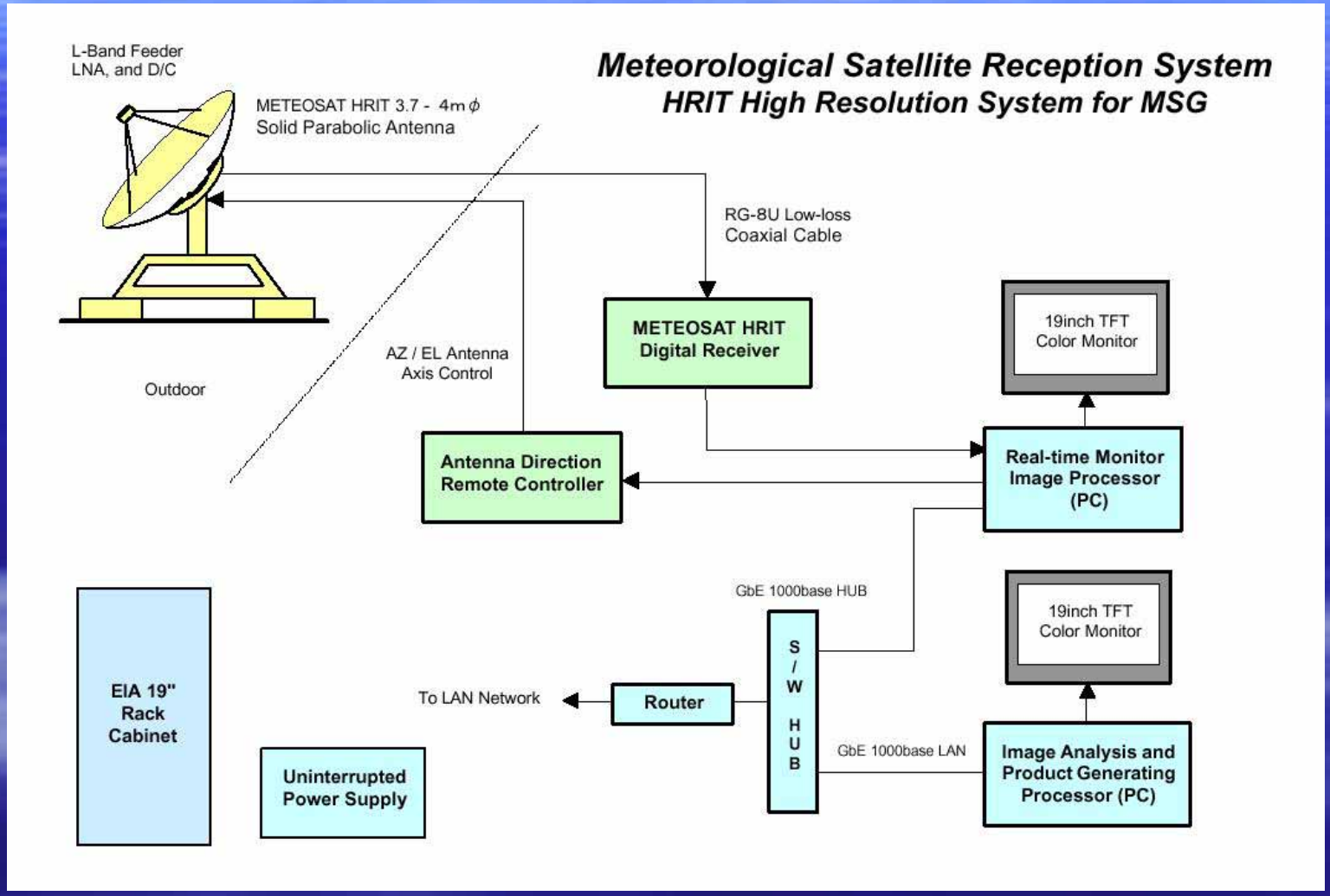
Synoptic Station

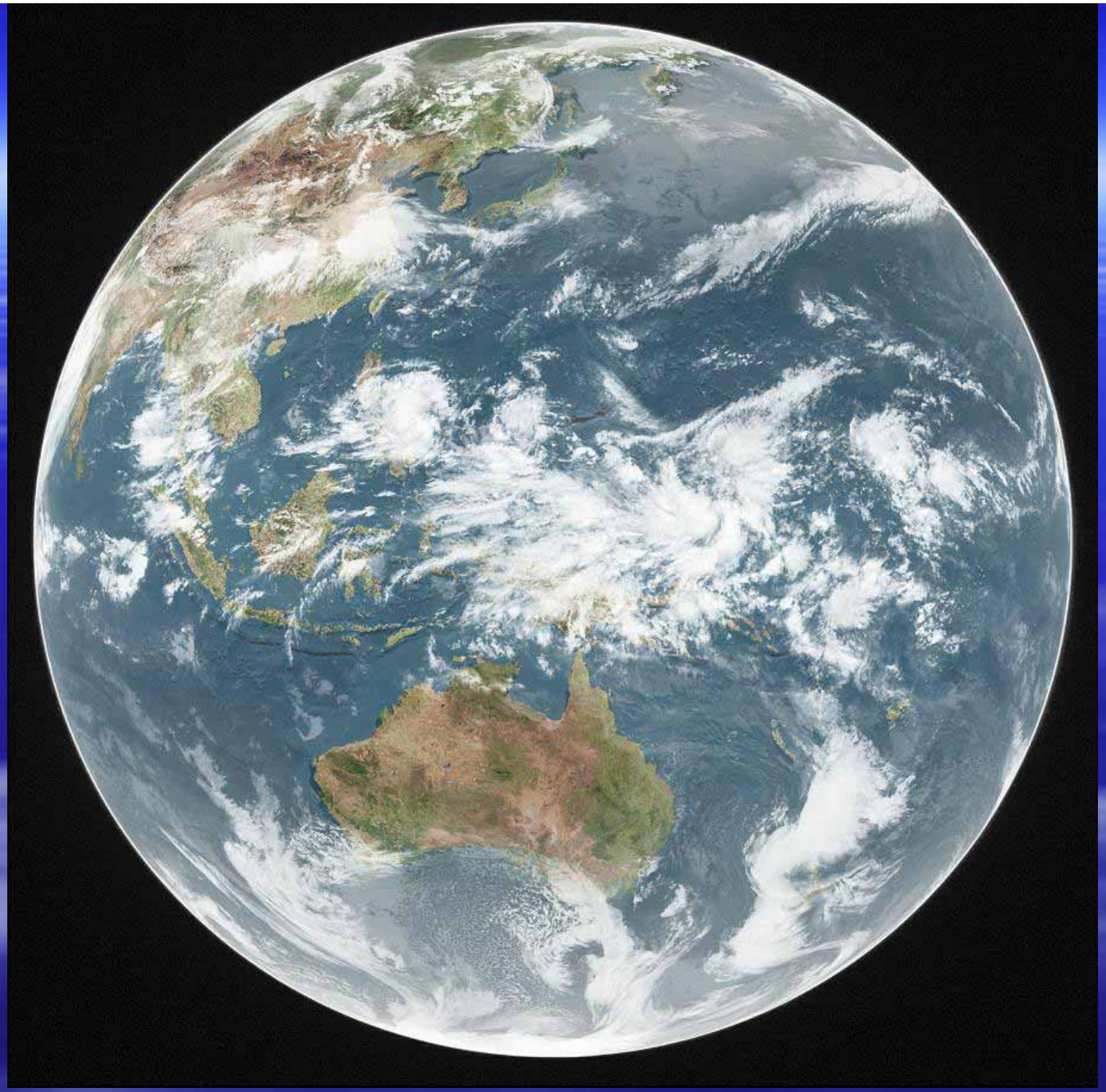


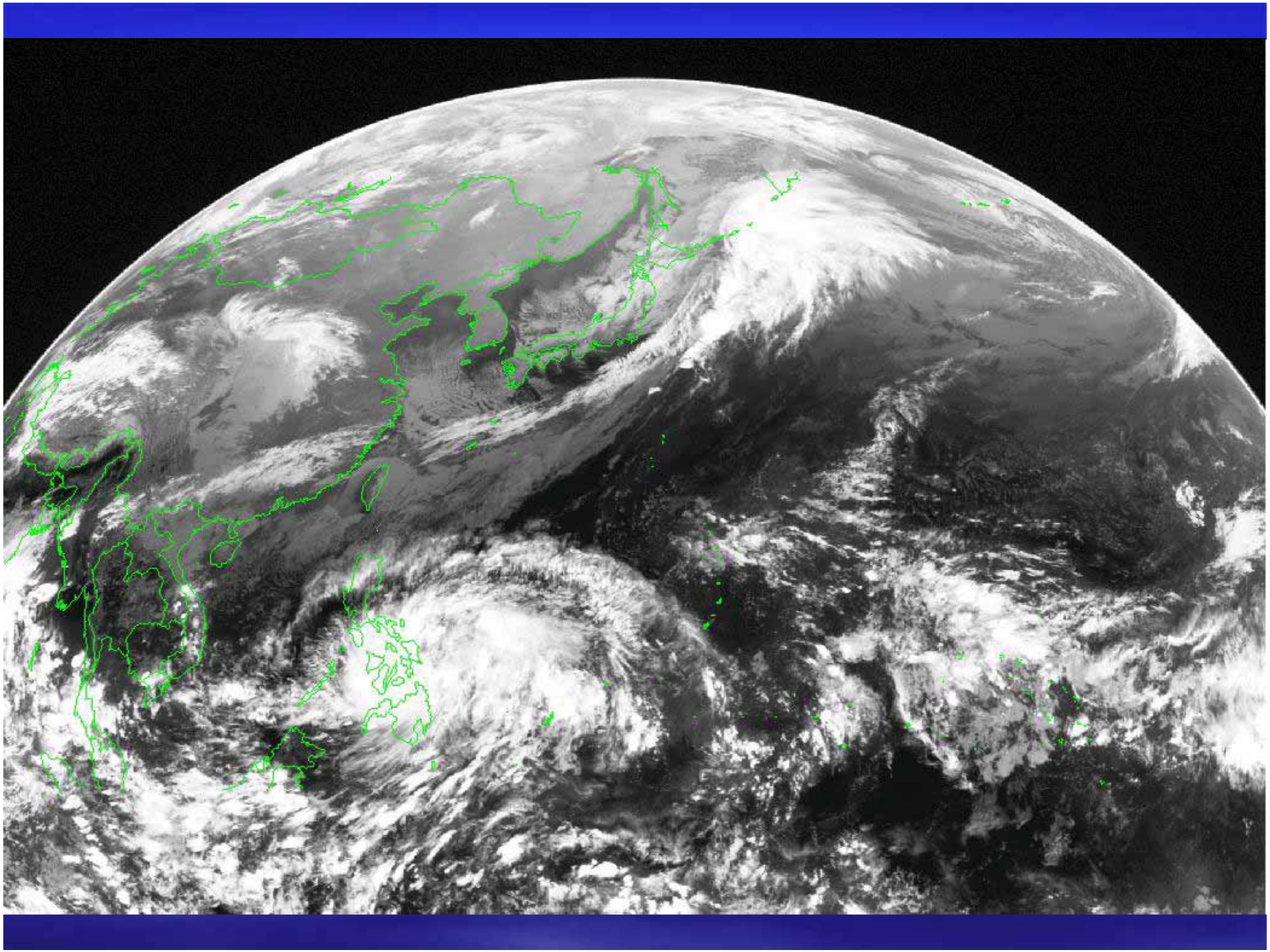
2. GTS Connection



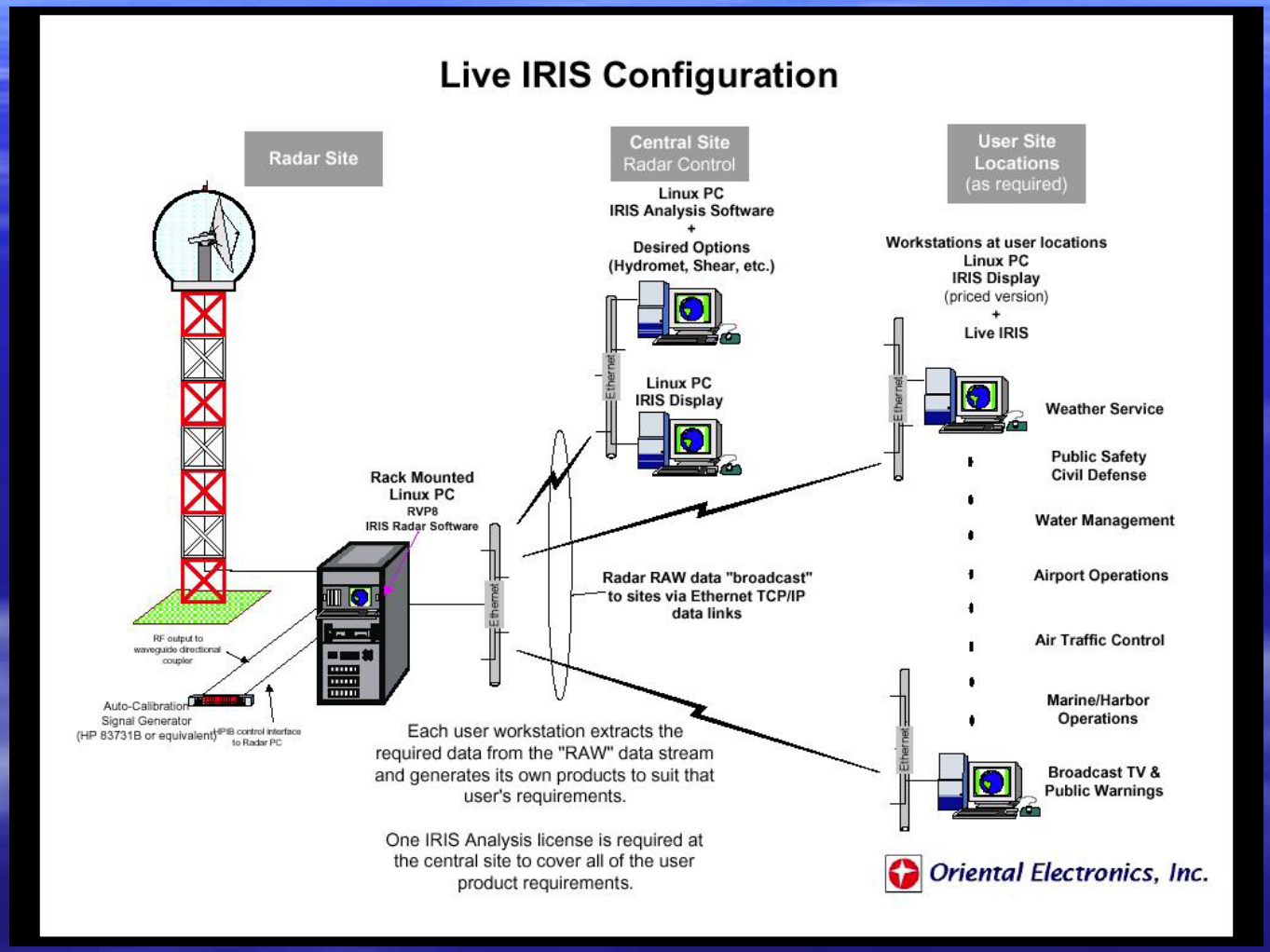
3. Satellite Receiving







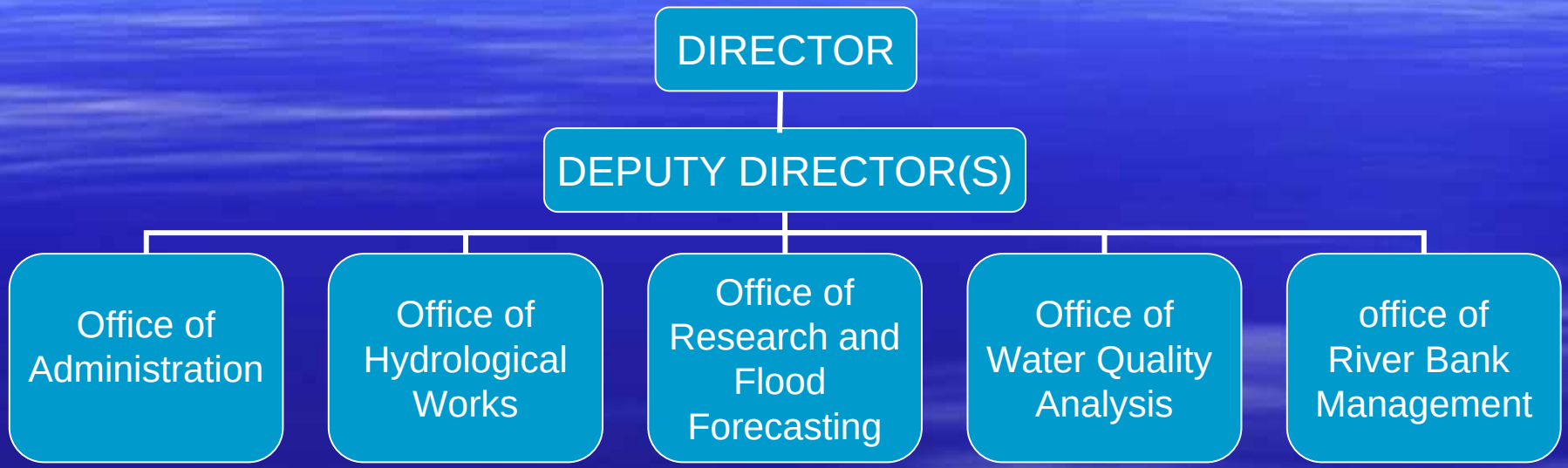
4. Plan to Install Radar Observatory



The GEOSS/AWCI Demonstration Project in in Sangke River Basin Battamboung, Cambodia.

II. HYDROLOGY

Organization Chart of DHRW



2. Hydrological Networks

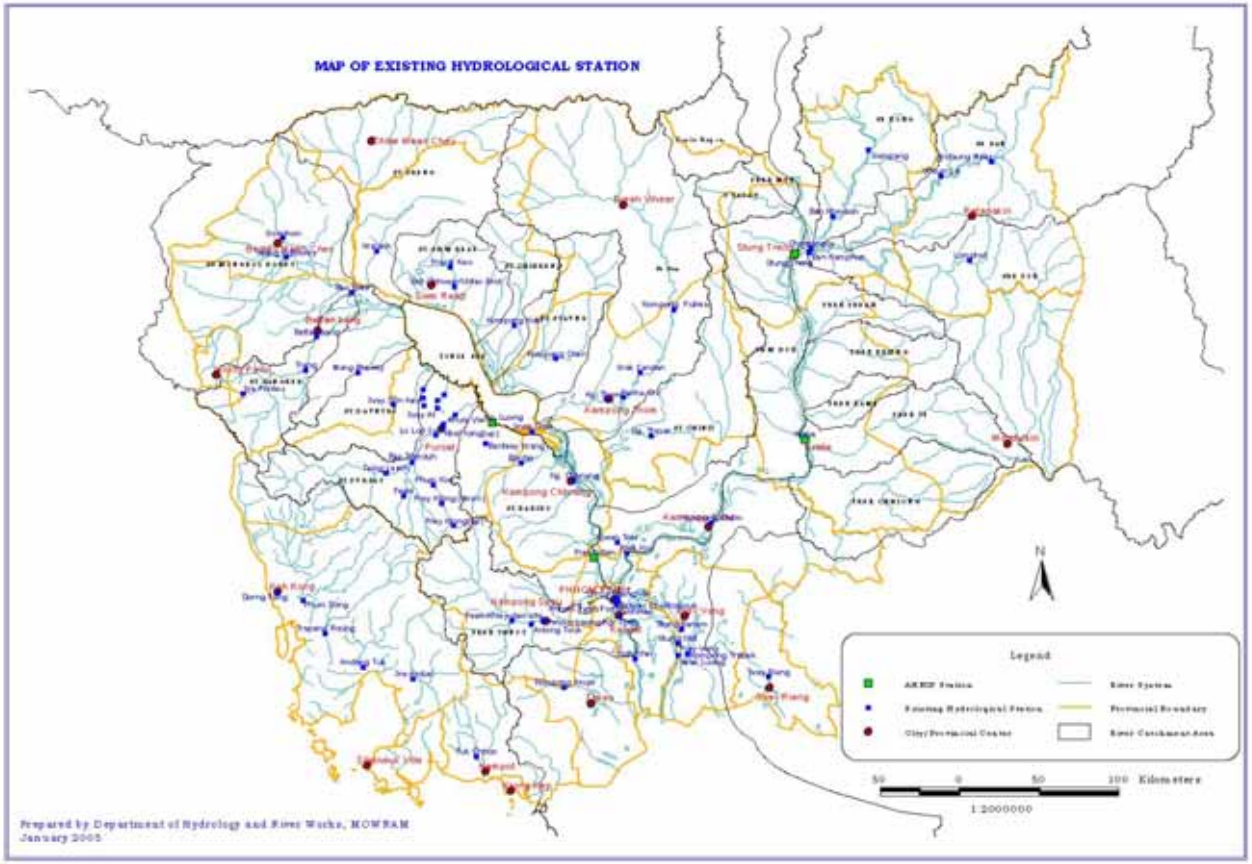
- ⇨ Observation since 1920's (Tonle Sap Lake at Kampong Loung, Stung Treng . . .).
- ⇨ 1957: establishment of the Mekong Committee. Systematic data collection program initiated. Hydrological Year Books compiled.
- ⇨ Before 1970: Data collection for 31 stations.

- 1970-1975: Network stations diminished by civil war.
- 1975-1979: Network completely abandoned.

- 1979-1996: Network of 12 stations along the mainstream were operated.

- Oct. 2003: Network of about 75 stations across the country.
- Dec. 2006: Network of about 102 stations and 65 Flood Marks.

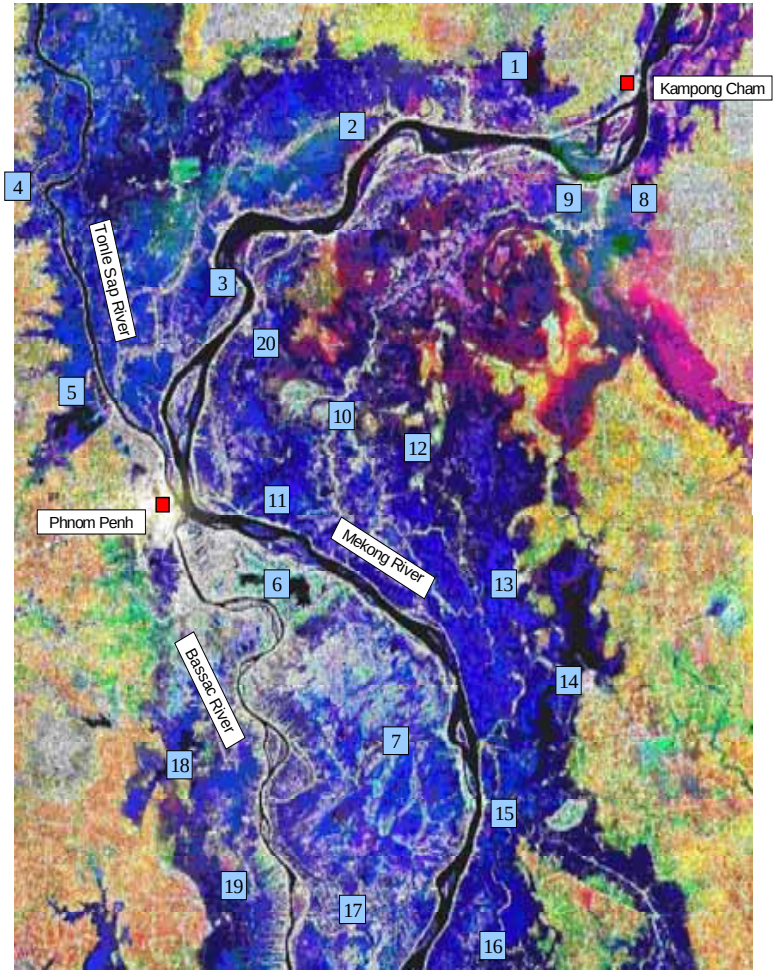
Existing Hydrological Station



in 2006:

82 stations

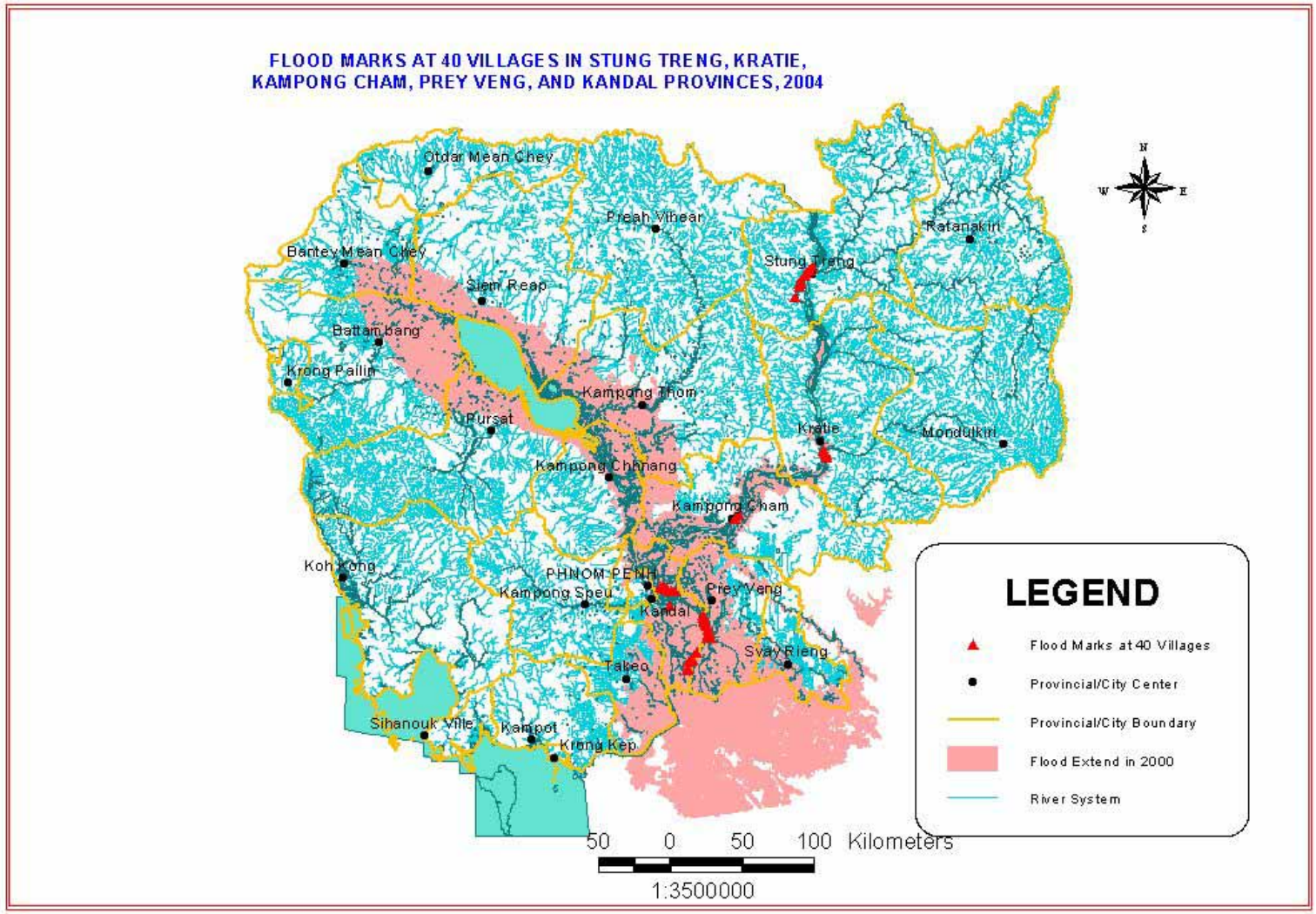
Hydrological Stations in Flood Plan



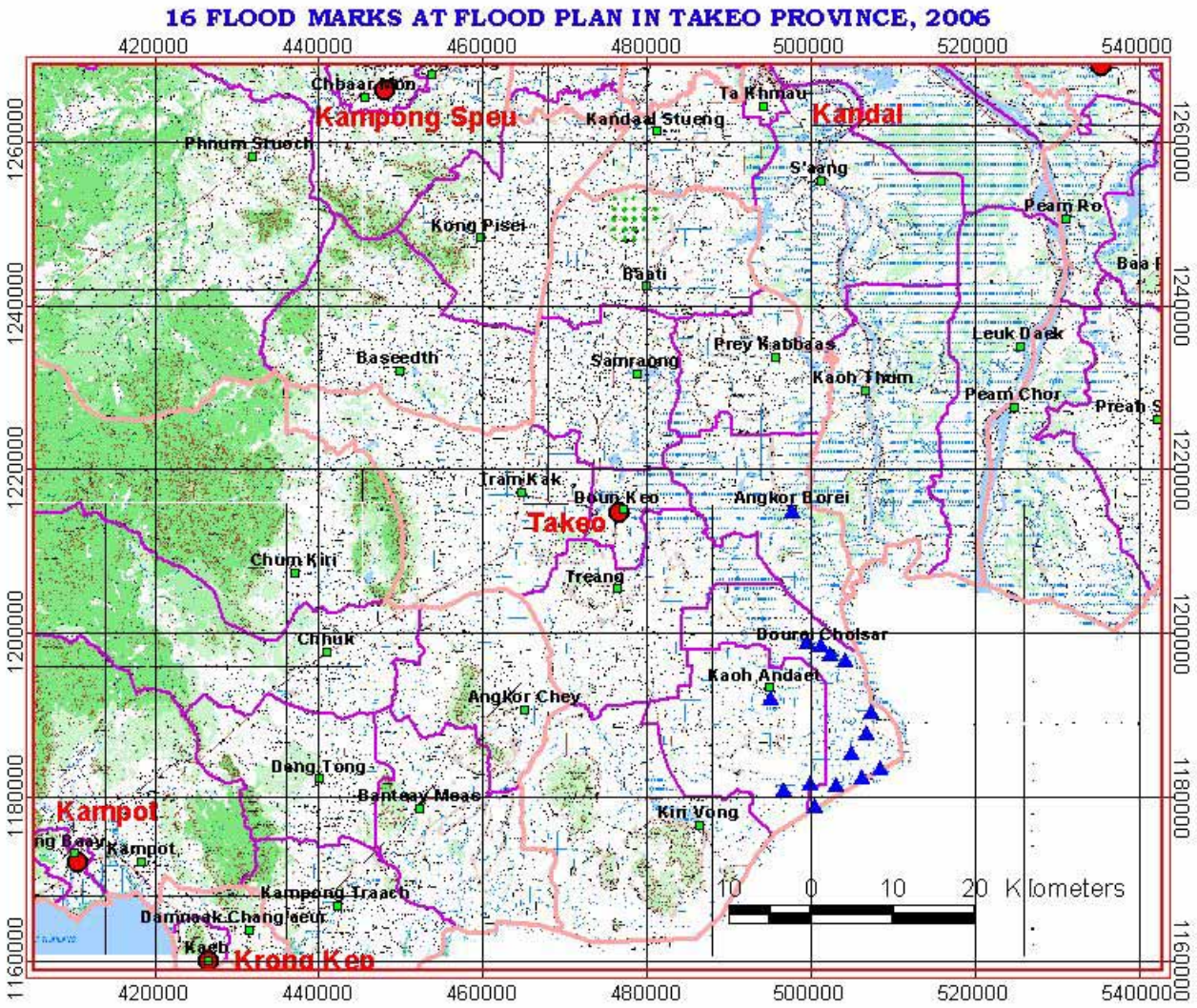
In 2001-2003:

20 Stations

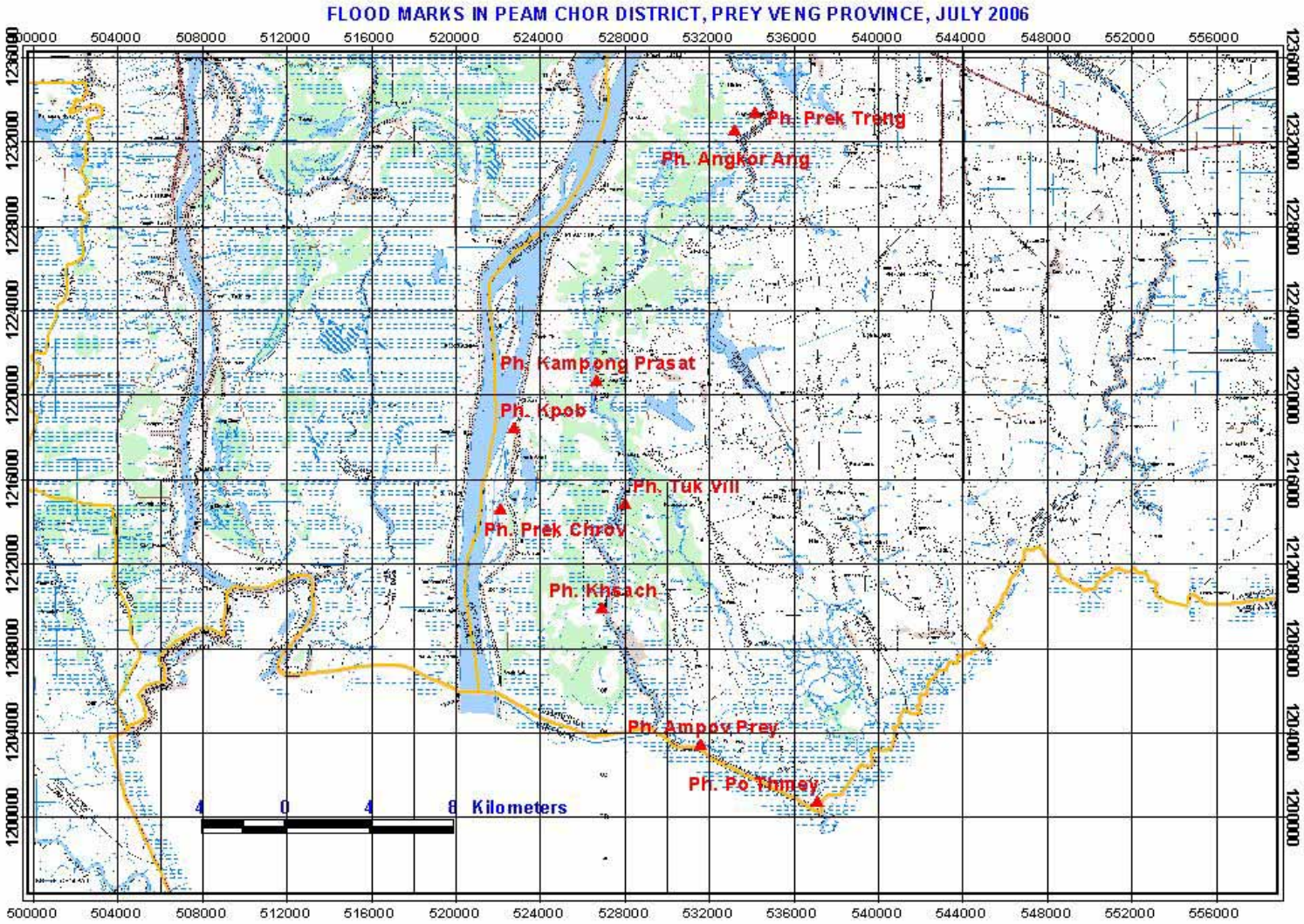
Flood Marks for FEW-FMMP/MRC



Flood Marks for FEW-OXFAM GB



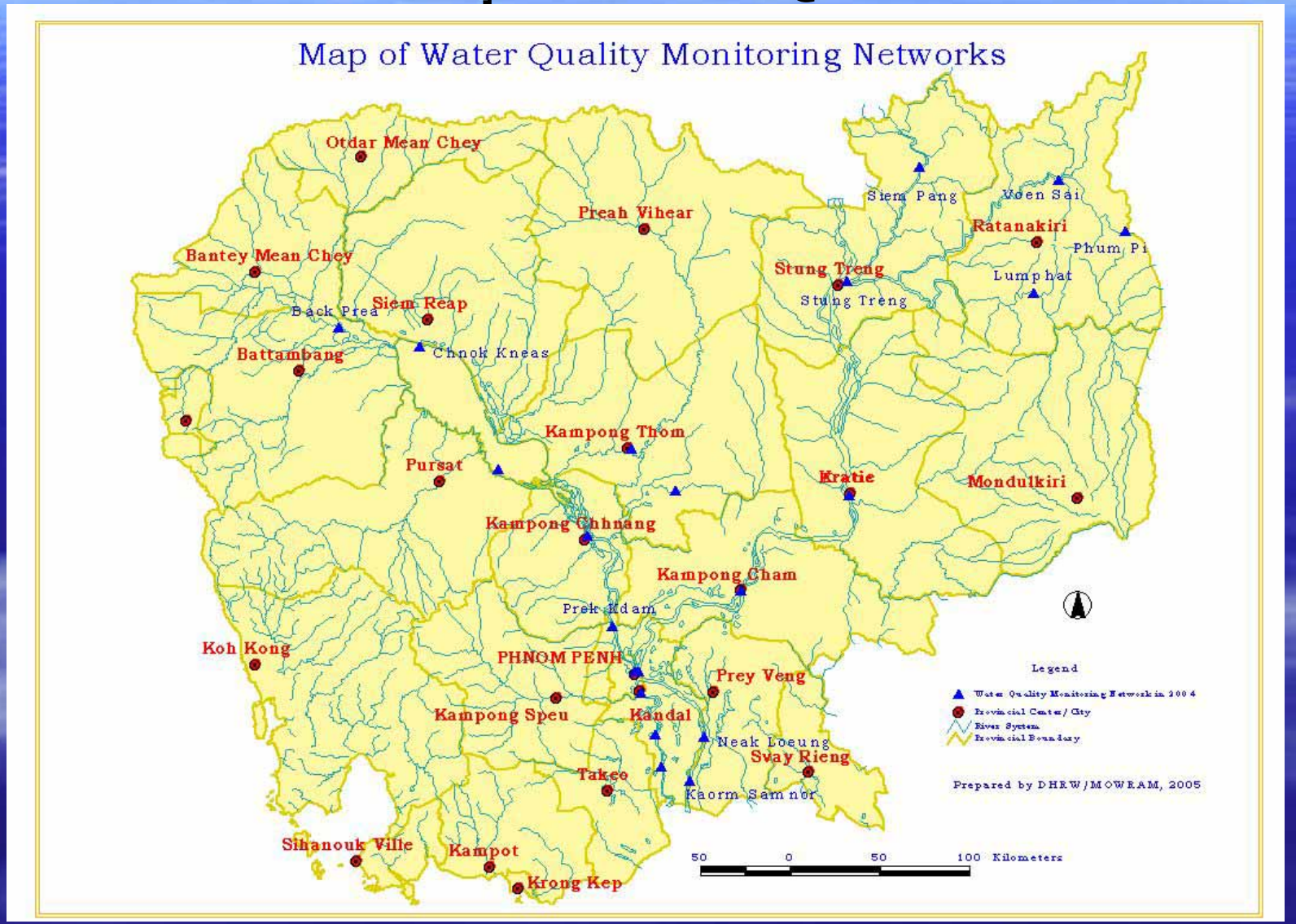
Flood Marks for FEW-FMMP/MRC



3. WQMN

- In 1993: 5 stations
- In 1995: 11 stations
- From 2004: 21 stations (some from WUP-FIN in Tonle Sap Catchment, and Tran-boundary rivers in Se Kong, Se San, and Srepok rivers)

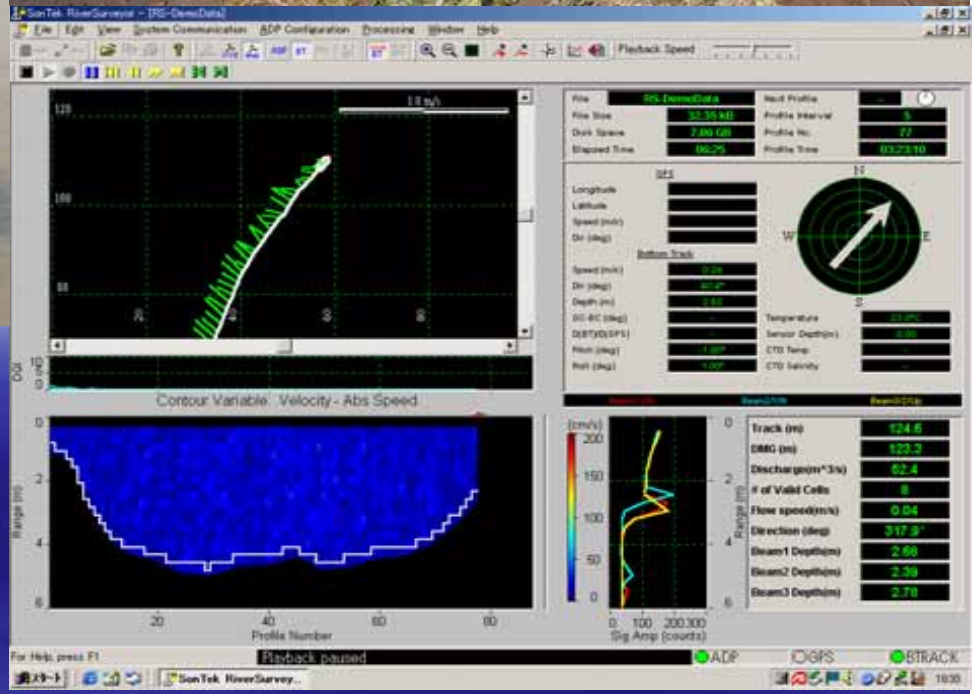
Map of WQMN


Map of Water Quality Monitoring Networks
Otdar Mean Chey
Preah Vihear
Siem Pang
Voen Sai
Ratanakiri
Phum Pi
Bantey Mean Chey
Stung Treng
Lumphat
Stung Treng
Back Prea
Siem Reap
Chnok Kneas
Battambang
Kampong Thom
Pursat
Kratie
Mondulkiri
Kampong Chhnang
Kampong Cham
Prek Kdam
Koh Kong
PHNOM PENH
Prey Veng
Kampong Speu
Kandal
Neak Loeung
Svay Rieng
Takeo
Kaorm Samnor
Sihanouk Ville
Kampot
Krong Kep
Legend
Water Quality Monitoring Network in 2004
Provincial Center / City
River System
Provincial Boundary
Prepared by DHRW/MOWRAM, 2005
50 0 50 100 Kilometers

4. River Monitoring

Water Level	Discharge	Sediment	Water Quality
102 Main River: 15 Tributary: 67 Flood Plain: 20	37 Main River: 8 Tributary: 29	15	21
Recorder: 45 (Mindata, Thalimedes, Orphimedes, OTT Nimbus, SEBA)	Current Meter, ADP/ADCP	Samplers: P-61, DH59, D-49	

FLOW MEASUREMENT
by ADCP



FLOW MEASUREMENT
by Current Meter

5. Flood Forecasting

- Existing near real time data collection network:
  - 8 stations on the mainstream and 2 stations on tributaries (Se San and Srepok rivers),
  - Transmitting frequency:
    - From June to October: daily (one or more times),
    - From November to May: weekly (one or more times),

Near Real Time Data Collection for Flood Forecasting along mainstream

#	River-Station	Com. means
1	Mekong-Stung Treng	Telephone
2	Mekong-Kratie	Telephone
3	Mekong-Kg Cham	Telephone
4	Mekong-Neak Loung	Telephone
5	Tonle Sap-Prek Kdam	Telephone
6	Tonle Sap-PNP Port	Telephone
7	Bassac-Koh Khel	Telephone
8	Bassac-Chaktomuk	Telephone
9	Se San-Veun Sai	Telephone
10	Sre Pok-Lumphat	Telephone

Basin-wide Real time Data Collection Networks

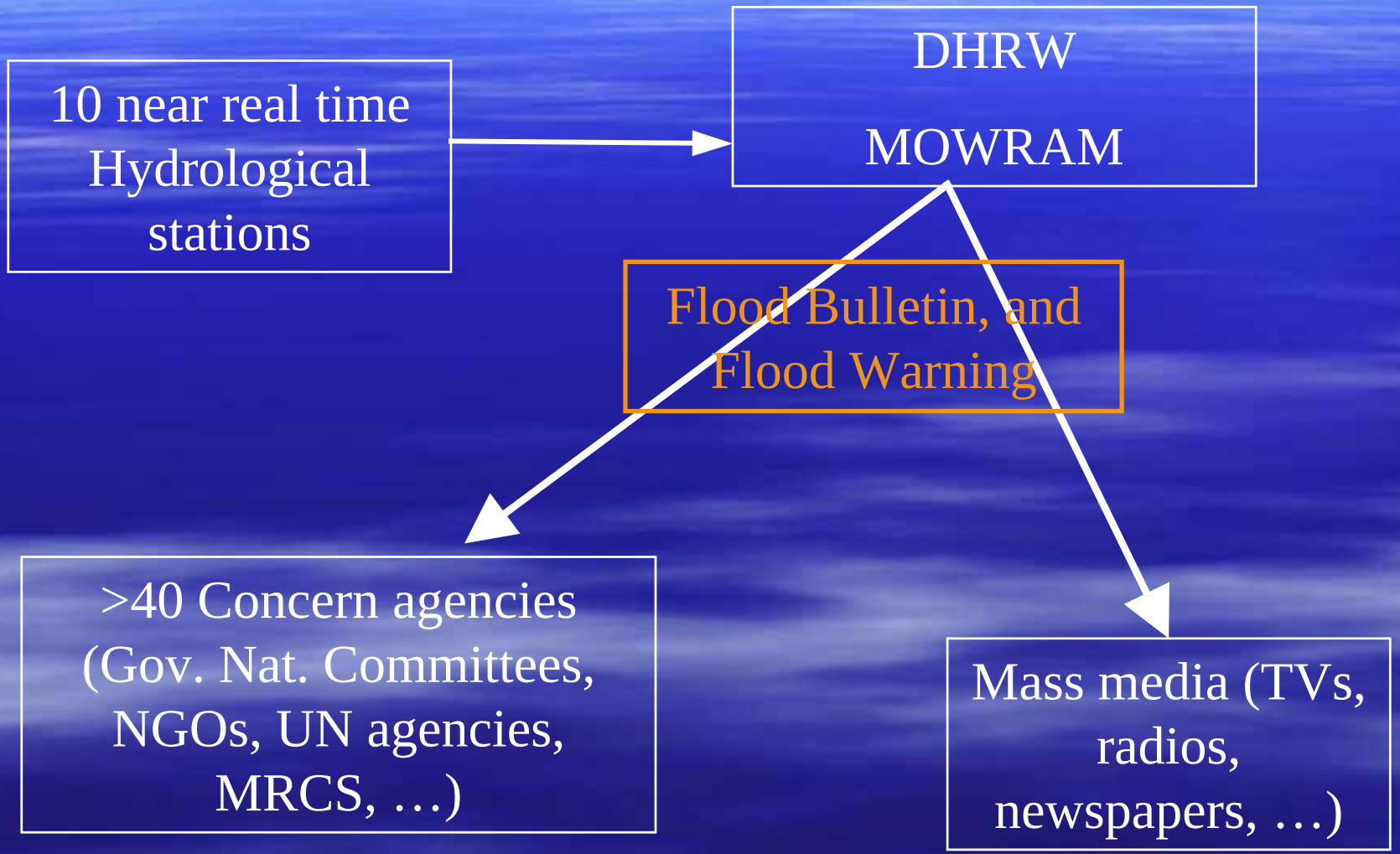
- On-going real time network under AHNIP:
  - 4 stations in Cambodia among total 18 stations of the network,
  - Transmitting frequency:
    - Hourly water level data transmitted automatically,
    - The system is improving under MRC program.

- On-going AHNIP Real Time Data Collection Networks

#	River-Station	Com. means
1	Mekong-Stung Treng	Min data logger, GSM telephone
2	Mekong-Kratie	Min data logger, GSM telephone
3	Great Lake-Kompong Loung	Min data logger, GSM telephone
4	Tonle Sap-Prek Kdam	Min data logger, GSM telephone

- Under the MRC Program call MEKONG-HYCOS (5 years: Mid-2006 to Mid-2011) will establish new real time data collection in Mekong Basin.

FF to end users



FF for Flood Plan

1. Data from 40 Flood Marks through CRC, under FMMP/MRC
2. DHRW make FF for 3 days
3. Sent to 40 FM-Villages by e-mail through CRC

Remarks: For 25 new FM in 2006 by OXFAM GB and FMMP/MRC are monitoring and will make FF when data acceptable for running Model.


05 . 01 . 2005

5. Case Study and Research

- Case Study on Water Quality in Se San river,2003-04, MRC
- Case Study on DSF model in Pursat river, 2006, MRC
- Case Study on Flood Hazards Map with AIT
- Joint research study with Universities/Institutes such as Japan, Sweden, France,…

III. Conclusion

- Hydro-Meteorological Networks are improving;
- Provide Weather Forecast and Flood Forecasting Information to all relevant agencies and risk to community base;
- Flood Risk Reduction to community base.


THANK YOU !