

KINGDOM OF CAMBODIA
NATION RELIGION KING

MINISTRY OF WATER RESOURCES
AND METEOROLOGY

IGWCD Planning Meeting
University of Tokyo, Tokyo, Japan
March 14, 15, 2011

Characteristic of Geography in Cambodia:



Divide 3 Areas

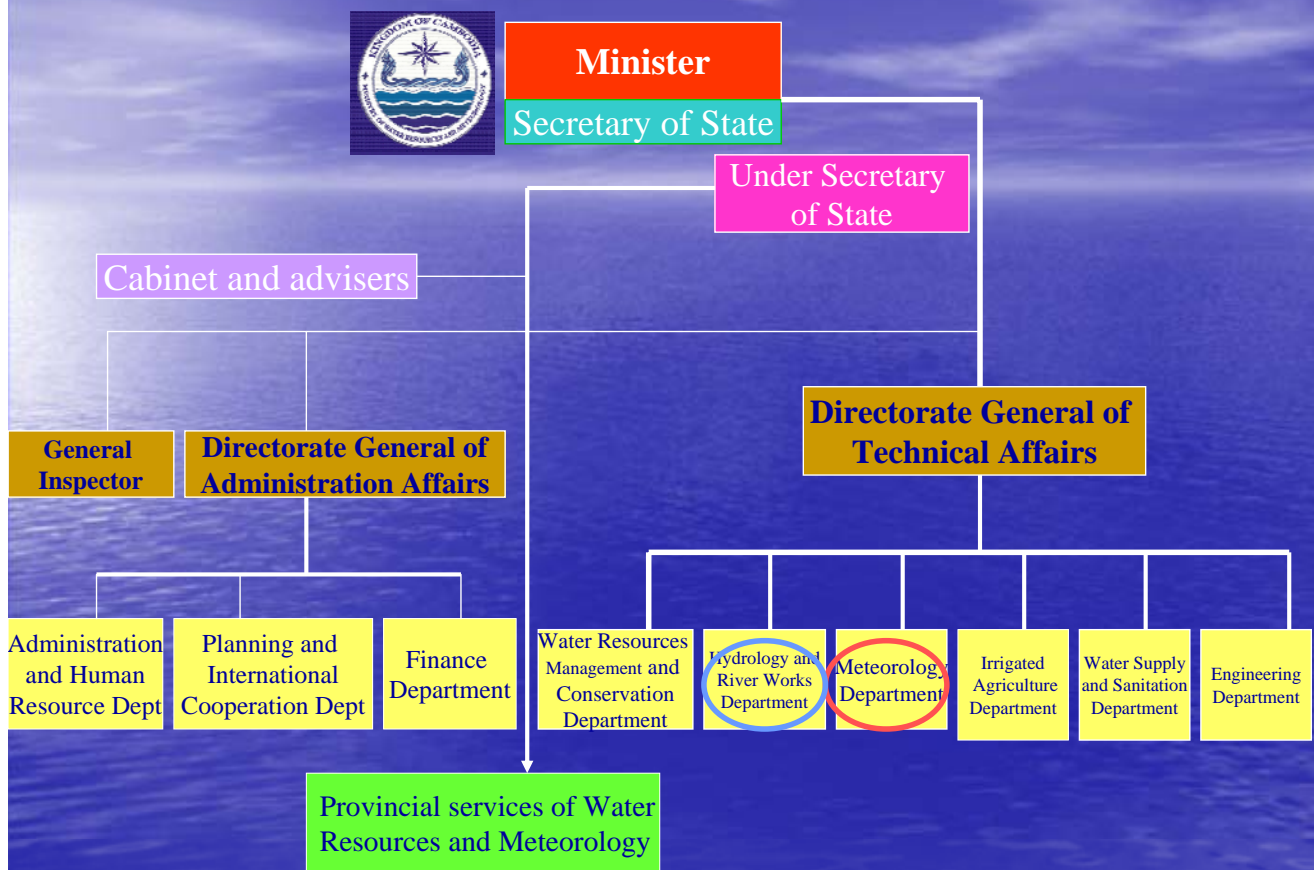
- 1-Coastal Areas
- 2-Plateau Areas
- 3-Flat Areas

Department Hydrology and River Work and Department of Meteorology are under Ministry of Water Resources and Meteorology.

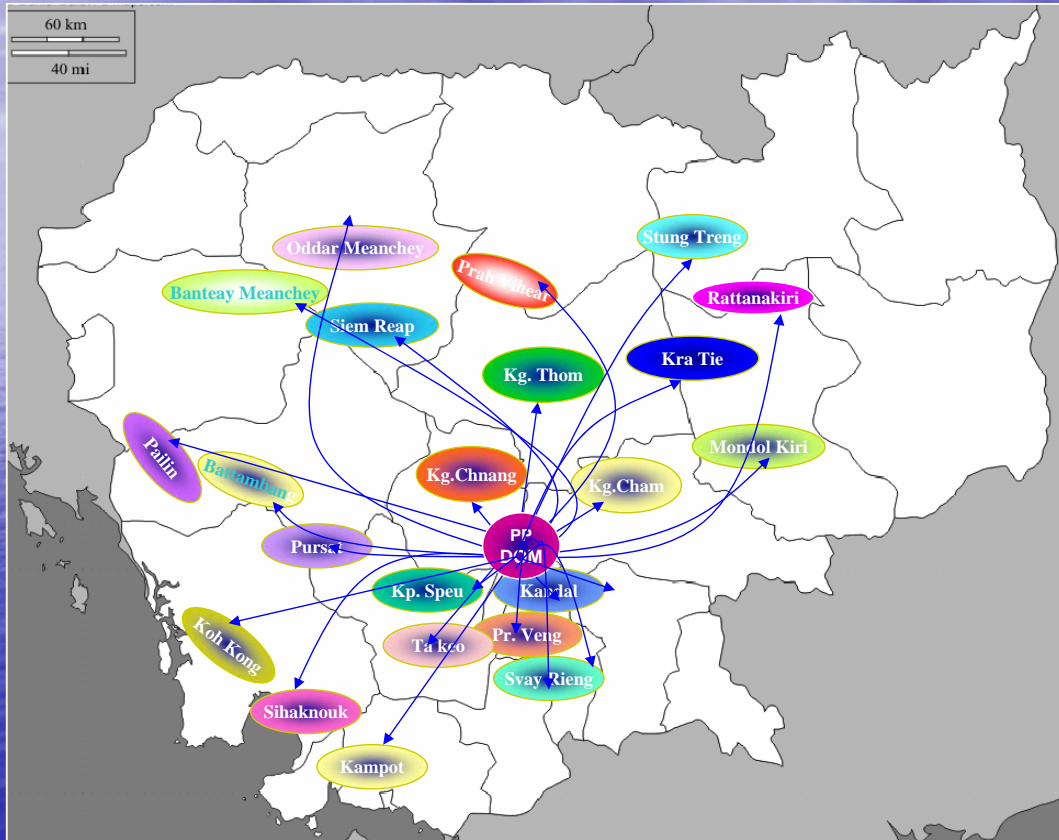
H.E. Lim Kean Hor is the Minister of Ministry of Water Resources and Meteorology.

Permanent Representative (WMO) in Cambodia.

Organization Chart of the Ministry of Water Resources and Meteorology



Hydro-met Service systems of the Provinces in Cambodia

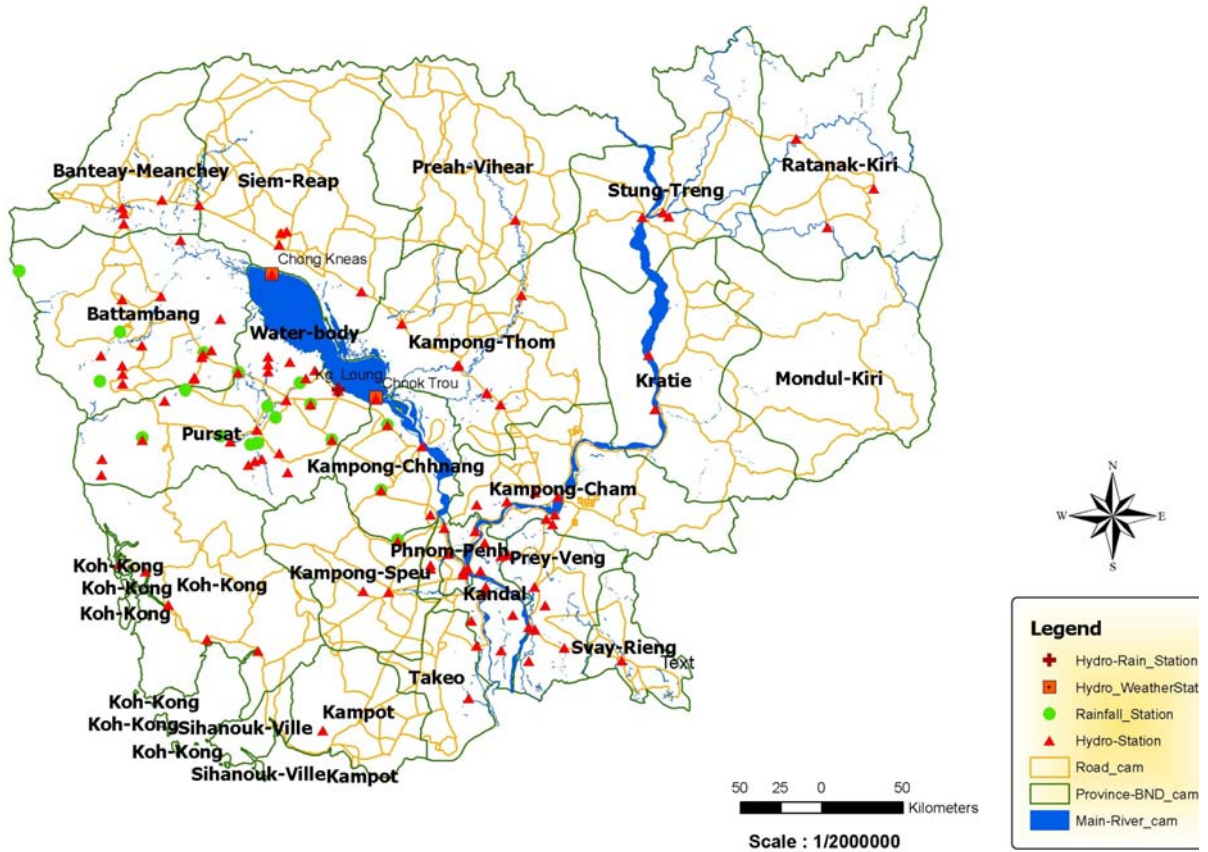


Station Network :

- Weather Observation Network in Cambodia consists of: 20 synoptic stations including of 9 automatic stations (AWS): 92 Hydrological including of 8 telemetry, Some were no working and others are olds of manual instruments.
- 200 manual rain gauges including some automatically rain gauges, that in some provinces sent rainfall data to MOWRAM by telephone or telemetry data collection (internet support by MRC) .



MAP OF EXISTING HYDRO-METEOROLOGY NETWORK IN CAMBODIA



OTT ORPHEUS MINI DATA LOGGER



STAFF GAUGE (MANUAL RECORD)

OTT THALEMEDE DATA LOGGER



OTT ORPHEMED DATA LOGGER



MANUAL RAIN GAUGE



HOBO RAINGAUGE RECORDER





Current Metter MTS-1(0.16m/s-3.59m/s)

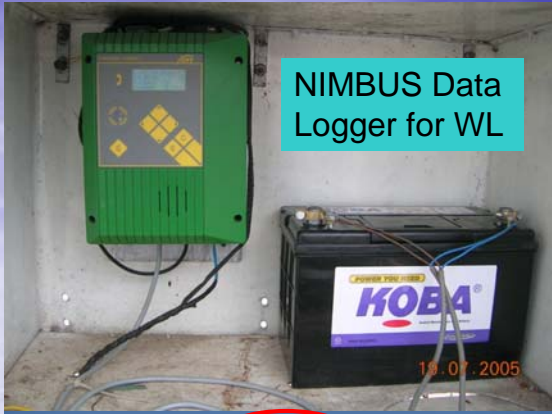
Current Metter MTS-3 (0.2m/s-4.99m/s)



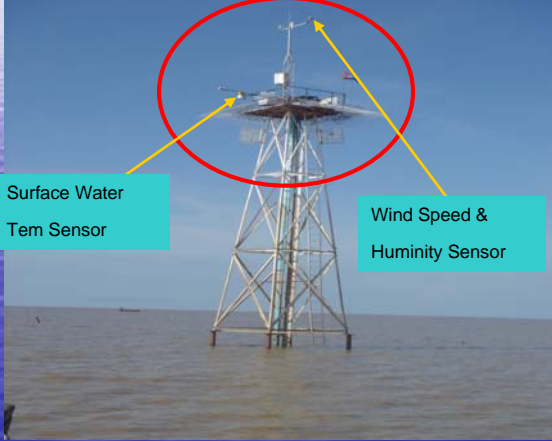
Automatic Weather Station (AWS), Viasolar System at Chhnok Trou station in Tonle Sap Lake

Rehabilitated under fund of PWRI of Japan in 2004 and finished project in 2007.

Propose to continue for improving and data collection



Automatic
Weather
Station (AWS),
Cambel System
at Chong
Kneas station
in Tonle Sap
Lake



**DOWNLOAD DATA &
MAINTAINANCE**



overview of AWCIGEOSS/Tokyo University research Activity in Last Year in Cambodia



On the job training about the operation System of Radio Sonde was done.

Cooperation between : Tokyo University, DHRW, DoM and DoWRAM of Battambang province.

We carried out 2 time. In order to make observation about the variable weather condition from the ground surface into the atmospheres around 15-20km

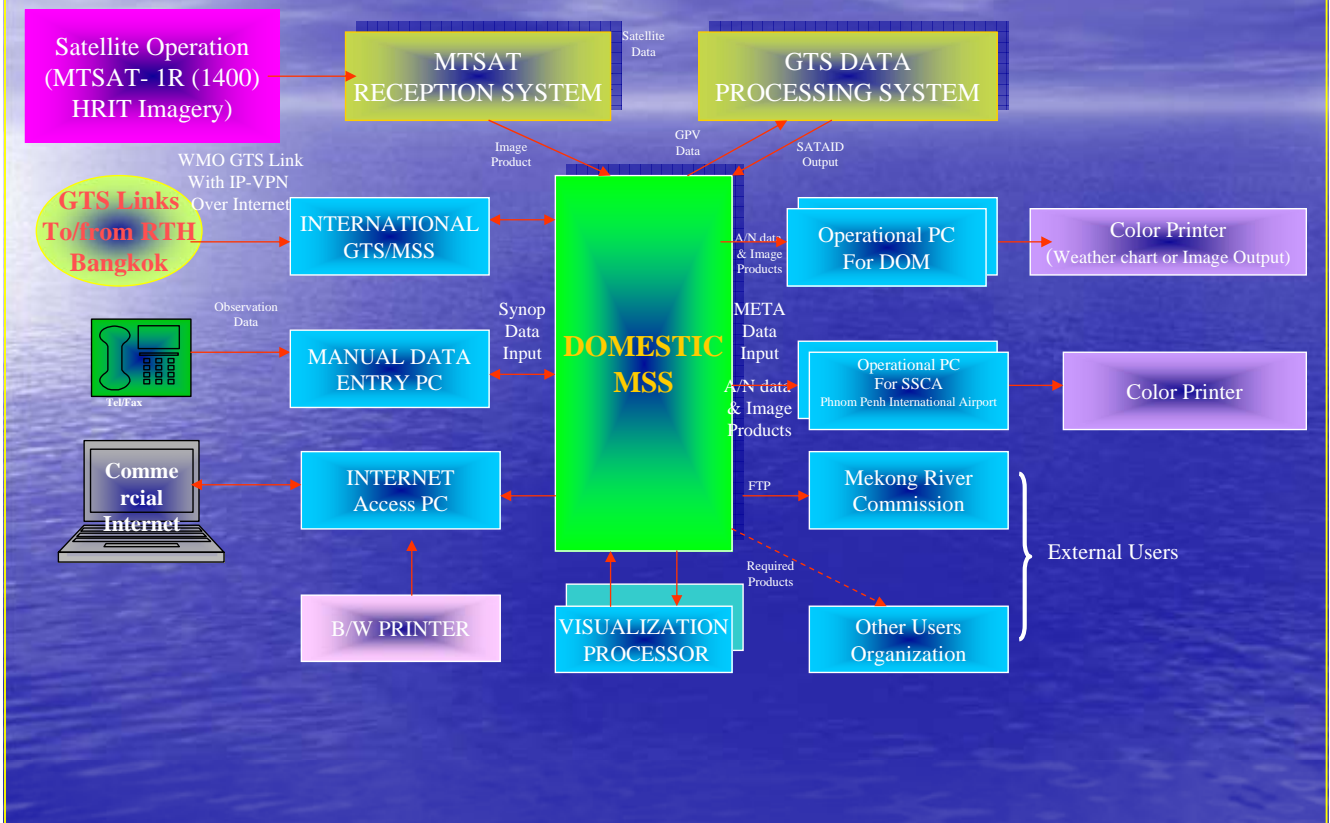


❑ 2 new rain gauges were Installed, one of them at Bac Prea Station at donwstream of Sangker river, near Tonle Sap Lake and another in Pailin province at upstream of Sangker river. Now, one of both rain gauges has the problem (can't withdraw data from data logger and it was bring back to Japan by Tokyo University.

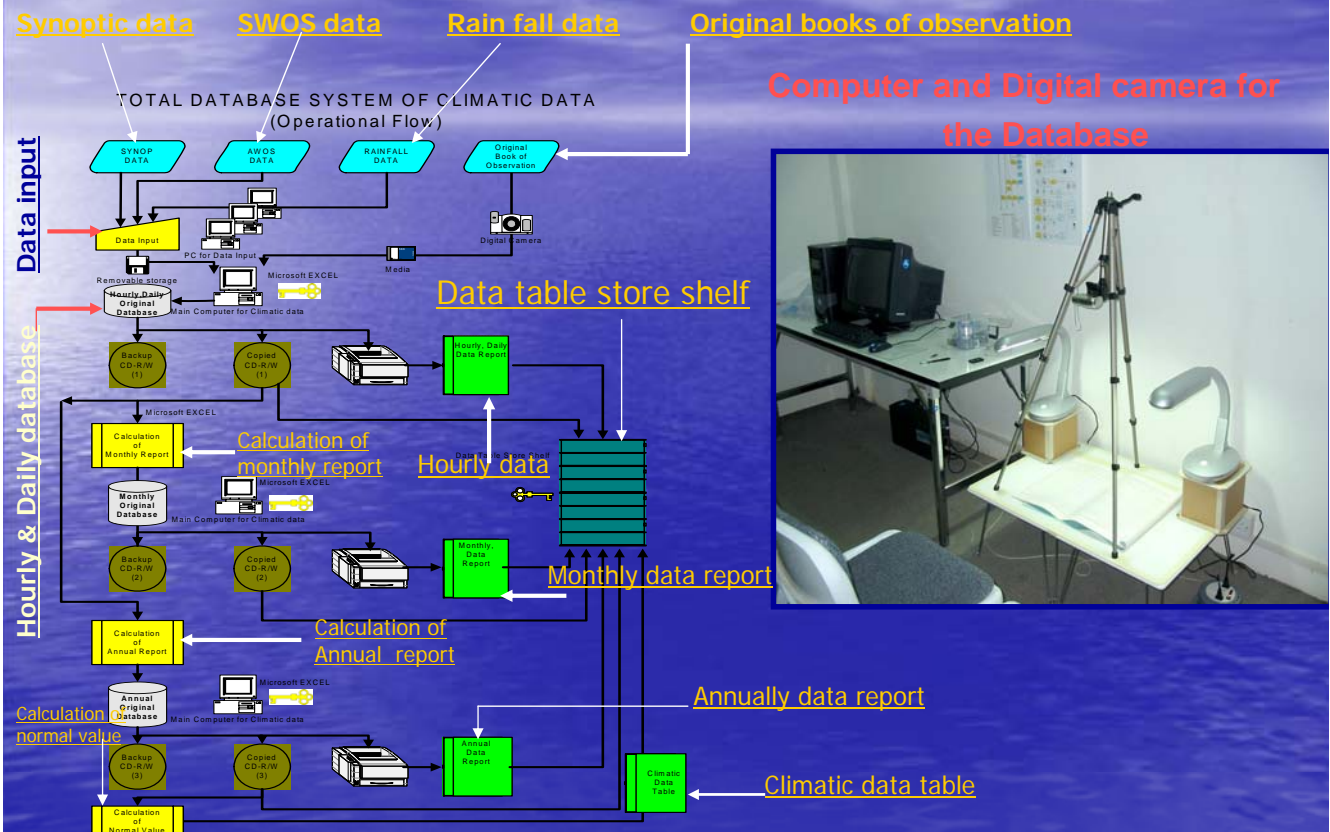
❑ 2 temporary AWS were set up for testing about the weather condition between upper part & lower part of Sangker river.



Data/Processing Flow Diagrams on the Hydro-Meteorological Information System

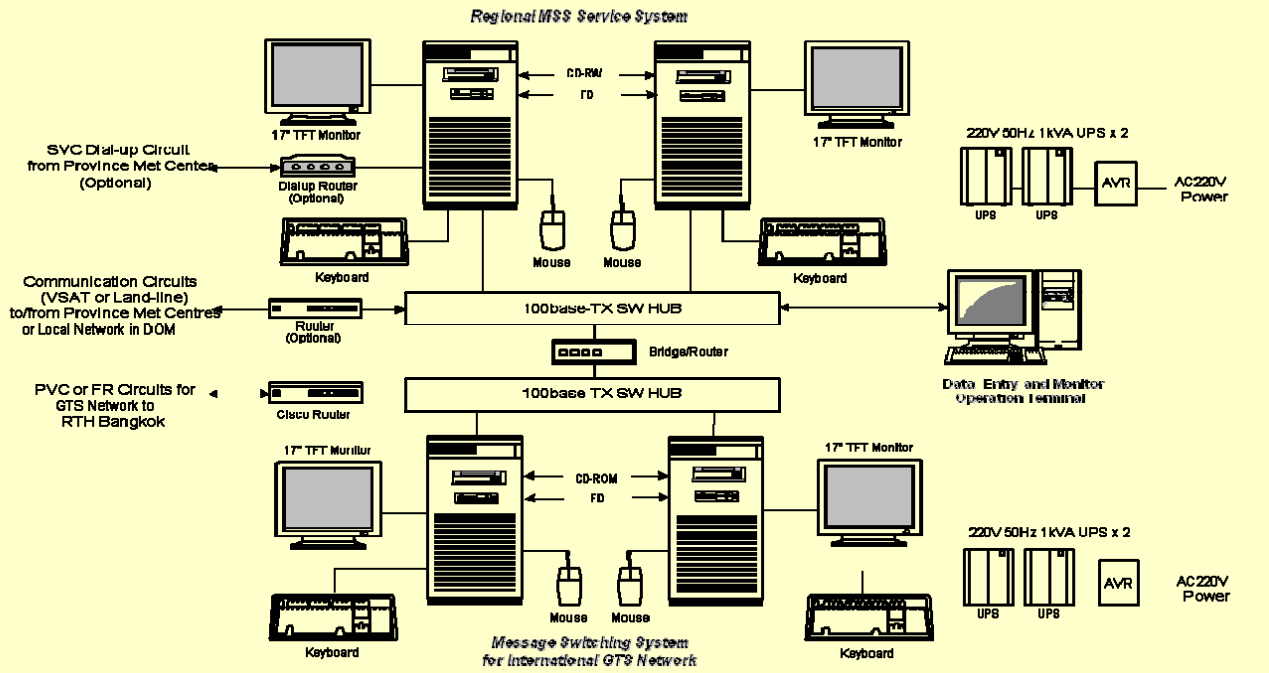


Total database system of climate data (operational flow)



GTS and Information systems

WMO/GTS Message Switching System for NMC Cambodia (DOM)

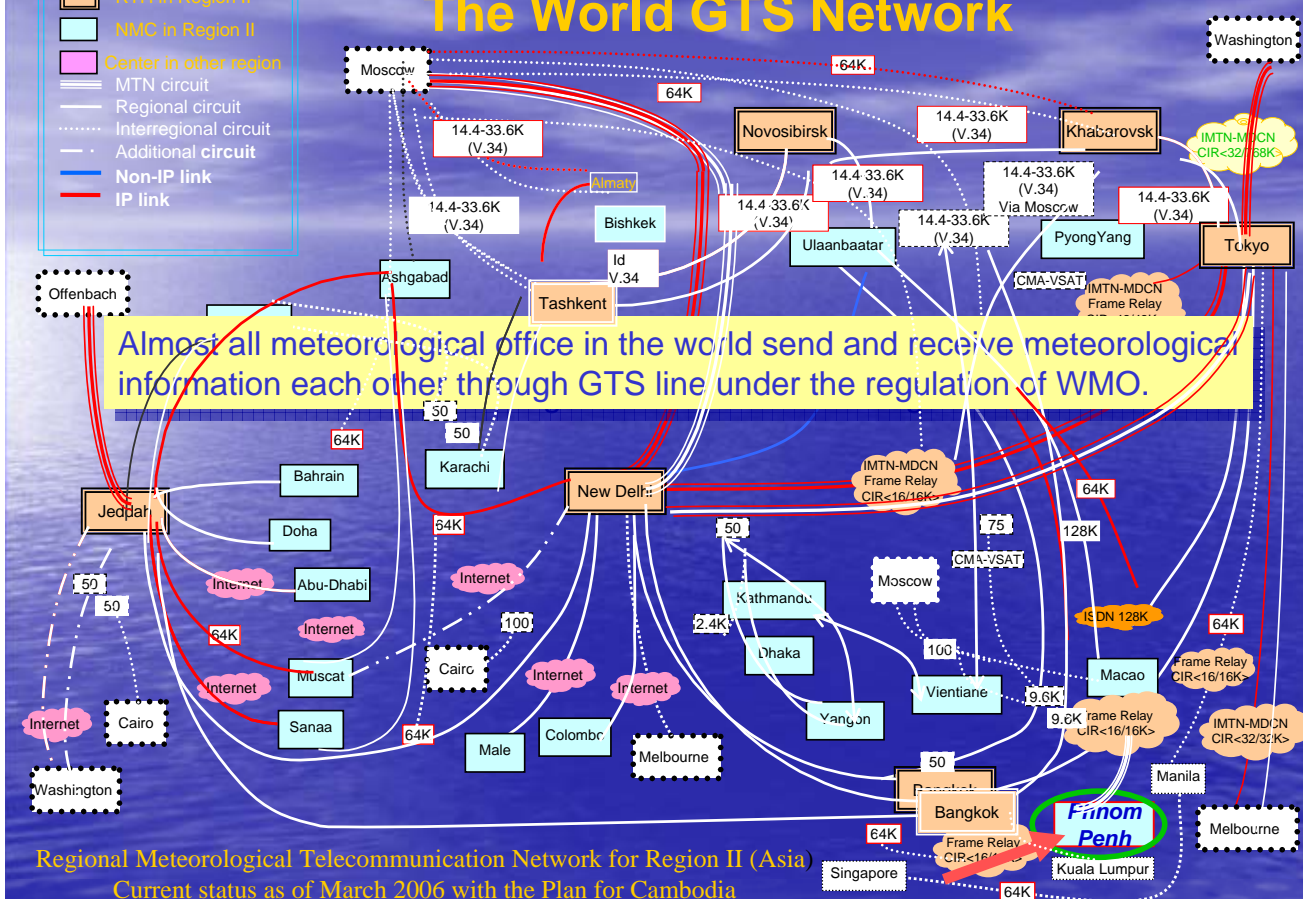


Author	K. Akatsu	Date	Mar. 2006	Doc No.	D1058091B	Title	The System Structure of GTS/MSS for Cambodia
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The World GTS Network

- RTH in Region II
- NMC in Region II
- Center in other region
- MTN circuit
- Regional circuit
- Interregional circuit
- Additional circuit
- Non-IP link
- IP link

Almost all meteorological office in the world send and receive meteorological information each other through GTS line under the regulation of WMO.



Regional Meteorological Telecommunication Network for Region II (Asia)
Current status as of March 2006 with the Plan for Cambodia

- Weather forecasting in DOM: Analyses by flow chart, update previous data (ground level and upper air) by GTS + Internet information).
- In the case, warning systems before arrival time of ITCZ, TD, TS , STS and others natural disaster monitoring -Announcement broadcast by TV, news, radio, telephone, SMS etc... from MOWRAM is alerting to public preparedness as be possible).

The Major Problems to be solved for the Modernization

Key Point

To have a more understanding to the Hydro-meteorological Operation as the World standard: model for weather and flood forecasting.

Observation & Equipment

→ An old type equipment → It's OK, but it needs proper maintenance and continuous observation is very important → It needs maintenance cost (not so much).

Additionally

→ To understand the Sensitivity of Observation

Database

→ Database needs very simple and patient operation
→ operator is needed

GTS

- All the attendants may understand the importance of GTS Switching System
- Need more training on GTS Switching System
- ➔How to use GTS data still limited knowledge.

IT engineer

- GTS requires IT engineer.
- (In the future) Meteorological Satellite Receiving System also requires IT engineer.

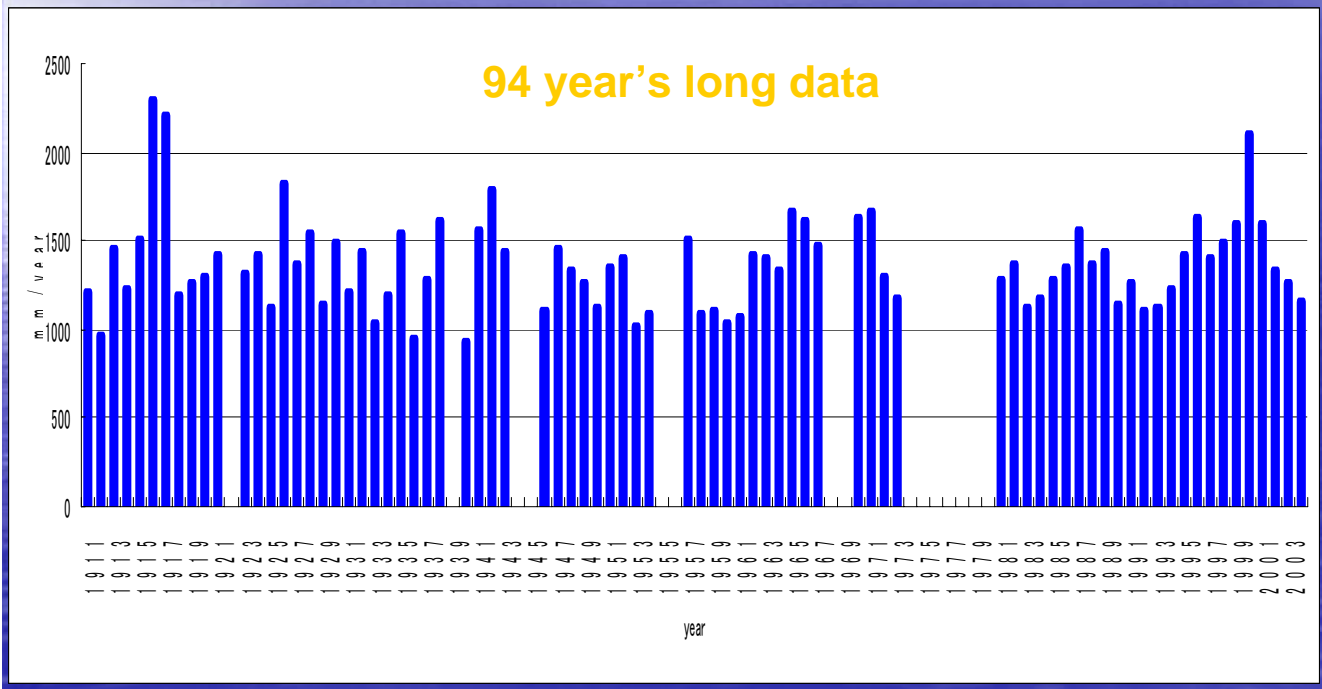


Historically important observation data book



Well arranged historical record log book

Example of Historical Data



Responsible for technical training and educate to staffs of the method and practical of Hydro-meteorological service systems.





**Thank you for your
attention !**