Kingdom of Cambodia

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Cambodia
Status of quality management in rainfall observation

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Country report in RAII WIGOS workshop on quality management of observation held in Tokyo, March 2018

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Content

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1. Challenges in rainfall observation

- Lack of human resources (observer)
- Lack of *instruments*
- The Knowledge staffs are still limited.
- Need more knowledge, skill and experience through training course for short and long term.
- There is no technical expert for health check a system while it is error.

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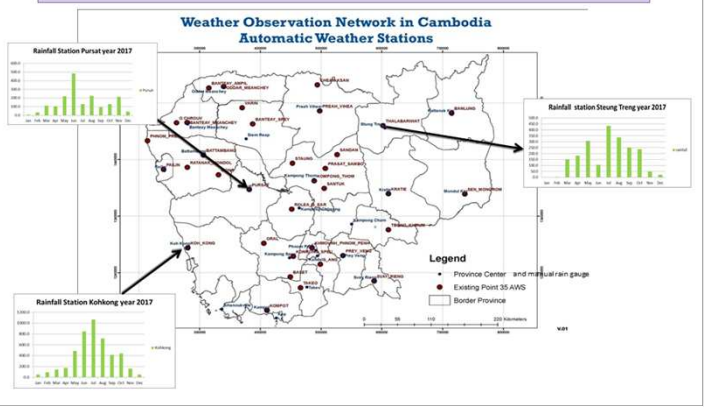
2. Annual rainfall



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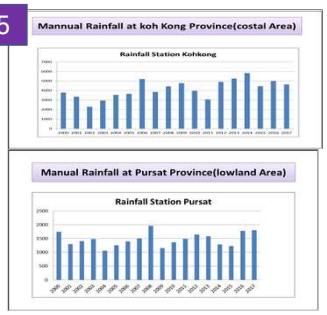

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3. Major recent rainfall-related disaster

1. Tropical Strom
2. Heavy Rain
3. Flood & flash flood
4. Drought
5. Thunderstorms

❑ Cambodia divide 3 areas :

1- Lowland Area Rainfall
Max 250mm 24h- 9/June/2017
2- Plateau Rainfall
Max 145mm 24h-28/Apr/217
3- Coastal Rainfall
Max 190mm 24h -16/July/2017

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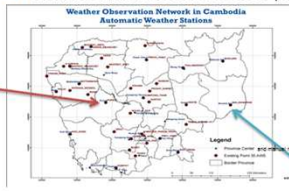
4. Rain gauge network

- Automatic rain gauge stations.
- Tipping bucket rain gauge is used in the station.
- It observes rainfall every 10 minutes and transmit the data every 1 hour.
- Minimum observation unit is 0.2mm.
- Statistical data are stored since 2013 (has 5 rain gauge) .



- Red circles represent the manual rain gauge .
- Observers read the rainfall value every 6 hour and report (24h/day at times 00,06,12,18UTC)
- the data once a day.
- Minimum observation unit is 0.1mm.
- Statistical data are stored since October 1980.

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5. Applications and users

MOWRAM Radar Station TECHO SEN Meteorological Operation Center headquarters

Automatic rain gauge data are transmitted to headquarters every 1 hour.

Manual observed rain gauge data are reported to headquarters once a day.

Warning/Watch/Advisory for the stakeholder

Data center in headquarters conducts AQC and archiving statistical data.

Observation data in real-time web for the nations http://www.cambodiameteo.com/obsmap?menu=134&lang=en

- Royal Palace
- Prim Minister Cabinet
-Cabinet Minister of MOWRAM
-Ministry of Information
-Radio, TV , Newspaper
-Provincial Department of MOWRAM
- University research
-other NGOs
-Other User

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6. Quality management

- conduct following quality management operations.

- Rain gauge inspection Six Months
- Site environmental check once in every two Month
- Daily site appearance check
- Limited value check for the observation data

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7-Observation Network

Cambodia observes only on the surface and we are not yet to observe on upper air.

➢ ***Surface Observation:***
Climate Observation Network in Cambodia consists of :

- 25 synoptic stations in Provincial Department . including of 35 automatic stations (AWS) was broken and 23 synoptic stations are operational with manual observational equipment
- 181 manual rainfall stations.

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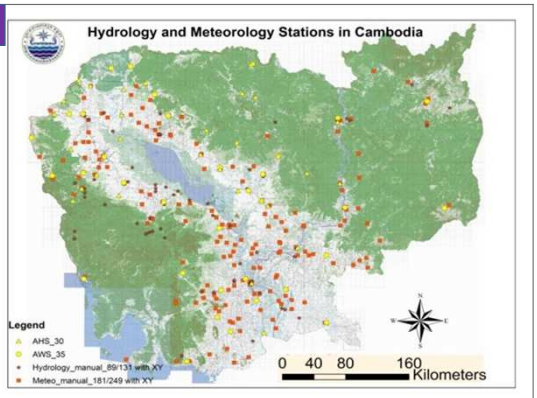

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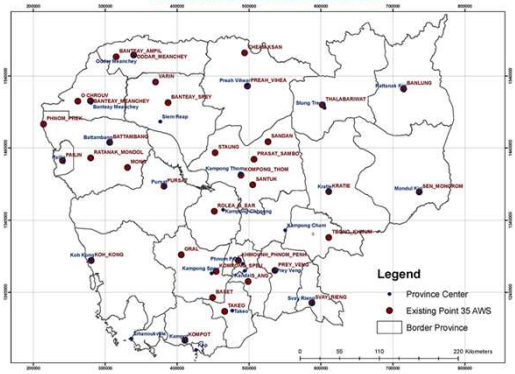

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Automatic Weather Station and Manual Station
Phnom Penh (Khmounh)

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Automatic Weather Station and Manual Station

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Rain Guage

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8. Expectation for this workshop

- Knowing how to adopt quality management
- Getting some skills of quality control for observation data
- Getting some tools of AQC and HQC
- Getting some materials for lecturing about quality management in my office
- Making firm relationships between participants to exchange useful information after the workshop
- Getting good new Experian about observation data management
- Getting new technology of rainfall observation
- Getting more quality control and quality management
- Exchange idea information the country in RAII