

MEMBER REPORT

ESCAP/WMO Typhoon Committee
11th Integrated Workshop

(CAMBODIA)

CEBU, THE PHILLIPINES
24 - 28 October 2016

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- I. Overview of tropical cyclones which have affected/impacted Member's area since the last Typhoon Committee Session**
- II. Summary of progress in Key Result Areas**

I-Overview of tropical cyclones which have affected/impacted Cambodia in 2016

1- Meteorological Assessment (highlighting forecasting issues/impacts)

From Jan to the August 2016, there was no cyclone impacted the Cambodia.

El Niño event that was since 2014 prolonged to May 2016 and become to be strong affected to the Country from Jan to the 3rd week of May 2016. The rainfall amount during Pre-Southwest Monsoon (Mar-April) was decreased if compared with 2015 and the Mean of Rainfall 31 years (1985-2015). Southwest monsoon onset was delayed and weakening. The Maximum Temperature over the country reached to 42.2 °c , and hotter than maximum temperature of 25 years (1990-2015) about 0.7 °c (Chart1,2,3).

Chart 1: Maximum Temperature in Coastal Area in 2016 and Maximum Temperature of 25 years (1990-2015).

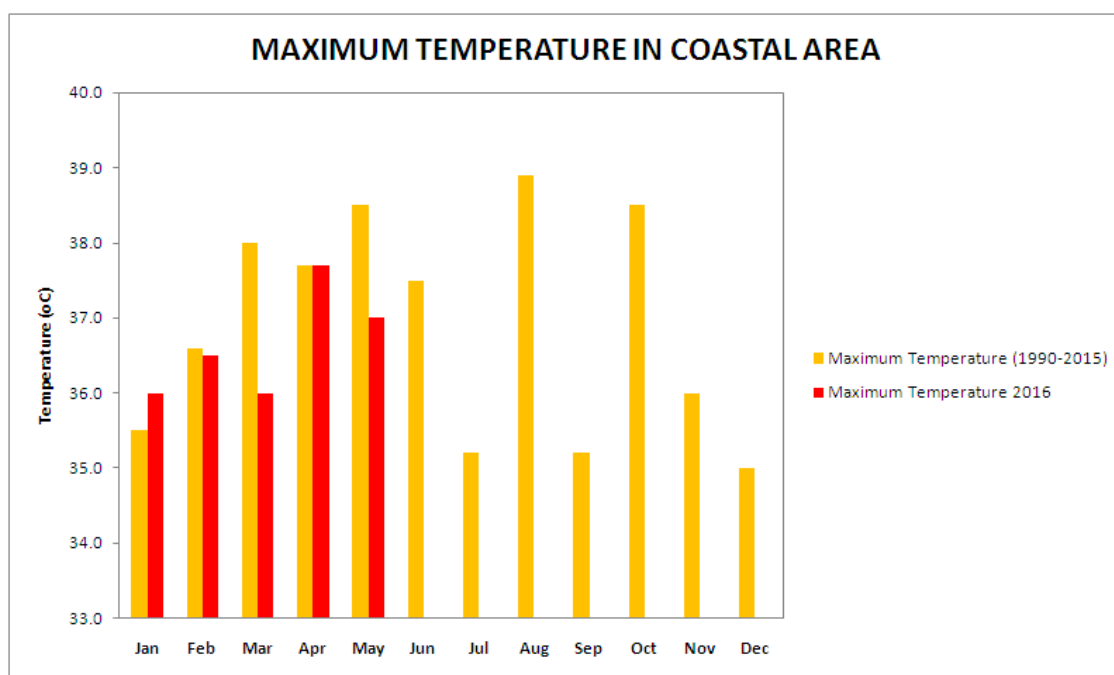


Chart 2: Maximum Temperature in Low land Area in 2016 and Maximum Temperature of 25 years

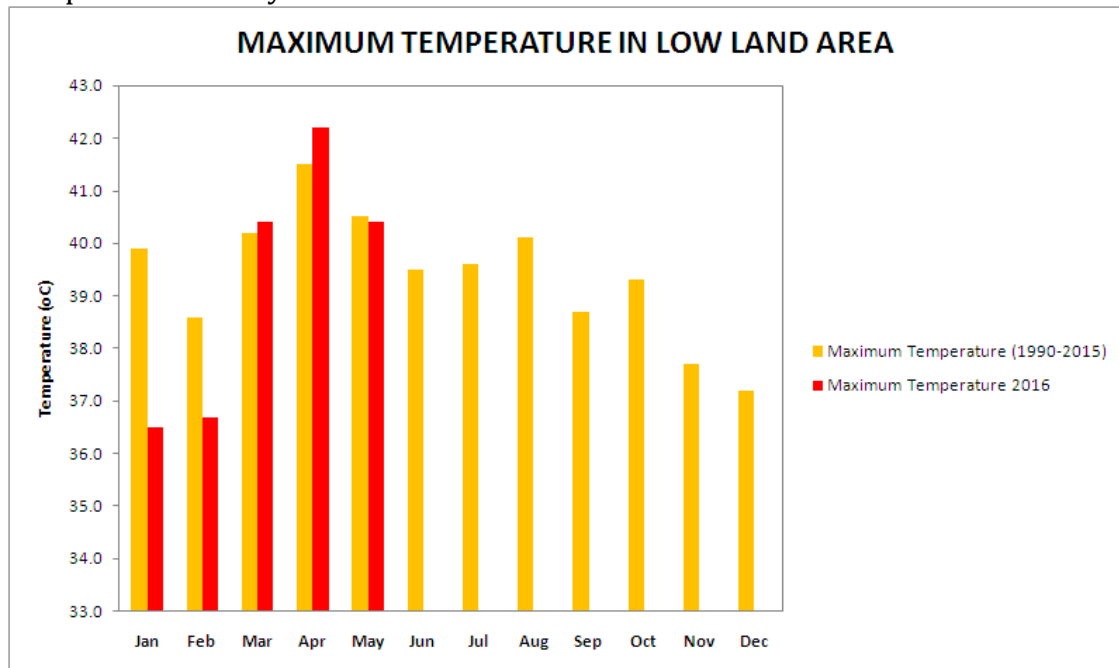
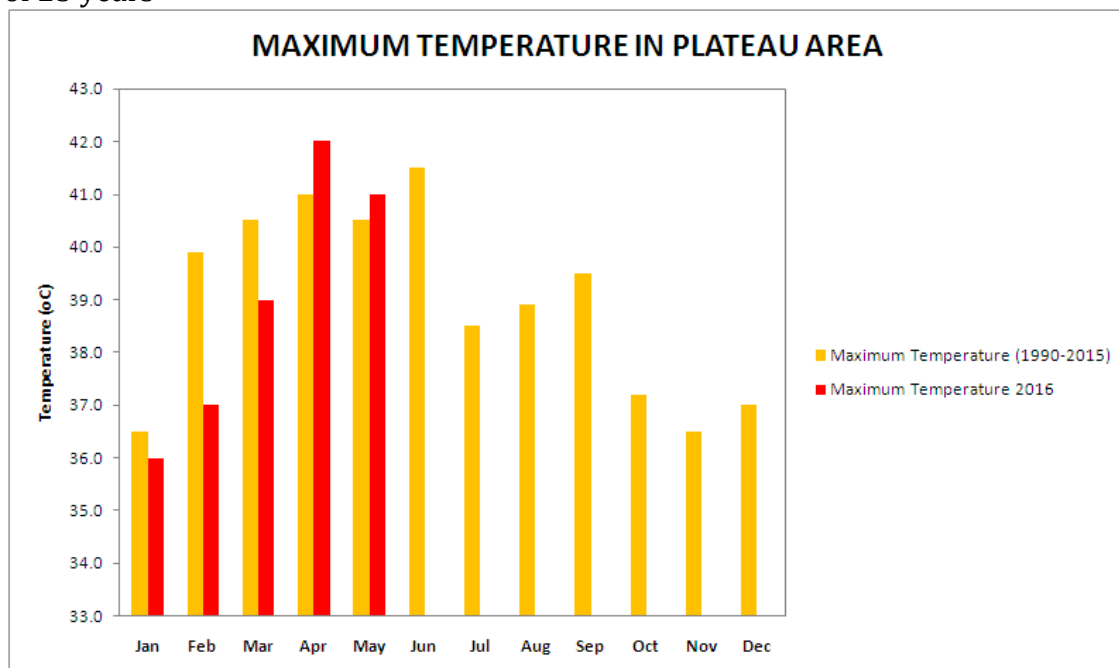


Chart 3: Maximum Temperature in Plateau Area in 2016 and Maximum Temperature of 25 years



The average rainfall during Pre-Southwest monsoon from March to April at Coastal area is less than normal rainfall (31 years of average rainfall) about 245.8mm, Average rainfall at Low land area is less than normal rainfall about 100.7mm, and for the Plateau area is less than normal rainfall about 103.9 mm (Chart4,5,6, Fig.1). This caused the hold Country was face into the severe drought that led to water shortages for both human consumption and agriculture. 25 Provinces were extreme drought, Rivers, lakes and Ponds were almost completely dry and some of animal were died by warmest temperature and lack of water.

Chart 4: Rainfall in Coastal Area in 2015, 2016 and Average Rainfall of 31 years

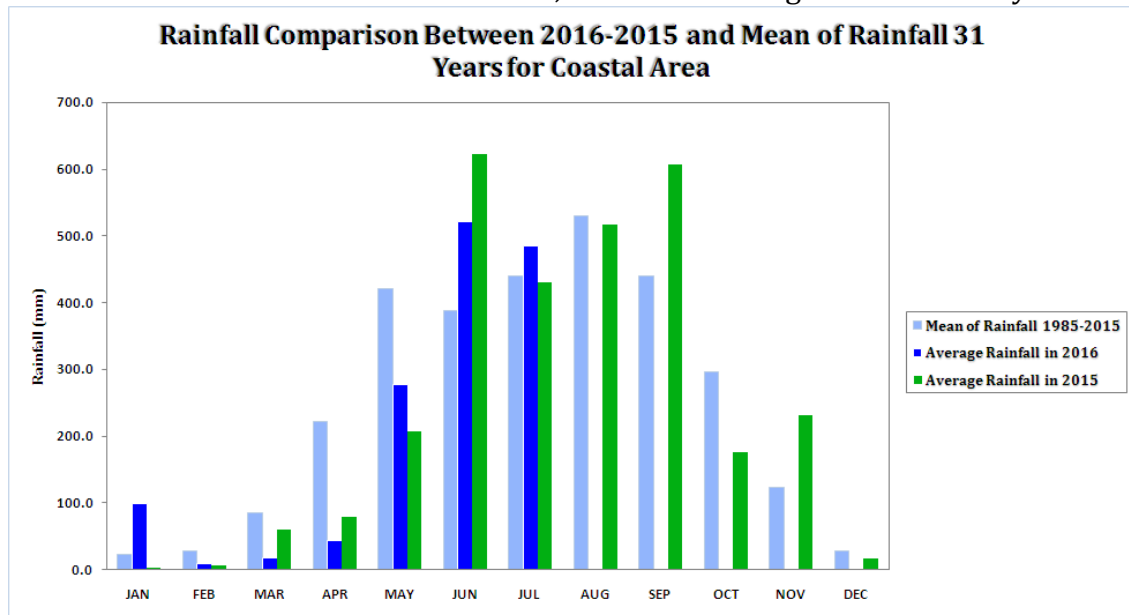


Chart 5: Rainfall in Low land Area in 2015, 2016 and Average Rainfall of 31 years

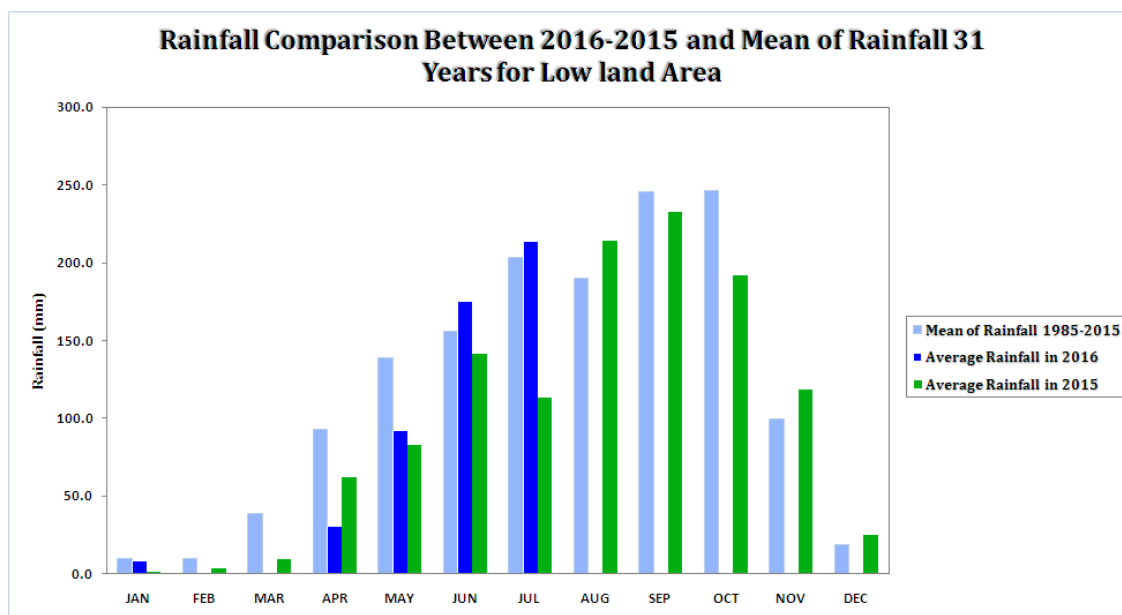


Chart 6: Rainfall in Plateau Area in 2015, 2016 and Average Rainfall of 31 years

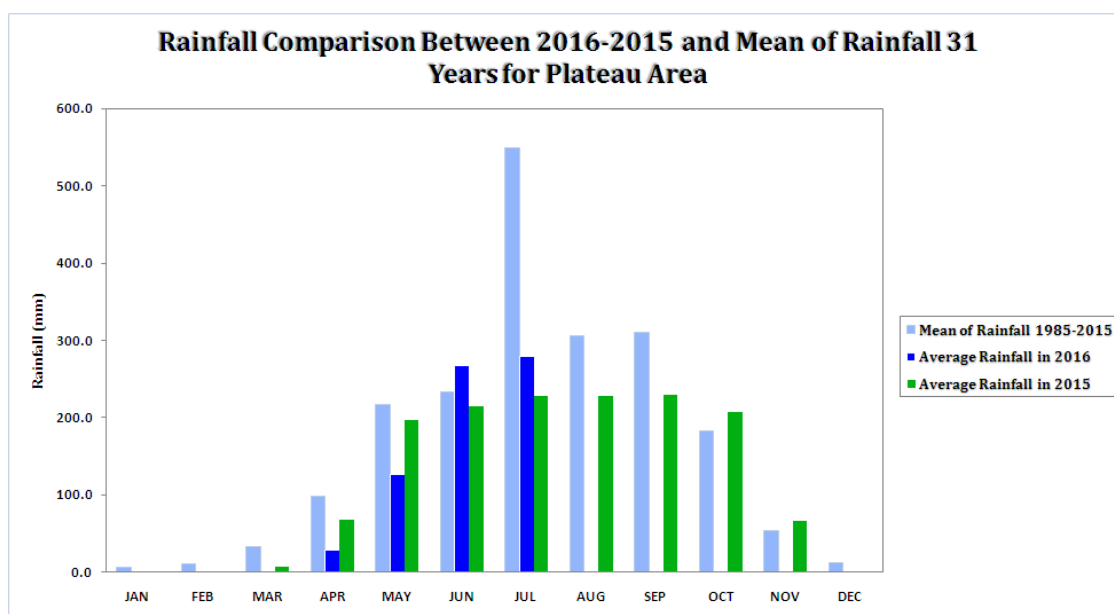
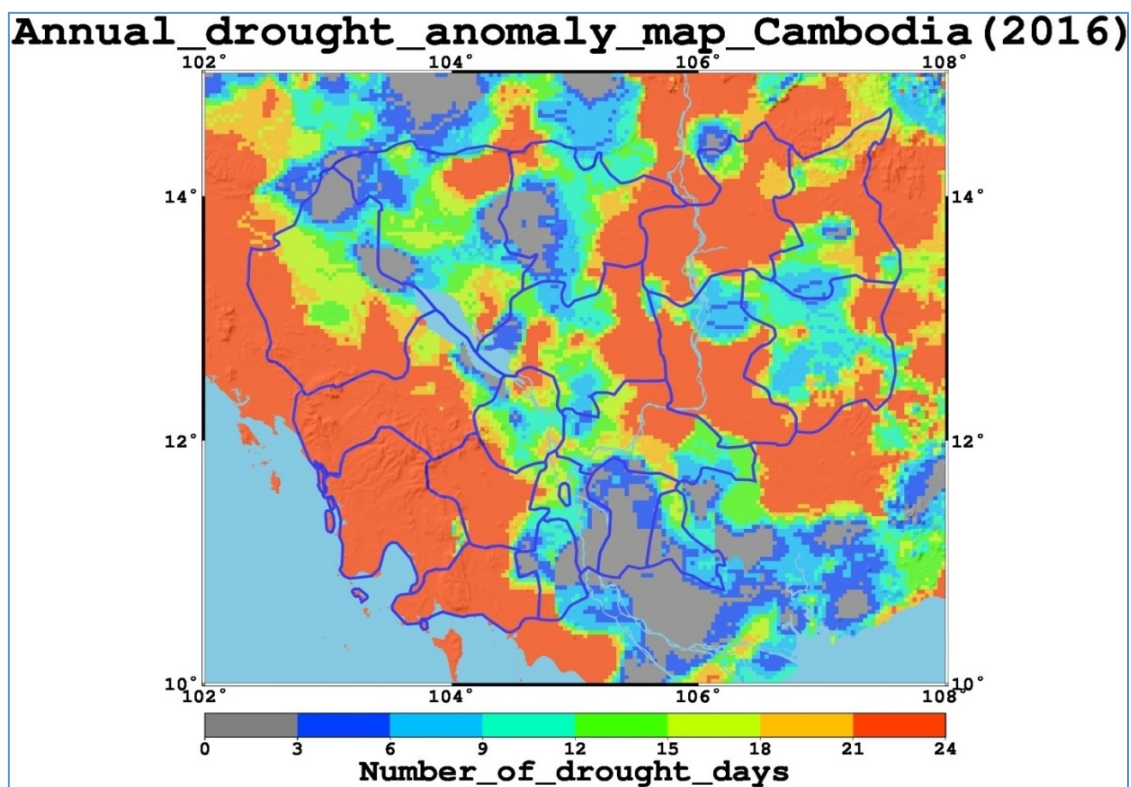


Fig. 1 - Map of Annual Drought anomaly in 2016
(Source of Drought Monitoring ESCAP/WMO)



The National Committee for Disaster Management (NCDM) has estimated that about 2.5 million people in Cambodia are affected across all provinces of the country. Around 18 provinces of Cambodia affected severely by drought causing water shortage, and drying out. (Fig. 2,3).

Fig. 2 - A dry and Cracked Paddy field in Kampong Speu Province
(Pictur by Phnom Penh Post)

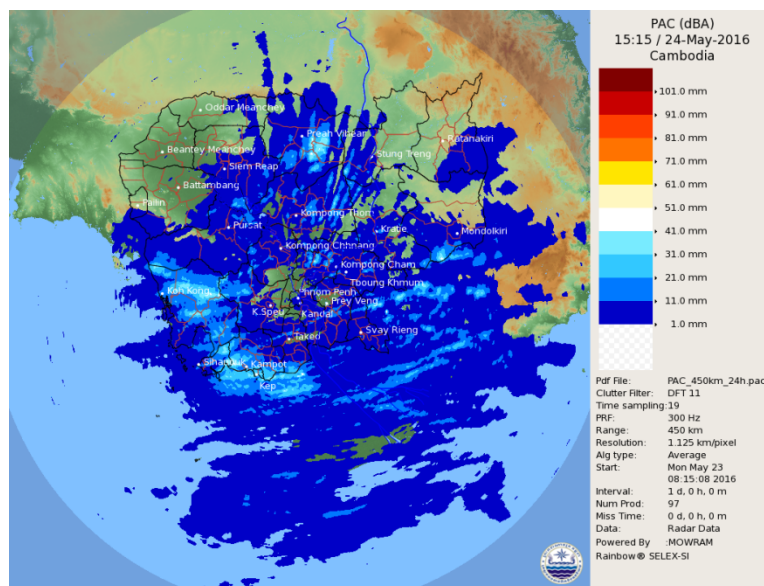


Fig.3 - The skeleton of a water buffalo that succumbed to the drought in Siem Pang district in northeastern Cambodia's Stung Treng province, April 23, 2016.



The Southwest Monsoon onset delay until 24th May, 2016 just it started. The Coastal area and some provinces of the country started to get rainfall (Fig.4).

Fig. 4, Accumulative Rainfall 24 hours over the Country



In August 2016, Dry Spell was prolonged from 15 to 16 days over the Country, especially over Northwest part, Central and South Part of Cambodia (Chart 7,8). This caused to a thousand hectares of Rice fields were damaged by lack of water (Ref. Water Resources and Meteorology Report in meeting on 29th August 2016).

Chart 7. Dry Spell in Northwest Part of Country

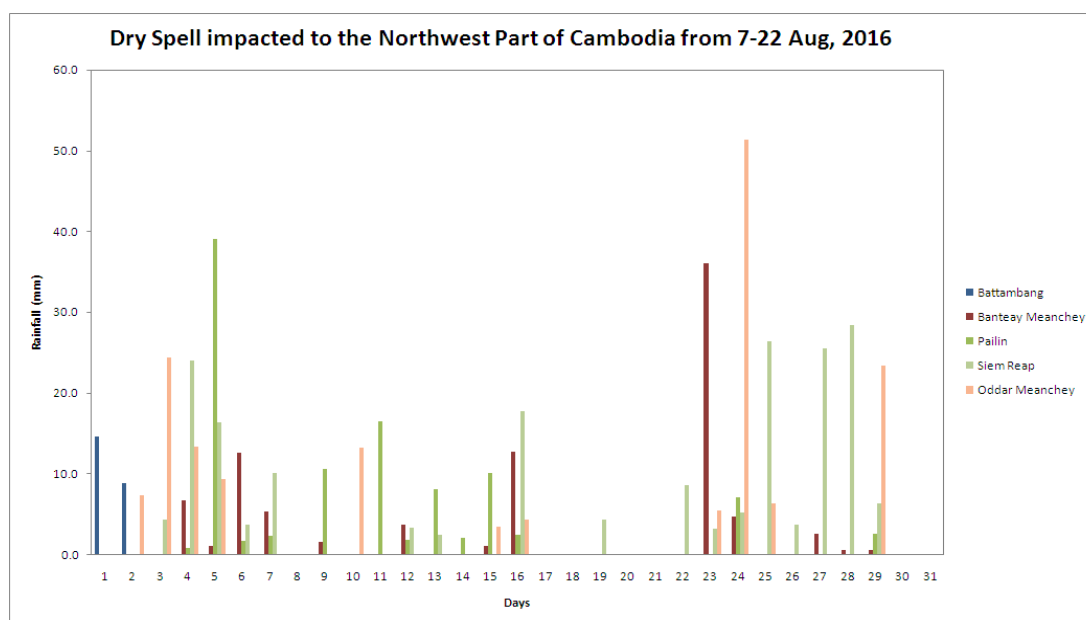
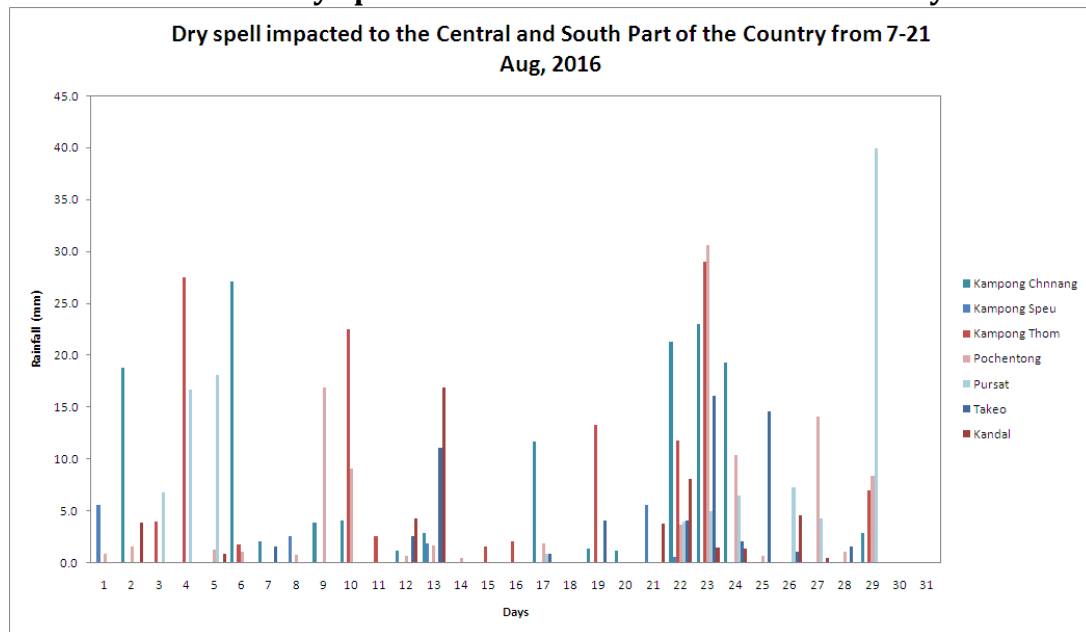
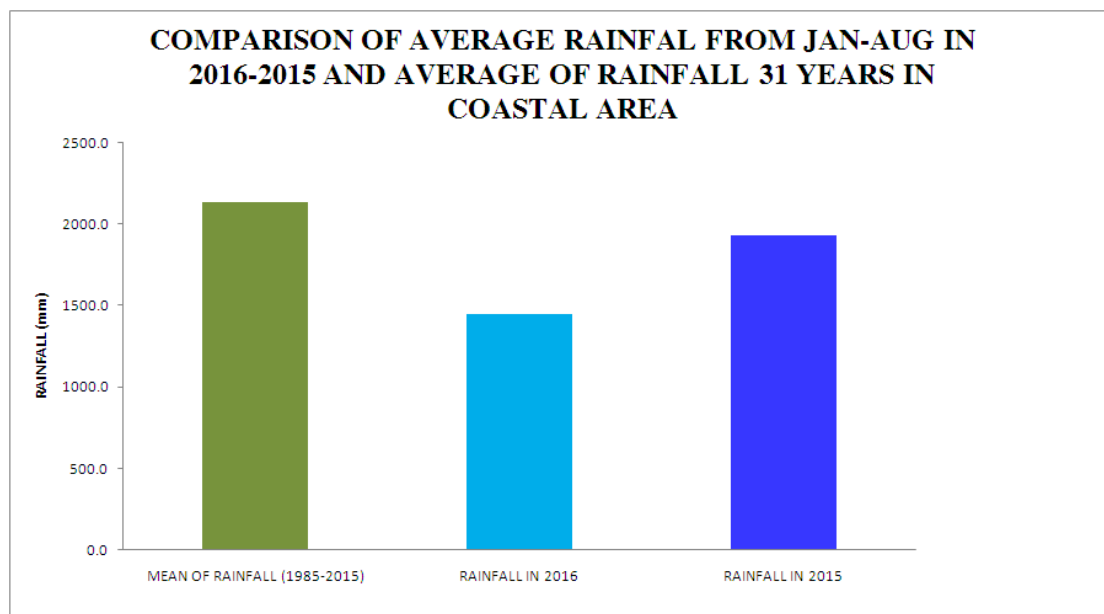


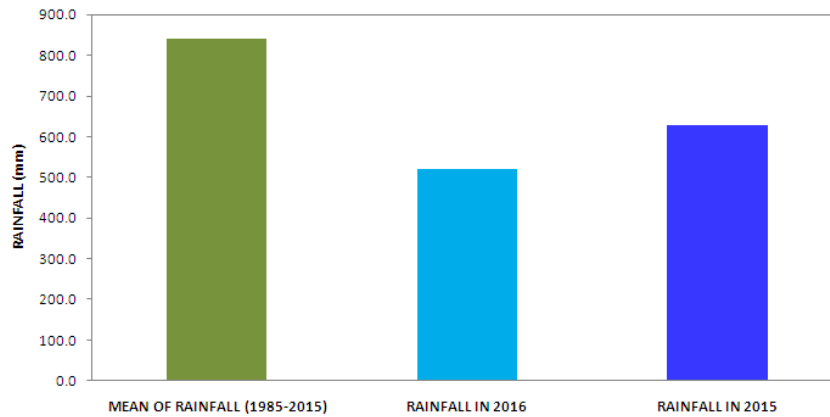
Chart 8. Dry Spell in Central and South Part of Country



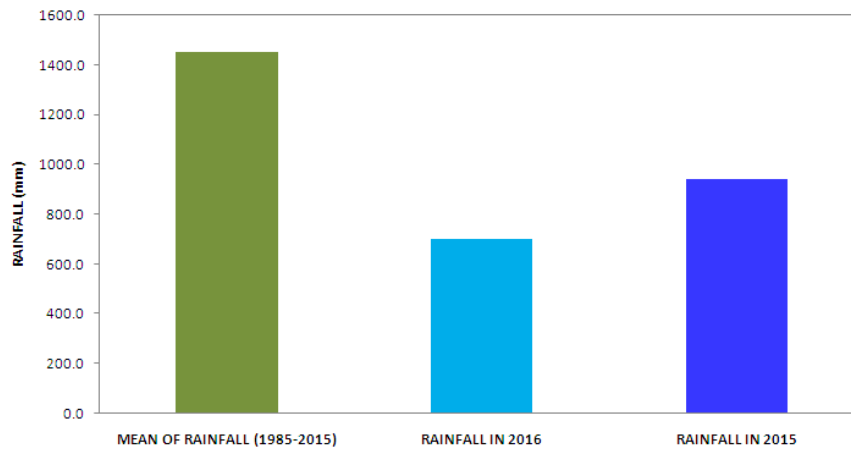
In summary, the amount of rainfall from January to August 2016 were decreased and less than 2015 and Average of rainfall 31 years (1985-2015).



**COMPARISON OF AVERAGE RAINFAL FROM JAN-AUG IN
2016-2015 AND AVERAGE OF RAINFALL 31 YEARS IN LOW
LAND AREA**



**COMPARISON OF AVERAGE RAINFAL BETWEEN 2016-2015
AND AVERAGE OF RAINFALL 31 YEARS IN PLATEAU AREA**

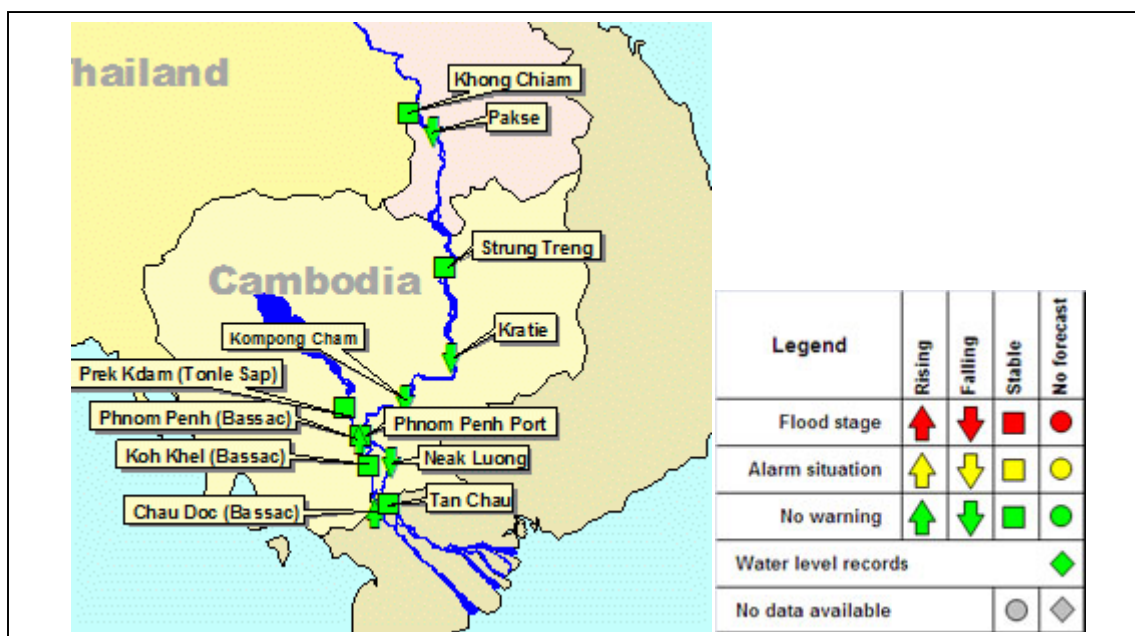


2- Hydrological Assessment

In 2016, from 1st January to 6th September, there was no flood or flash flood impacted the Country.

According to the data and Hydrology graph below indicated that the graph of water level in 2016 is under the graph of Water Alarm. The observe of water level from any stations this year were lower than dry year in 1992, so that there is no flood in the areas of Cambodia that are along the Mekong River and are also nor flooding in the area around Tonle Sap lake.

The main issue to be noted from early month of January to September this year is lack of water, especially for agriculture due to the influence of El Nino was strong impacted to Cambodia since last year and prolonged to the early 5 months of 2016 that lead to almost of river and lake were dried.



StungTreng

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 7.03 m

Forecast level on Wednesday, 07 September, 2016 = 7.16 m

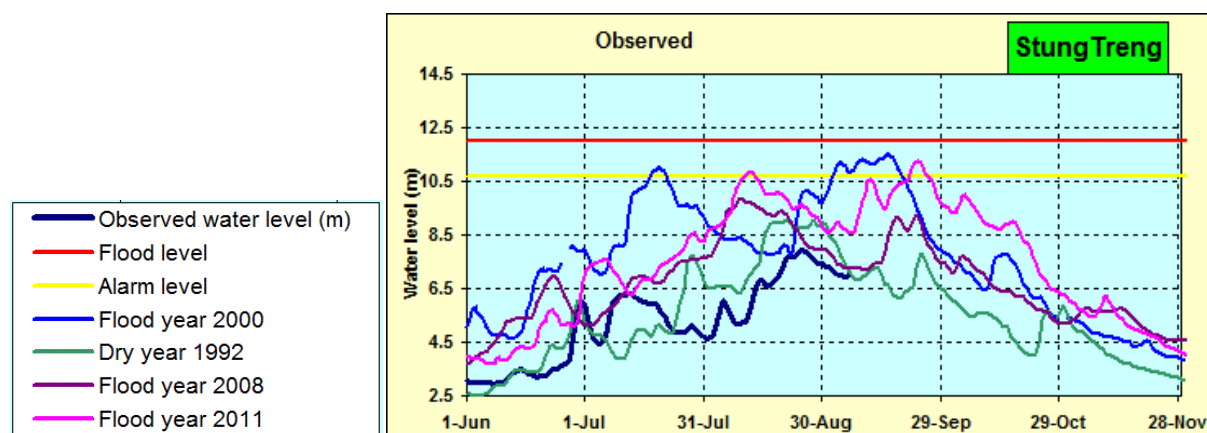
Flood level = 12.00 m

Alarm level = 10.70 m

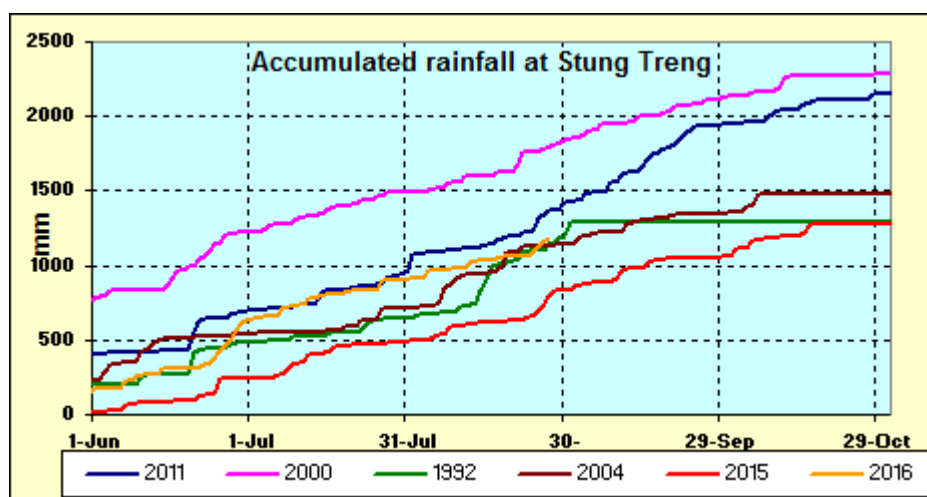
All levels are above zero gauge

(Zero gauge StungTreng = 36.79 m above MSL)

Observed water level this season



Accumulated rainfall (Starting from 01 January)



Kratie

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 16.07 m

Forecast level on Wednesday, 07 September, 2016 = 16.24 m

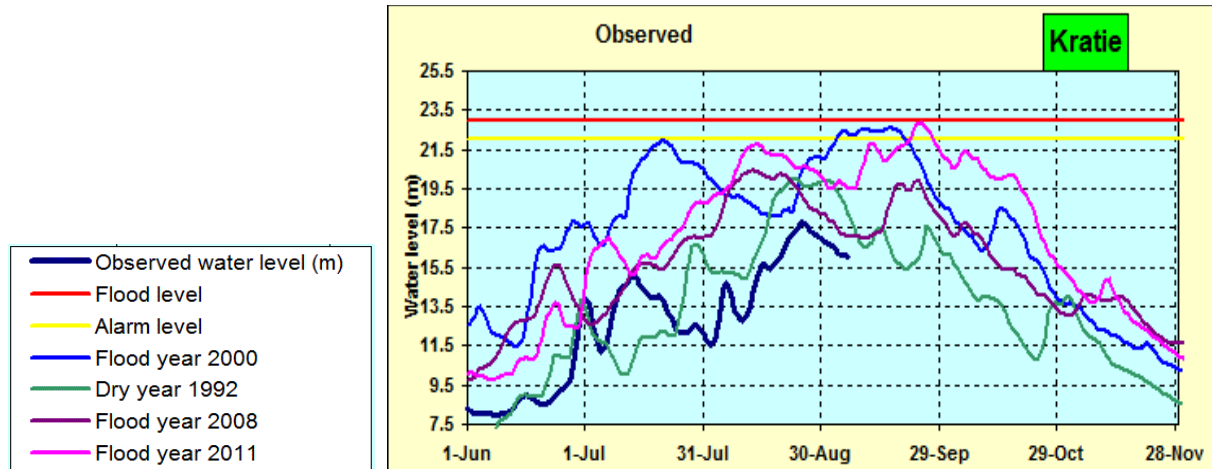
Flood level = 23.00 m

Alarm level = 22.00 m

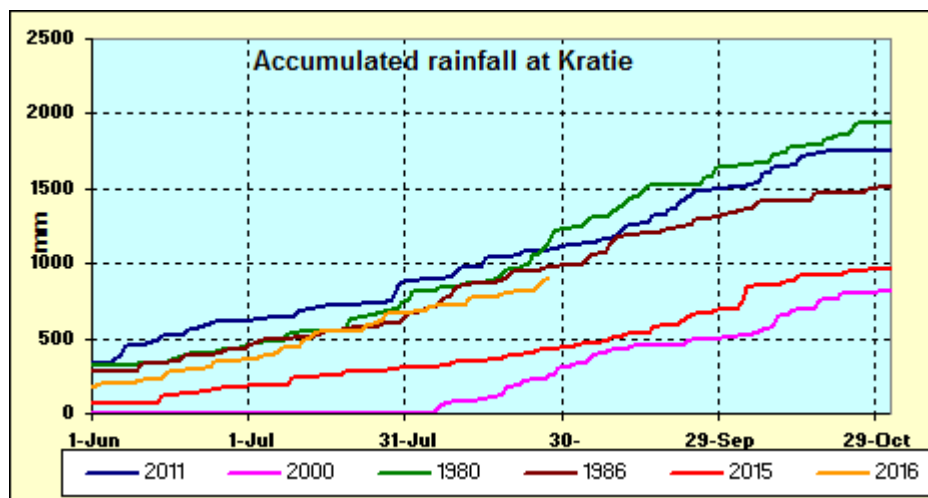
All levels are above zero gauge

(Zero gauge Kratie = -1.08 m above MSL)

Observed water level this season



Accumulated rainfall (Starting from 01 January)



Kompong Cham

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 10.47 m

Forecast level on Wednesday, 07 September, 2016 = 10.55 m

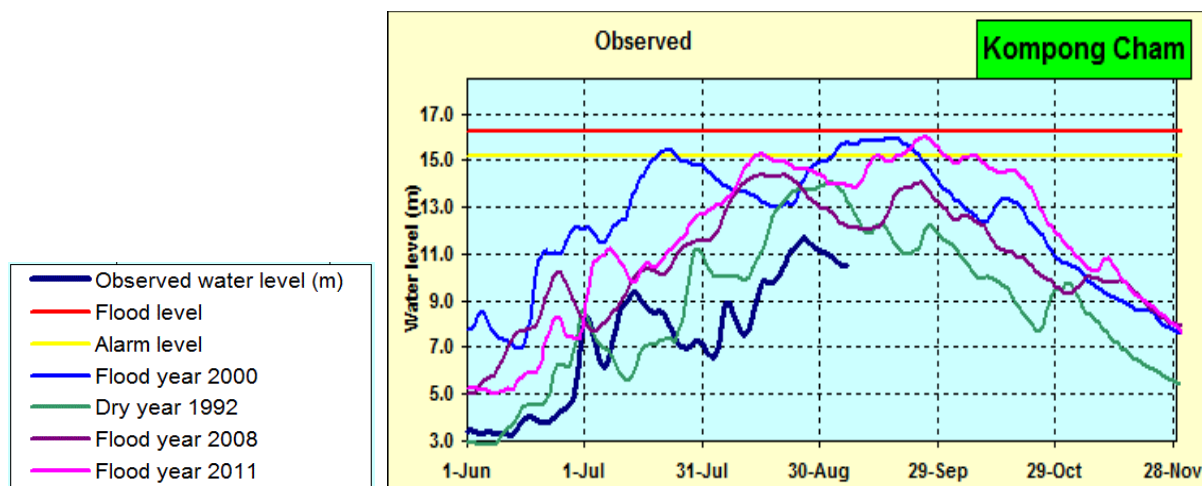
Flood level = 16.20 m

Alarm level = 15.20 m

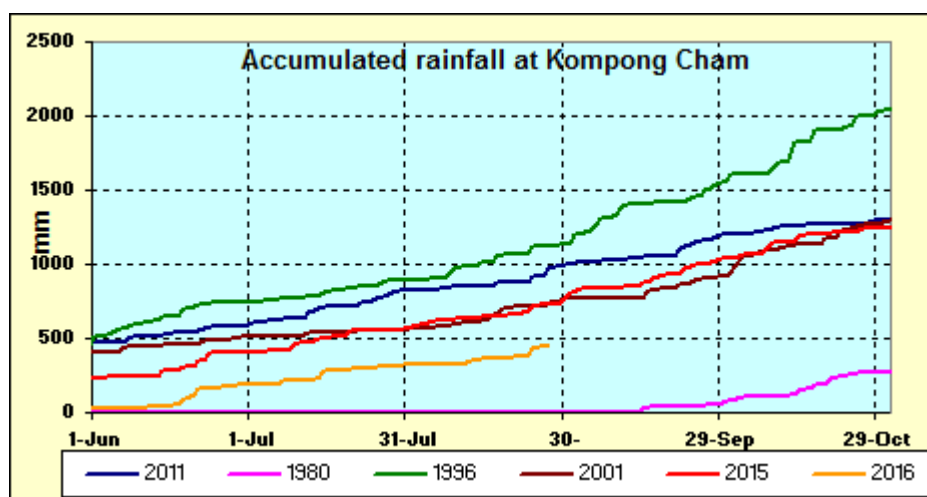
All levels are above zero gauge

(Zero gauge Kompong Cham = -0.93 m above MSL)

Observed water level this season



Accumulated rainfall (Starting from 01 January)



Phnom Penh (Bassac)

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 6.45 m

Forecast level on Wednesday, 07 September, 2016 = 6.46 m

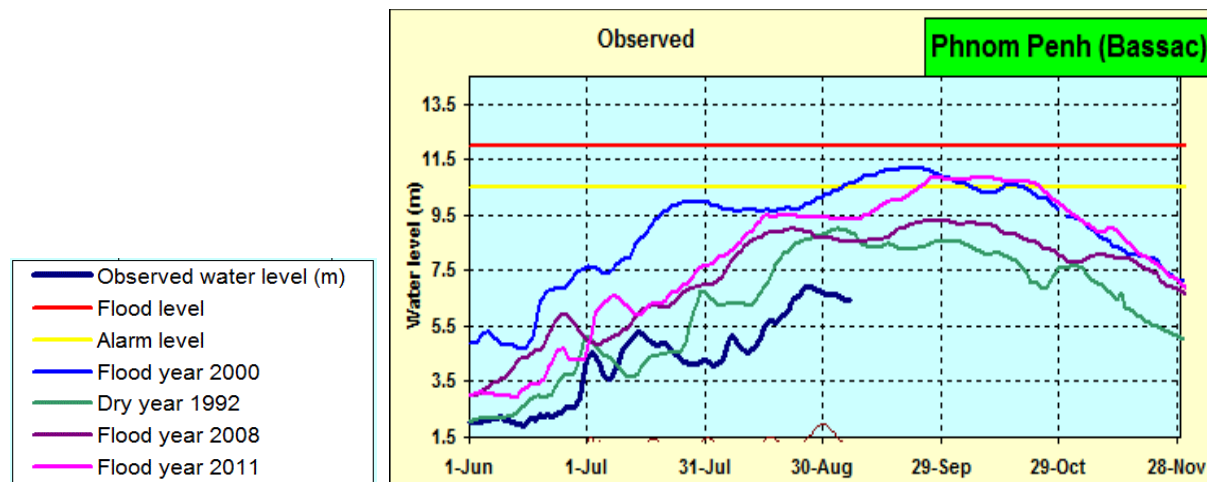
Flood level = 12.00 m

Alarm level = 10.50 m

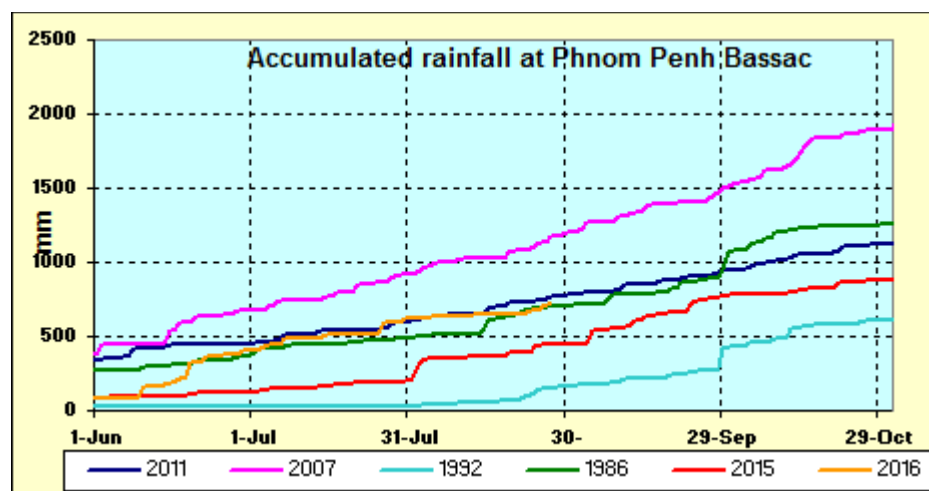
All levels are above zero gauge

(Zero gauge Phnom Penh (Bassac) = -1.02 m above MSL)

Observed water level this season



Accumulated rainfall (Starting from 01 January)



Phnom Penh Port

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 5.47 m

Forecast level on Wednesday, 07 September, 2016 = 5.49 m

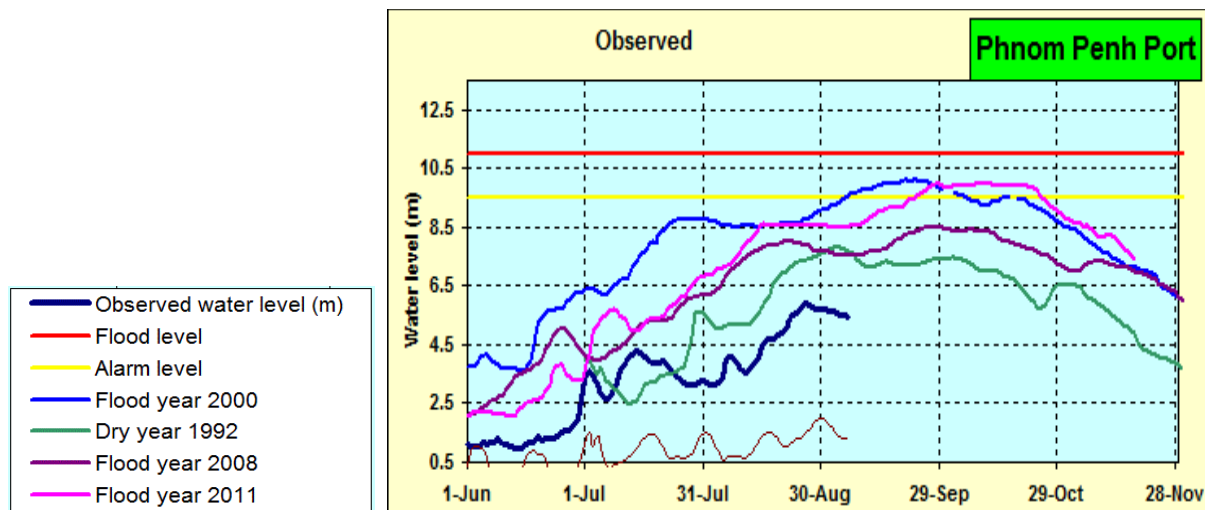
Flood level = 11.00 m

Alarm level = 9.50 m

All levels are above zero gauge

(Zero gauge Phnom Penh Port = 0 m above MSL)

Observed water level this season



Koh Khel (Bassac)

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 5.69 m

Forecast level on Wednesday, 07 September, 2016 = 5.69 m

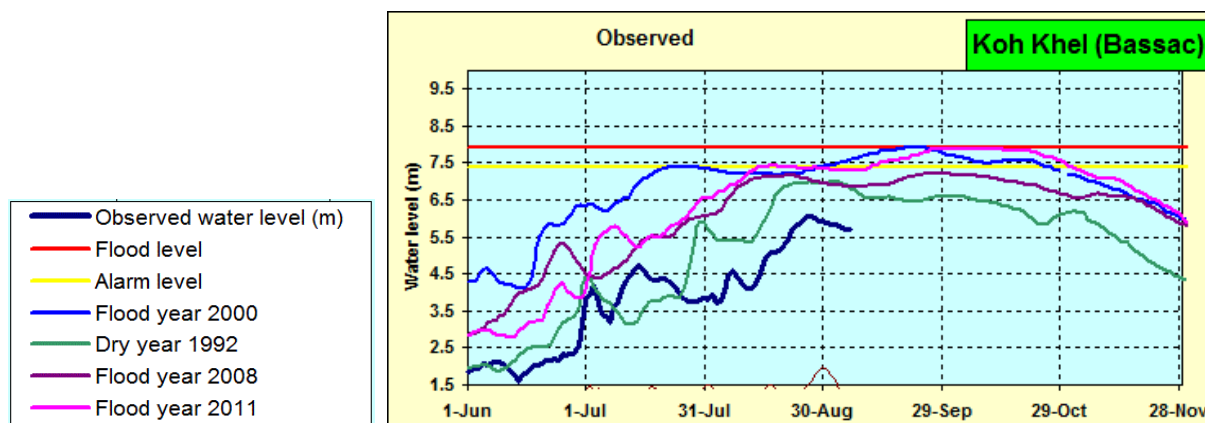
Flood level = 7.90 m

Alarm level = 7.40 m

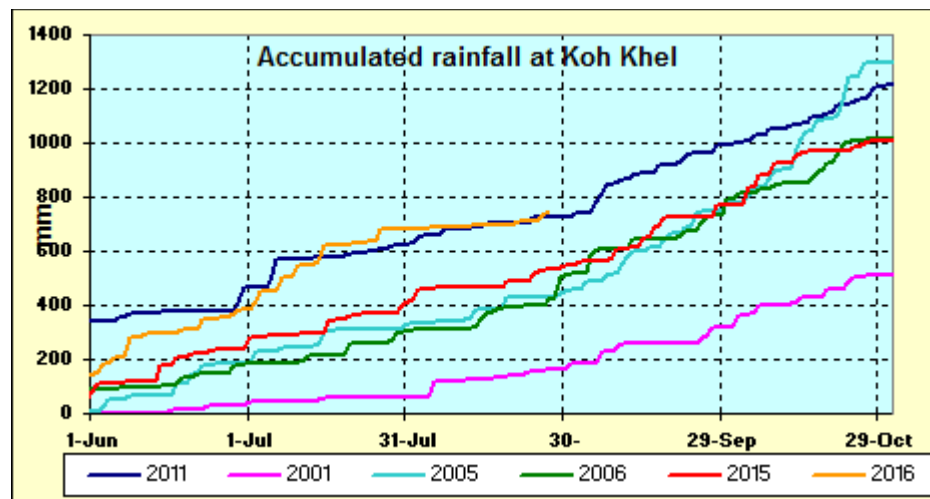
All levels are above zero gauge

(Zero gauge Koh Khel (Bassac) = m above MSL)

Observed water level this season



Accumulated rainfall (Starting from 01 January)



Neak Luong

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 4.64 m

Forecast level on Wednesday, 07 September, 2016 = 4.63 m

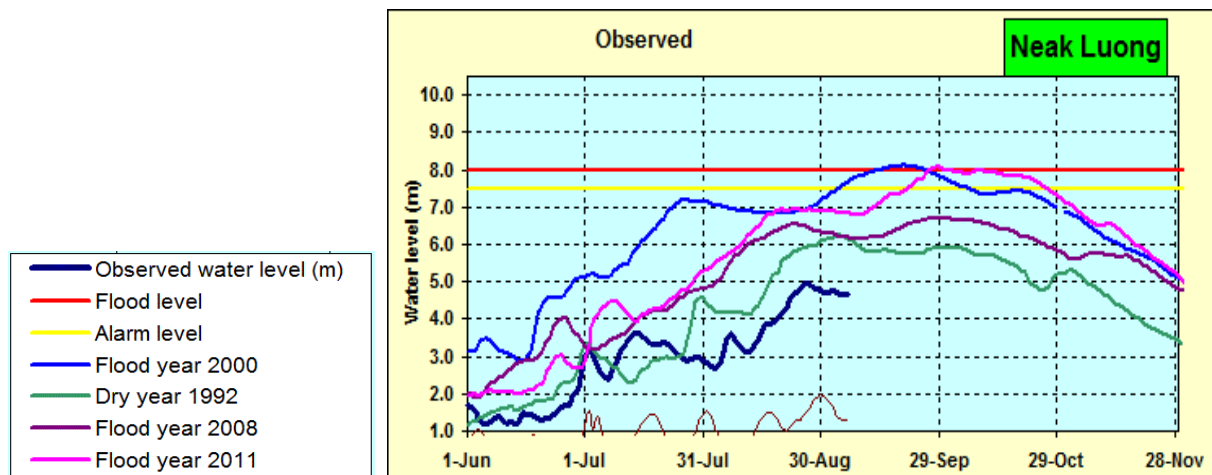
Flood level = 8.00 m

Alarm level = 7.50 m

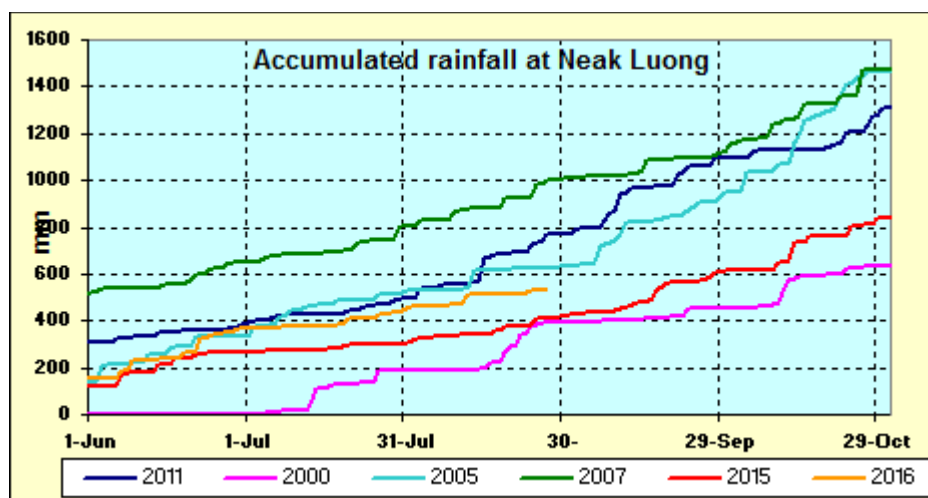
All levels are above zero gauge

(Zero gauge Neak Luong = -0.33 m above MSL)

Observed water level this season



Accumulated rainfall (Starting from 01 January)



Prek Kdam (Tonle Sap)

Water level on Tuesday, 06 September, 2016 at 07:00 AM = 5.52 m

Forecast level on Wednesday, 07 September, 2016 = 5.52 m

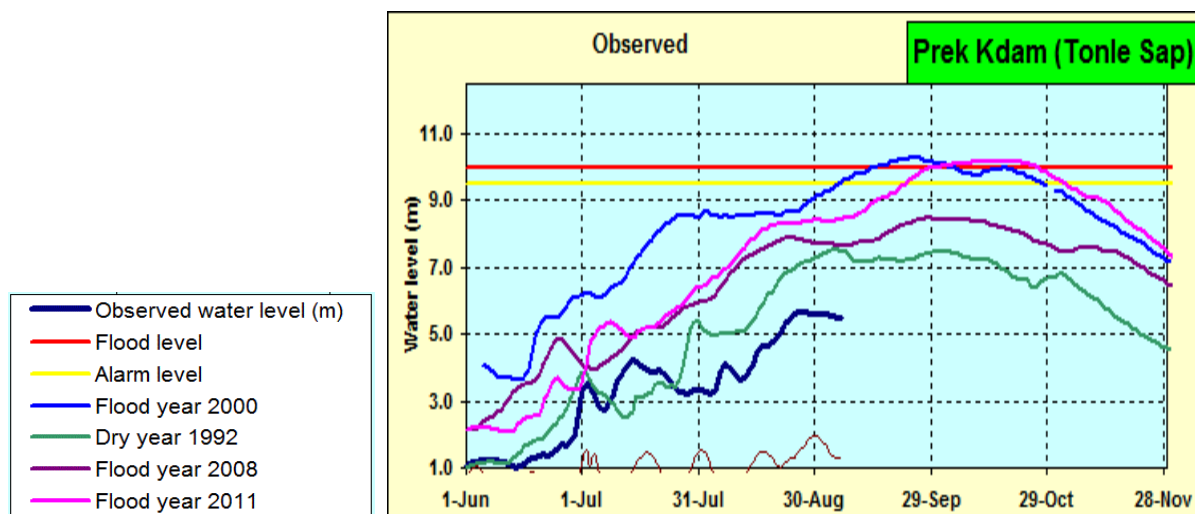
Flood level = 10.00 m

Alarm level = 9.50 m

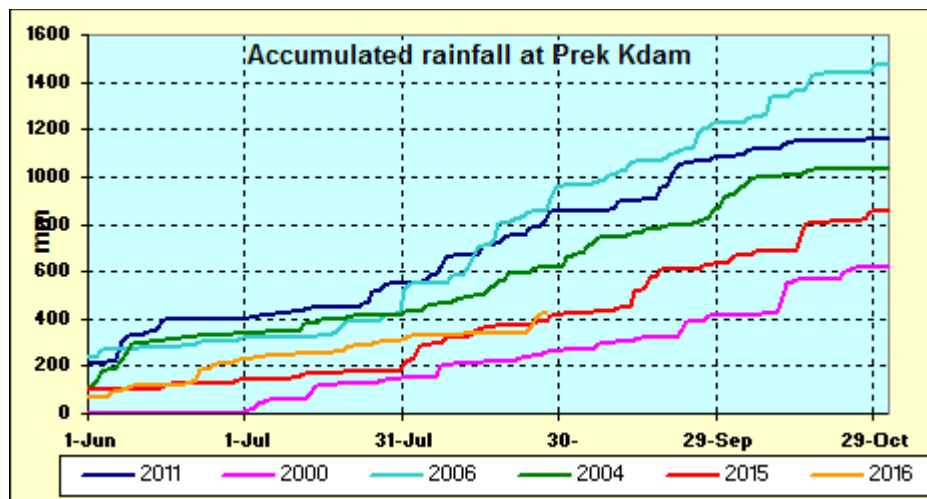
All levels are above zero gauge

(Zero gauge Prek Kdam (Tonle Sap) = 0.08 m above MSL)

Observed water level this season



Accumulated rainfall (Starting from 01 January)

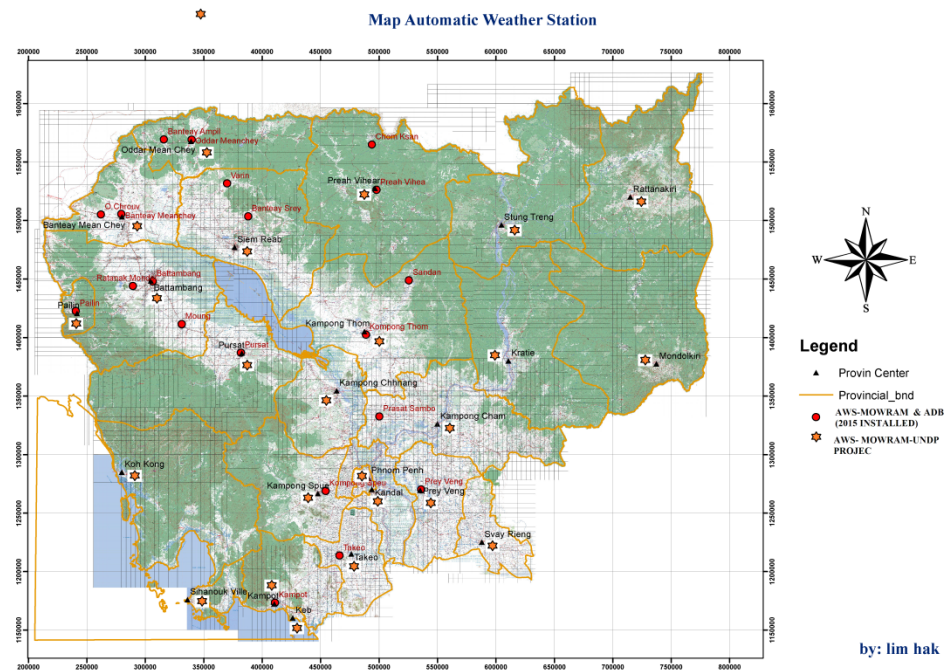


3- Regional Cooperation Assessment in 2016

- Department of Meteorology Prepared Monsoon Forum on 25 March, 2016 with cooperation and supported by Regional Integrated Multi-Hazard Early Warning System (RIMES), to discuss on Climate pattern, Seasonal monsoon outlook, experiences and seasonal preparedness plan based on potential impact scenarios for institutional and end-user.
- Joined in Regional Consultative Workshop on El Nino in Asia-Pacific 7-9 June 2016 at Bangkok, Thailand.
- In August 2016, Department of Meteorology cooperates with JMA/TCC has conducted job training on one month forecast at Head quarter of Weather Forecast office of Cambodia Meteorological Department.
- Joined in ASEAN Sub-Committee on Meteorology and Geophysics on 29-31 August 2016 in Yangon, Myanmar.

II. Summary of progress in Key Result Areas

- There were installed 20 Weather Automatic Stations since 2015, and Currently Department of Meteorology and Department of Hydrology cooperation with UNDP is implementing the project of early warning system, under this project 25 Weather Automatic Station (AWS) will installed in 25 provinces. All equipments are supported by Sutron Corporation Electrical/Electronic Manufacturing, USA.



- In 2016, Under Government Fund and technical support from Meteo-France International, Department of Meteorology Cambodia has upgraded on Synergy system for using in Weather Forecasting.