

Water Cycle Initiative and Climate change Impact in Myanmar

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- **Introduction**

- According to the Global Warming, Climate change effected on mostly over developing Country Especially in Africa Region, Latin America and Asia become to with experienced most destructive Hazards and Natural Disasters. IPCC forecast show that the most of the people in world feel with water scarcity at 2020 . Most population Asia Region, At least 100 Billion people will be effected with Drought, flood and water Scarcity. In Myanmar, Climate change effect with little increasing Temperature connect with water cycle Initiative in during 2009.

- **Weather Systems which given for water supply for Myanmar**
- Southwest Monsoon Wind
- The storm, depression and low Pressure in the Bay of Bengal
- The Remnants of Typhoon in the South chine sea and wave in Easter lies which move toward west.
- Western Disturbance (Mid -latitude weathers systems such as front)
- Convective cloud

- **3. Water Resources Conditions**

- Four main river in Myanmar are (1) Ayeyarwaddy (2) Thanlwin (3) Chindwin and (4) Sittaung and others small riverlets provided the people for their water. Inya lakes in Yangon, Inlay lakes in Nyaungshwe, shan states and Indawgyi lakes in upper Sagaing Divisions are Significant lakes for water supply in Myanmar.
- In Myanmar water resources areas are 2 lakh and 60 Thousands Area width.
- Two types of water resources in Myanmar was
- (1)Over ground water resources.(2)Basin water Resources

- **4. Drought**

- During 2009, Rainy Season (Southwest Monsoon Climate System) in Myanmar was significantly with less rain and dry. Many areas of central Myanmar was effected with waterstortage and farmers are faced with the less crop productivity .2009 November to 2010 May Period has no rain in so many regions of Myanmar and most of the people were experienced with water Scarcity. In attached table (1) Shown Recorded of Heat (High Maximum Temperature in Myanmar at the date of 12 May 2010). In Yangon Division has (309)Amount of wells and ponds and 174 ponds are less water . New 110 Tube– wells are being installed by Yangon City Development committee in Myanmar. In second city of Myanmar, Ancient place, Mandaly Beer pubs area prohibited by governor according to the heat stress and the most of the drunkard are death. The beautiful large lakes of Myanmar , Inlay lakes in Nyaung Shwe, Shan States are become dry and less water in 2010 Summer period of Myanmar.

- ** At 1995, water supply projects made for 12½ million peoples. During water decad, 1980 to 1990, Three main tasks were laid down by Government.
- (1)Water supply for Farmers
- (2)Water Supply for Cities and
- (3)Water Supply for Rural areas
- Policy Makers government and so many NGO teams done
- (1) Water Supply for Agriculture
- (2) Water Supply for Cities
- (3) Water Supply for Rural Areas.
- Water Supply project Could done by 9 Basin during 2000 to 2010. Water Pump Electricity projects are construct the bank mark of Arrawaddy Rivers for Agricluture.

- **Flood**

- During 2010 JUNE flood occurred in Maungdaw Township, Northern Rakhine State and near the border township of Bangladesh according to the surplus rain with Highest rainfall recorded 13.47 inches in 17th . According to this event, landslide, Heavy rain and flood are occur in MaungDaw and Bu -thitaung townships. In attached Picture shown above this matter. During 2010 August, flood occurred in some places of central Myanmar, Ma - Hlaing and warm-twin township and Pago townships.

Heavy Rain with Flashflood



Landslides with Heavy Rain In Western Part of Myanmar(Maungdaw District,Rakhine State)



FLASH flood in buthitoung TOWNSHIP



FLOOD



Bago Water Level observation



Bago River



Bago Bridge with flood in 2010



Flood in Bago City Main Street



Bago Flood In the Wards



Bago flood



- Stations Bago
- Danger Level (cm) 910
- Flood Peak (cm) 926 +16
- Date of occurrence 31-8-2010
- Flood Duration 2 days 1 hr
- above T.D level Start & End Date-
30/8/2010
- &....1-9-2010
- Min W/L (cm) 190
- Date of occurrence 30.2.10

- 6. Cyclone and Typhoon
- Cyclonic Storm in the Bay of Bengal which crossed Myanmar Coast was in Only two Seasons First Season is Pre-Southwest monsoon Period(April and May) and Second is Post Southwest Monsoon Period(September and October).
- First Season is Dangerous Period for Myanmar Coastal Regions. In 2008 May, NARGIS, Severe Cyclonic Storm(Super Cyclone), South-North Radius 225miles and East-West Radius 290miles which crossed Deltaic areas of Myanmar, which has so many small Riverlets areas.
- Huge peoples died by flood and storm surge.
- It destroyed government and peoples properties .Review Study of this event show that Abnormal and Erractic storm Track with influencing of Westerlies wind Steering Currents.
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- (3)Kinds of Climate Change Impact in Myanmar
- Climate change Impact in Myanmar was studied as (3) kinds.
- No.(1) Basically long term climate change_Monsoon climate change start from 1980 to now. Shortage of southwest monsoon period (Painsy season) and less rainfall in coastal areas are well significant.
- No(2) After 2006 climate change Impact. It was abnormal and rare to get good forecasts for Myanmar. For Example, Nargis Severe Cyclonic storm Track at 2008 May and last year Elnino effect on Myanmar with dry conditions, the Hottest year in 21st century and less rain in the half of year 2009.
- No.(3) Shortern Climate change Impact Global warming with climate change impact on Myanmar in Some year,which show that the increasing of Temperature associated with frequently Occurance of Convective Small scale Weather Systems such as,Thunderstorm,Lightining,Isolated Heavyrain with Flash flood and Landslides in Northern and Central Parts of Myanmar some region.

Table (1) Recorded of Heat (Highest Maximum Temperature) in Myanmar (12-05-2010)

No.	Station	Latest Record Temperature (°C)	Old Record Temperature (°C)
1.	Myingyan	46.5 °C	45.6 °C
2.	Pyinmana	44.5 °C	44.0 °C
3.	Magway	45.5 °C	45.3 °C
4.	Ye-zin	44.0 °C	42.0 °C
5.	Yamethin	43.0 °C	42.3 °C
6.	Ka-yan(Yangon	42.1 °C	41.5 °C
7.	Division)		
8.	Kawthong	39.5 °C	39.2 °C
	Yangon (KABA AYE)	42.5 °C	42.0 °C

Table (2) The percentage of storm Occurrence in the Bay of Bengal and crossed Frequency into Myanmar Coast during 1877 to 2009.

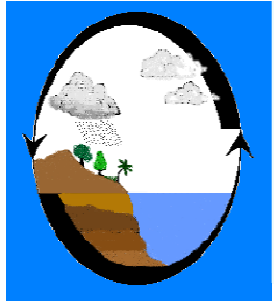
Month	Occurance percentage	crossed Percentage into Myanmar Coast
January	16(1%)	2(2%)
Feburary	3(0%)	1(1%)
March	8(1%)	-
April	32(3%)	15(19%)
May	98(7%)	27(30%)
June	111(9%)	1(1%)
July	180(15%)	-
August	192(15%)	-
September	209(17%)	-
October	190(15%)	14(18%)
November	141(11%)	14(18%)
December	77(6%)	9(11%)
Total	1267(100%)	83(100%)
TOTAL	10.49	0.66

Water Quality

- Acid Deposition Monitoring Activities with EANET

Acid Deposition Monitoring Activities





Acid Deposition Monitoring Activities

Round robin analysis

- Myanmar participate inter-laboratory comparison project five times from 2005 upto 2009.
- wet deposition pH, electric conductivity and chemical species; Cations: NH_4^+ , Na^+ , K^+ , Ca^+ , Mg_2^+ , Cl^- Anions: SO_4^{2-} , NO_3^-

CONCLUSION

- Water Hazard are related with Meteorology
- And Hydrology in Natural Disaster.
- Our Activities was cooperated with Water initiatives an water managements.

- Thank you for your **ATTENTION**

