Capacity development in flood risk reduction capacity development program

Flood and inundation occur every where in rainy season in Vietnam

- **Viet Nam has around 331,000 km2 of natural land.**

- **Located in monsoon humid tropics, Viet Nam is affected by both oceanic and continental climates, especially flood and inundation.**

- **There are 2,360 rivers and streams that have lengths longer than 10 km, in the central VietNam: 740.**

- **The coastal plains are not large but densely populated (60% of population) with many important and rather developed political, socio-economic centers. Most plains are with low elevation, easy to be flooded or inundated.**

- **High Flood and inundation last for about 2-7 days in the Central Viet Nam, 7-15 days in the North Viet Nam, and 3-4 months in the Mekong River delta.**

- **Depth of inundation is about 2-4m, in some places it would reach 5-8m.**

✓Combination of typhoon, storm surge, heavy rain and high tidal level would cause the flood more severe.

✓Often associated with heavy rains, typhoons, tropical depressions, occur in a large area covering some provinces or almost the whole region.

✓Rivers are steep, times of concentration are short, and downstream areas have low drainage capacity.

✓Somehow can be classified as flash floods.

✓Tide and storm surge play a certain role in increasing inundation.

✓Flood and inundation in the Central Viet Nam is ranged as the most severe. It occurs with high frequency causing prolonged inundation in small, narrow coastal areas where socio-economic centers and densely populated areas are located.
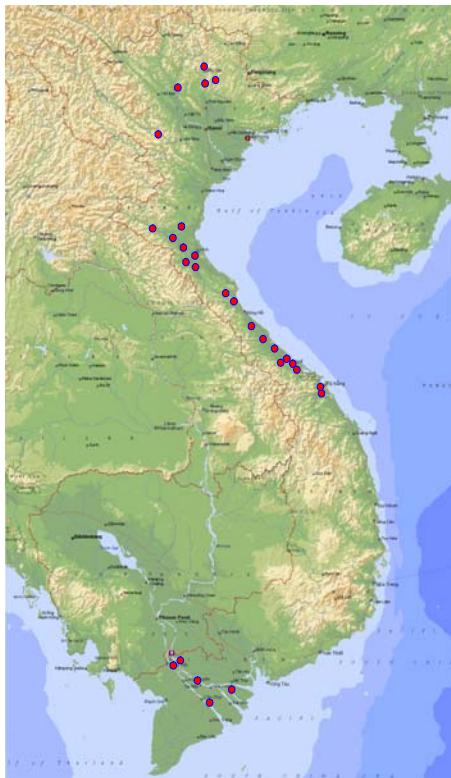
In Vietnam during 2007 have been very complicated with several extreme weather events occurred all over our country, especially in the Central part of Vietnam together with 3 tropical storms and 1 tropical depression that exerted their direct impacts on our territory.

• Flood was very serious with successive and very high peaks, rather high flood rising intensity; flood: concentrated very quickly, caused the serious prolonged inundation in 12 provinces of Vietnam.

The points with flood peaks higher than III alert in 2007

- In the central of Vietnam: from 1st October to the end November 2007 in most rivers in Thua Thien Hue, Quang Nam, Quang Ngai, Binh Dinh, Phu Yen provinces, occurred 6 extremely big, historical floods such as:

- **The Flood, inundation No-1 in early August 2007**

    Affected by TS No2, (05 to 08 August 2007), in most of coastal provinces of Central Viet Nam from Thanh Hoa to Thua Thien Hue: heavy rainfall in a large area, in some places, extremely heavy rainfall.

- **Flood, inundation No-2 in early October 2007**

    Affected by TYP No5 (LEKIMA)

    In many other rivers in Central Viet Nam, big flood occurred with the peak exceeding the alarm level 3 such as Huong (Thua Thien Hue province), Thach Han (Quang Tri province), Kien Giang and Gianh rivers (Quang Binh province,...

- **Flood, inundation No 3 in early November 2007**

    Affected by TS N-6 (PEIPAH) in combination with rather strong activity of southeast wind (from 09 to 13 November 2007), in most of coastal provinces of Central Viet Nam from Thua Thien Hue to Binh Dinh, occurred heavy rainfall in a large area and big flood occurred.

- The common total rainfall for 4 days varied from 500 to 700 mm; in some places, the value was higher 800 mm, such as Nam Dong: 1773mm, Thuong Nhat: 1248mm, A Luoi: 834mm.

- The heavy rainfall caused *the most serious, severe and complicated flood, inundation:*

Socio-economic Assessment
The loss human and property:

- Due to **TS No. 2** (NONAME): 77 people were reported dead, 123 injured, 6 missing people; 1 473 houses were collapsed and damaged; 51 ships were sank; 67 132 ha of rice field were flooded.

- Due to **TYP No. 5** (LEKIMA): 88 people died, 180 injured and 8 missing people; 1 853 houses were collapsed and damaged; 46 ships were sank; 8 849 ha of rice fields were flooded.

- **Tropical Depression No. 6:** 07 people died, 01 missing and 92 injured people; 886 houses were damaged; 9416 ha of rice were flooded and damaged.

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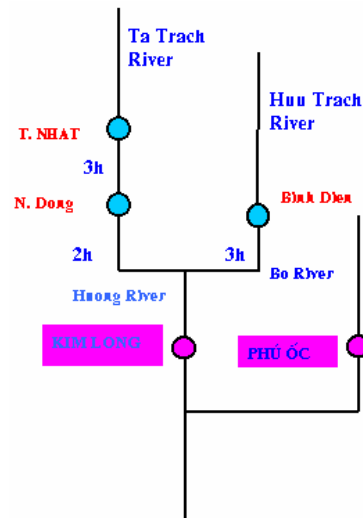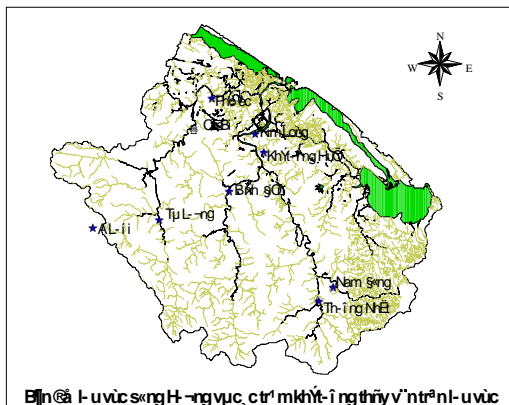
The hydrological model for flood forecasting for Huong river.

- Rainfall-runoff models, method of corresponding stage and multivariable regression have been used to produce short-term river forecasts.
-In recent years, different models like TANK, NAM, MARINE

- Forecasting accuracy is 75-80% for short-term forecasts respectively

Capacity Building Programs (CBP) Of AWCI

- **Proposed location**: **Tokyo, Japan.**
- Requested Topics:
  - **Flood and Drought Management System;**
  - **Flood Inundation Modeling;**
- We are interested in CBP mode and the topics:
  - Flood and Drought Management;
  - System Flood Inundation Modeling;
  - Rainfall Downscaling and Forecast

- Expected number of participants: 3persons for each topic
- Proposed duration of program: 10days
- Target audience:Professional
- *Case Study Modules:*

  - *Flood and Drought Management System;*

  - *Rainfall Downscaling and Forecast;*

  - *Flood Inundation Modeling;*

- *2008 year:*
- *We need to Organize GBHM training course in Vietnam for improvement the skill, Knowledge in apply the DHM model for Huong river basin:*
- Time : March, 2008 (about 10 days);
- Number of participation: 20;
- The content of the training course:
  - The skill, Knowledge in apply the DHM model for Huong river basin ;
  - *How to apply the GBHM for any river basin: skill, Knowledge in building the input data for modeling: DEM, land use, soil type, geological maps, how to delineate the watershed, divide the basin to sub-basins, set-up spatial distribution of study area, prepare time series data: rain gauge and interpreted radar products.*
- Fund for training course: Vietnam;
- Fund for teacher: from AWCI fund

Thank you very much