National Taiwan University

University Capacity Building to help local government setup Resilience Community

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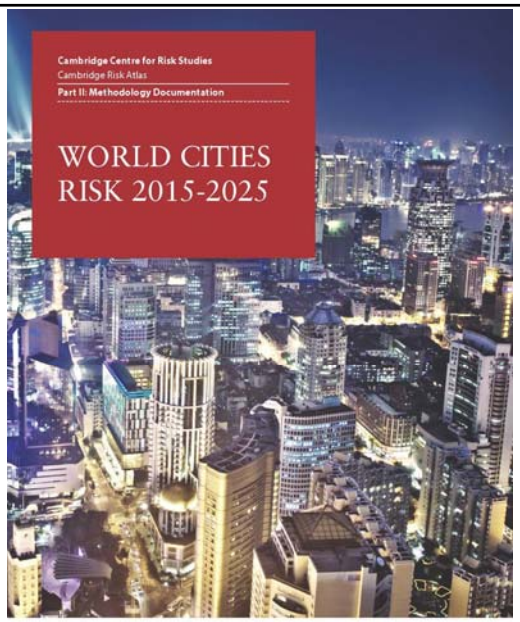

Rank	City Name	Country	GDP@Risk ($US Bn)
1	Taipei	Taiwan	202
2	Tokyo	Japan	183
3	Seoul	Republic of Korea	137
4	Manila	Philippines	114
5	Tehran	Iran	109
6	Istanbul	Turkey	106
7	New York	United States	91
8	Osaka	Japan	91
9	Los Angeles	United States	91
10	Shanghai	China	88

Cooperation of University and Local Government

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- The local government is concerning more for damages brought by disasters in Taiwan.
- The capacity and manpower of local government is not enough to implement full disaster prevention in the community level without the help from outside resources.
- Universities in Taiwan have the capability of delivering non-structural methods and help local government develop community resilience.

Goals of Resilience community

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【Identify Disaster Potential】	•Types of disaster? •Locations? Extents? Impact?
【Reduce Disaster Occurrence】	•Problems and strategies?
【Enhance Response Capacity】	•Skill training •Evacuation timing and routes •Equipment
【Organize Response Team】	•Members recruitment •Tasks assignment
【Raise Public Awareness】	•Education •Knowledge instruction

Step 1 Preliminary Study of the community

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Identify and visit the key man who could help promote the resilience community

Identify where disasters could happen and where people could hide when disasters do happen,

Step 2 Initiation and Activation

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1. Raise public awareness through disaster cases in Taiwan or worldwide, such as
   - Typhoon Morakot triggered landslide in Siaolin Village, Taiwan.
   - 311 earthquake in Japan

2. Successful cases of resilience community in Taiwan

Step 2 Initiation and Activation

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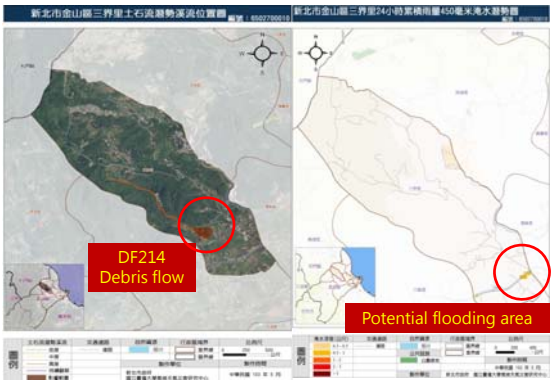
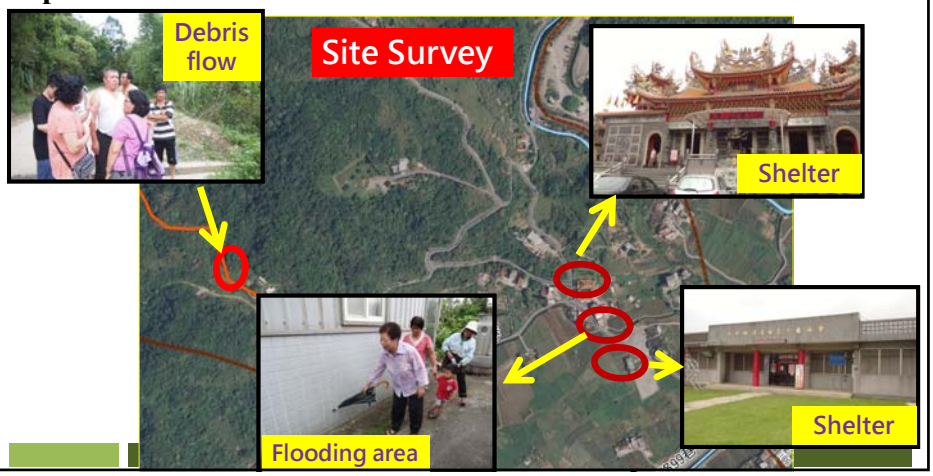
Introduction of local environment and disaster potential



Step 3 Site Survey and Strategy Development 9

In order to let the local residents know more about their risks from disasters, we plan the survey routes and lead them to study the environment with the company of experts and professionals.



Step 3 Site Survey and Strategy Development 10

Strategy Development

Step 4 Education and Training

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Wound dressing demonstration

Operating fire extinguisher

Self operation

Lecture of debris flow

Step 4 Education and Training

12

Organize Response Team

Commander 許添坤

Deputy Commander 秦錦雲

Executive Secretary 陳孟佳

Patrol	evacuation	Preparedness	Caring	logistics
Chief：鄭進友	Chief：李健章	Chief：黃良達	Chief：林秀貞	Chief：鄭　足
Crew：簡素丹	Crew：李金和	Crew：黃鎗成	Crew：蔡賴麗雲	Crew：黃美玉
黃正俊	李潘葉	嚴春生	高蔡純美	鍾亮風
李明星	黃賴花	黃棟卿	朱吳美	嚴　粉
許　蜜	黃金花	徐文讓	丁文琇	高詹世嬌
	李南敦	沈江瑞	謝秀蘭	高陳玉琴
	賴　甘		林朝春	
	楊李清香		李　蝦	

Step 4 Education and Training

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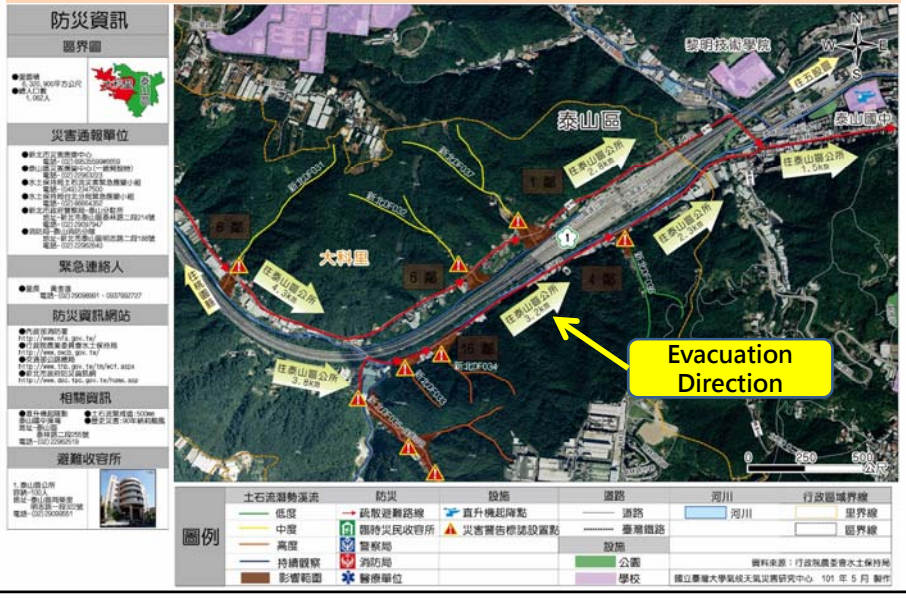
Disaster Prevention Map



Step 5 Drill of Disaster Prevention

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Patrol

Caring

Evacuation

Refuge

Step 6 Achievement Presentation

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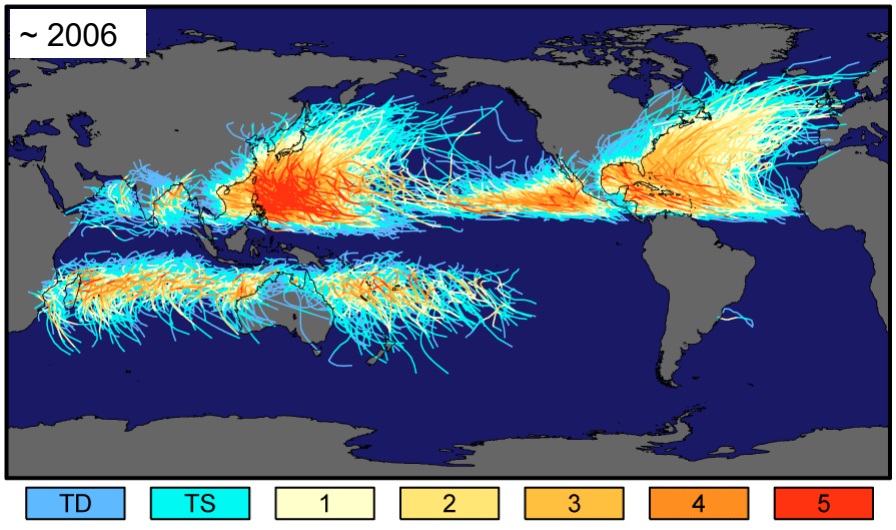
Tracks and Intensity of All Tropical Storms



Saffir-Simpson Hurricane Intensity Scale

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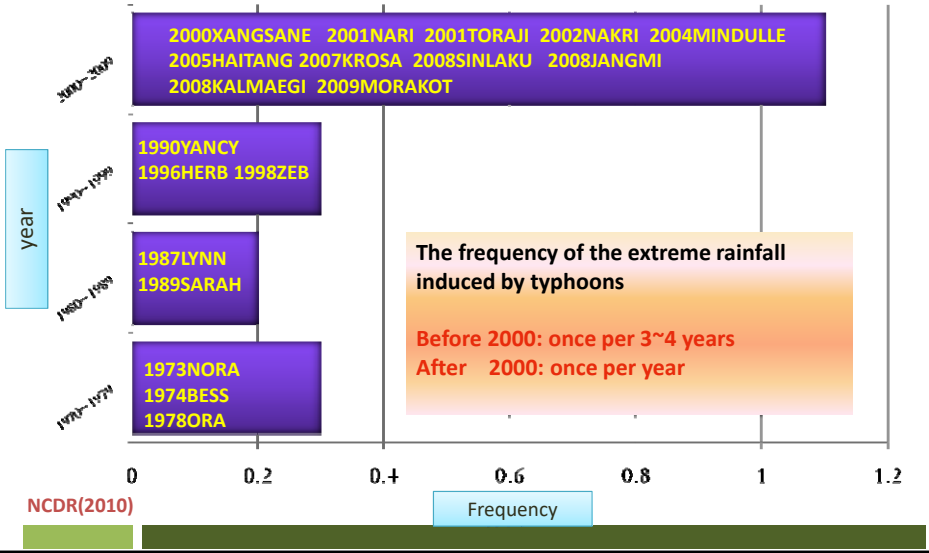
Frequency of the extreme rainfall induced by typhoons (the top 20 of the rainfall index between 1970 and 2009)



NCDR(2010)

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Typhoon Xangsane (2000)

Flooding in Xizhi

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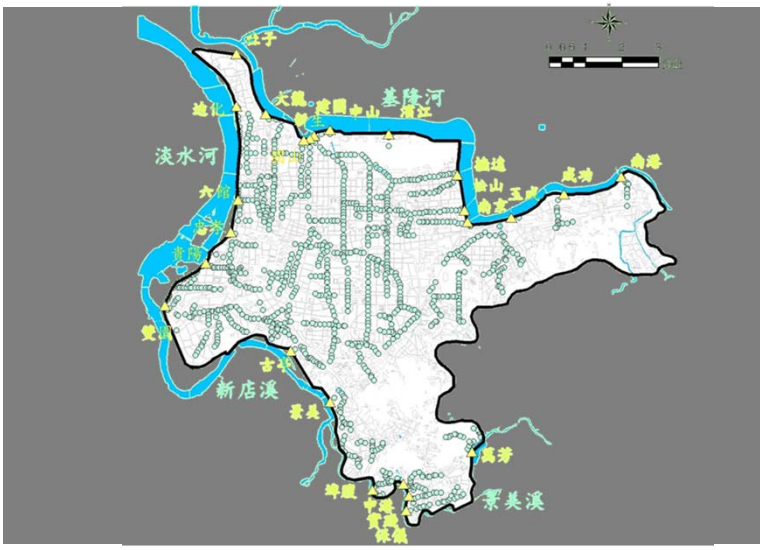
The map of levee, pumping systems around Taipei city



Pumping Station

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2001 NARI Typhoon -Taipei Metro Subway

Work flow of Weather Monitoring

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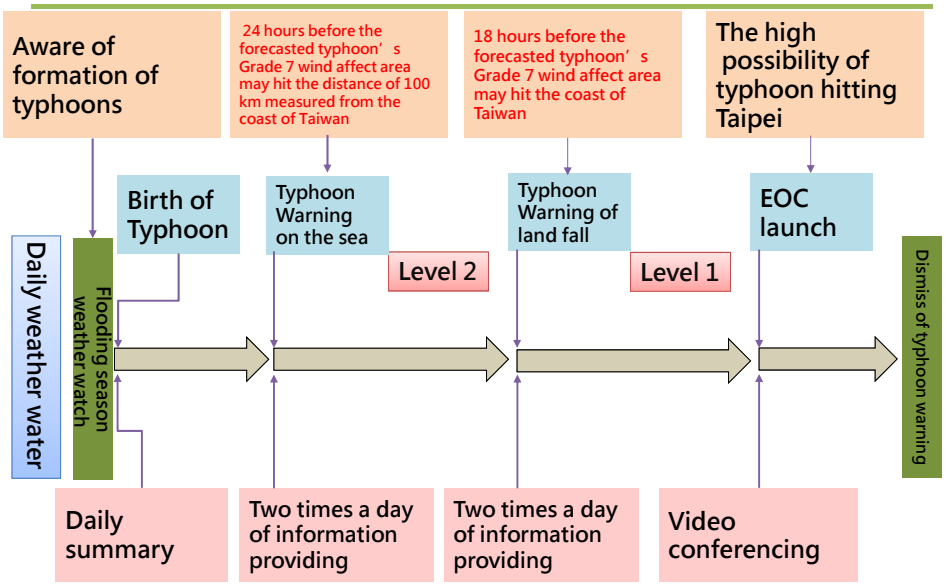

Video Conference

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We provide video conference during Typhoon season

Integrated heavy rainfall or Typhoon info

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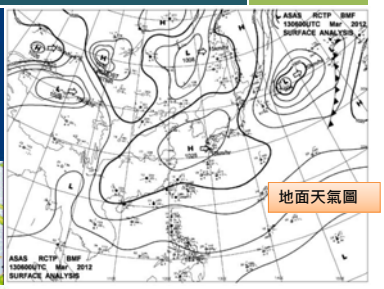
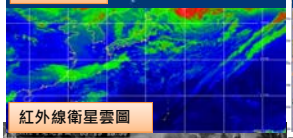
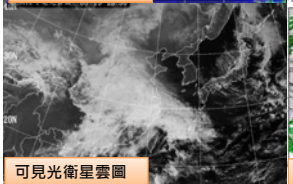
雷達回波

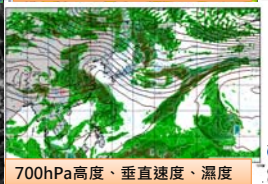

雨量

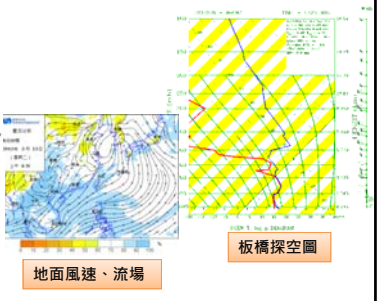

地面天氣圖


紅外線衛星雲圖

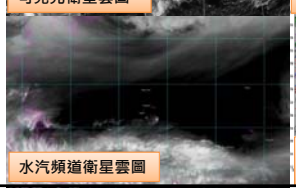

500hPa高度場、渦度場及風場

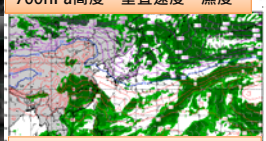

可見光衛星雲圖


700hPa高度、垂直速度、濕度


板橋探空圖

地面風速、流場


水汽頻道衛星雲圖


850hPa高度、溫度、濕度及風場

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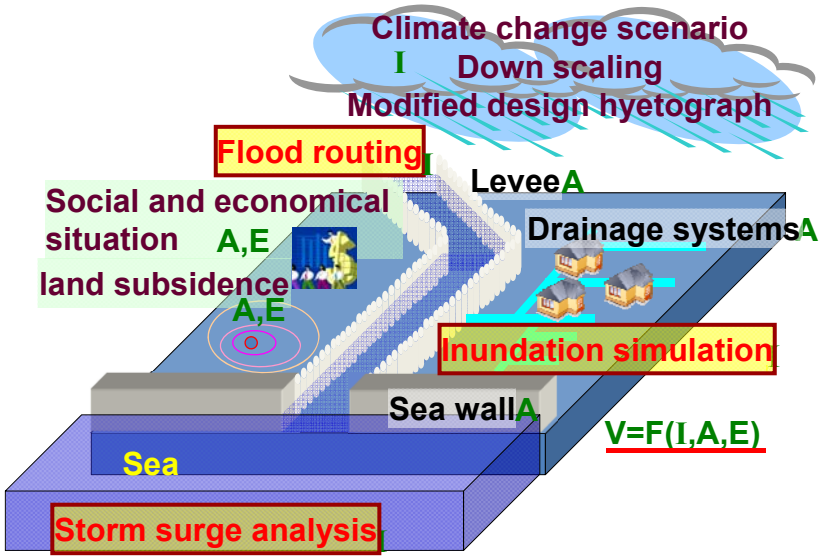

Ensemble Cluster Rainfall Forecasting (Typhoon Nalgae 2011)

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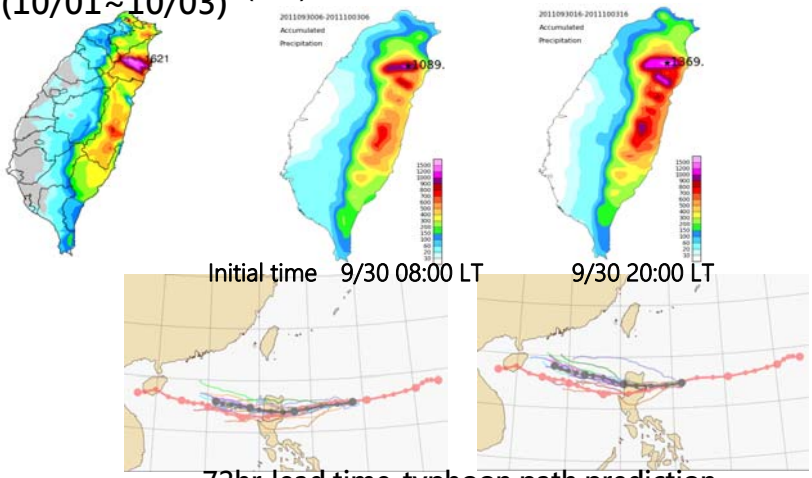
Observed (10/01~10/03)

72hr-cluster- cumulative rainfall forecasting (mm)



72hr-lead time-typhoon path prediction

Ensemble rainfall -Typhoon Saola

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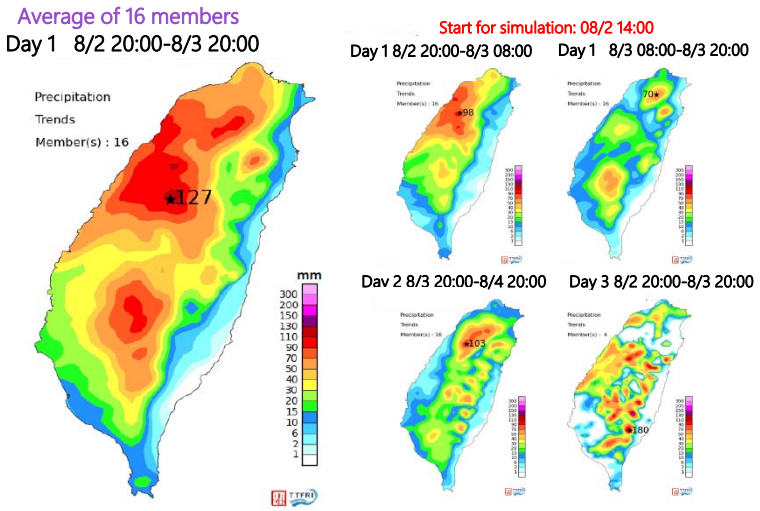
4 times/day, 22 members (16 finished)



TTFRI-Typhoon Saola

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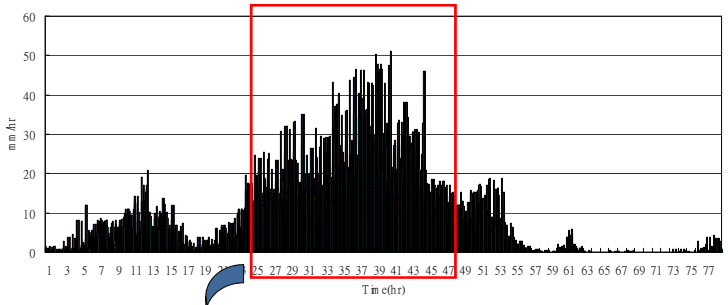
- 16 of 22 members of TTFRI finished
- Lead time 72 hrs (Total simulation time =78 hrs., but needs about 6 hrs. to run simulation)
- Rainfall used for flood simulation 8/1 20:00-8/2 20:00, duration=24hr, Average of Top 5 of 16 members



8/1 20:00- 8/2 20:00
Average of Top 5: 350mm/24hr

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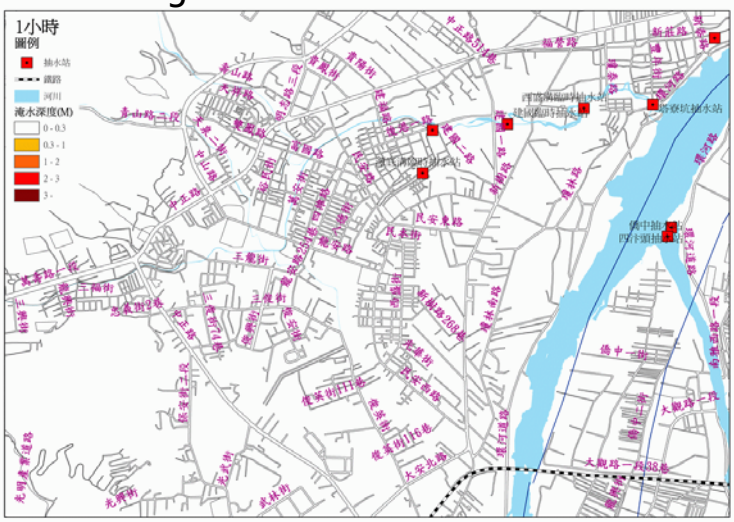
Dynamic potential flood map during 24 hours with 600mm rainfall



Yuanshantze Flood Diversion

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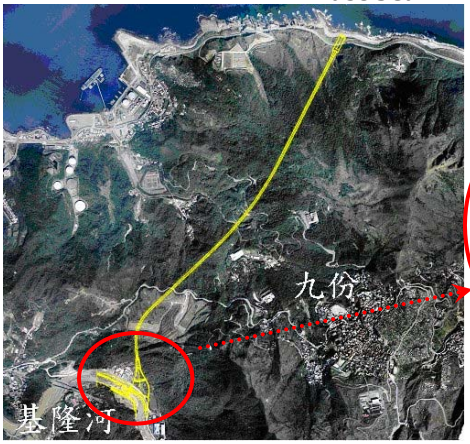
Flood Division Tunnel (Bypass Tunnel)

Site Description

East Sea



Yuanshantze Flood Diversion

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River weir

1. For the criterion of 200-yr return period flood protection, 1,620 cms is the design flood discharge, diverting discharge is 1,310 cms, and 310 cms is released to the downstream of the river.
2. Main structures:

(1) Flood outlet
(2) Sluice way
(3) Fish way

Yuanshantze Flood Diversion

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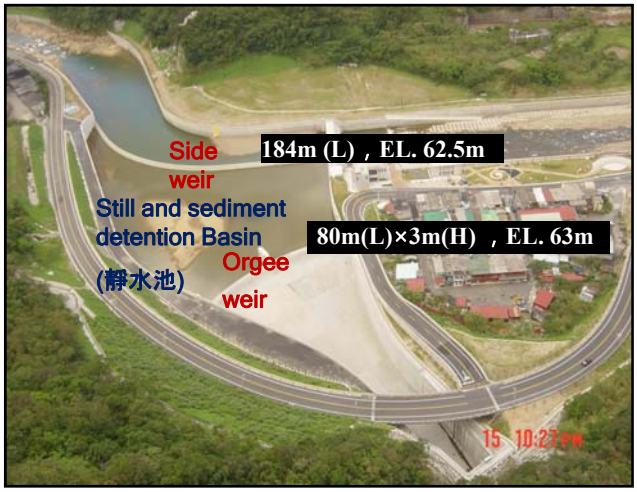
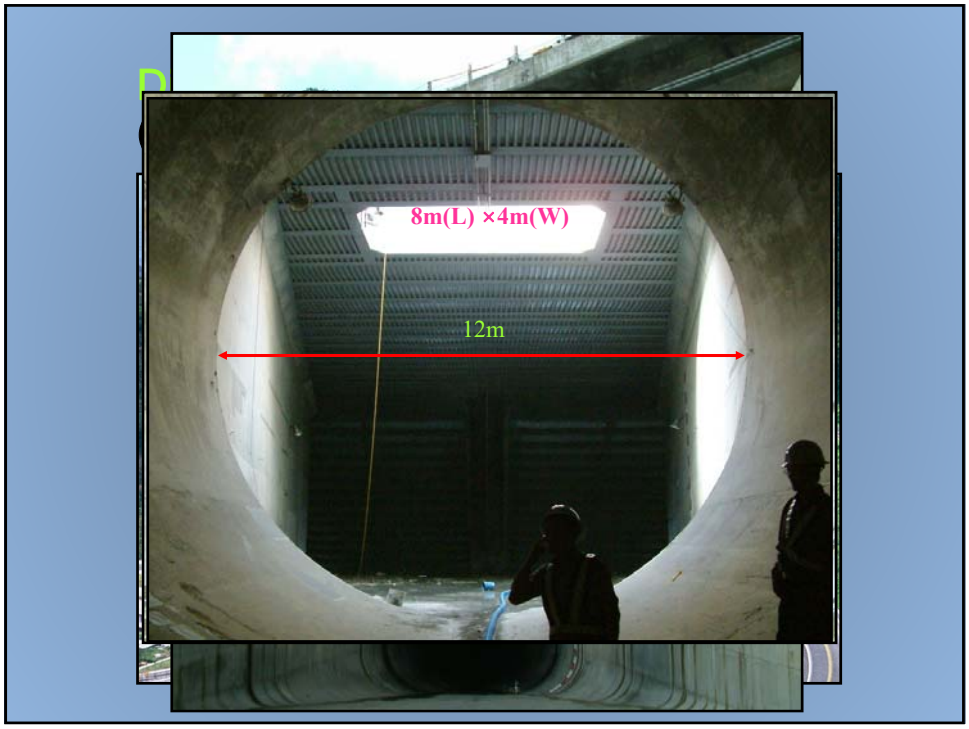
Intake works





Conclusion

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- By cooperation between the local government and universities to promote the resilience community,
  - The **local government** could strengthen its connection to districts and community;
  - The **university** could put its non-structural methods into practice;
  - The **community** could learn to deal with catastrophic disasters by helping themselves before the government can further assist them.

新北市政府 New Taipei City Government

WCDR

Community is the basic and the most important level for disaster management

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Thanks for

your attention

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