



Stories of implementation of Public-Private Partnership

Wei-Sen Li

2013/ 01 / 23

Asia Conference on Disaster Reduction 2103

Outlines – stories of PPP to share



- **Recent developments of APEC EPWG and APEC SMEWG**
- **When 7-ELEVEN and Google join dissemination of emergency during floods and typhoon**
- **How NGOs, researchers, local residents and governments work together in communities**
- **Brief conclusions**

Story I – Recent development of DRR in APCE

Asia Pacific affected by natural disaster



Earthquake
China, 2008



Typhoon
Philippines, 2009



Debris flow
China, 2010



Earthquake & Tsunami
Japan, 2011

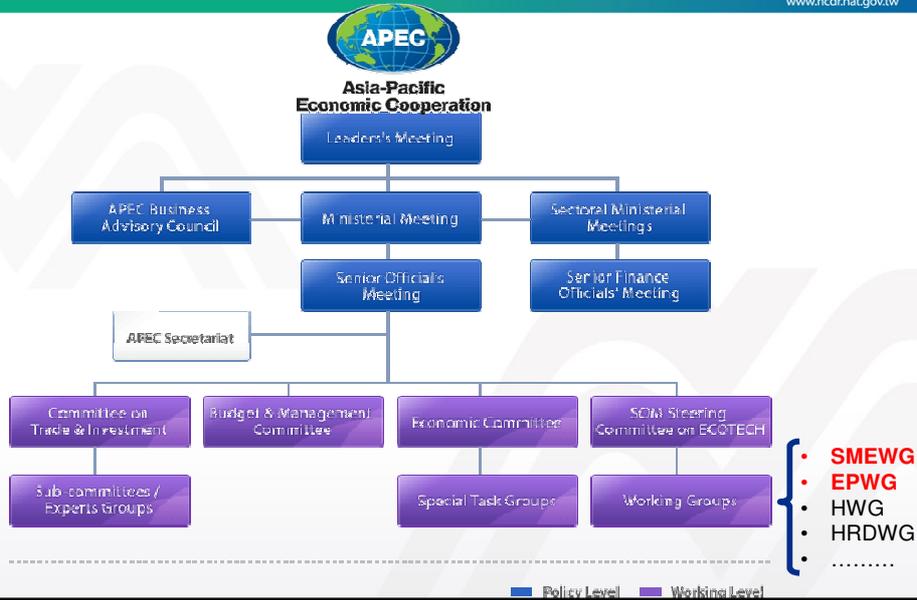


Flood
Thailand, 2011

APEC Structure Asia-Pacific Economic Cooperation



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Priorities of Emergency Preparedness Working Group



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- Business and community resilience
- Public-private partnerships
- Disaster risk reduction
- Cooperation and coordination with regional and international stakeholders
- Preparations for the recovery phase

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APEC Workshop on Private Sector Emergency Preparedness in 2011



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- The first international workshop after the Great East Japan Earthquake in Sendia City
- The purpose of workshop is to **enhance capacity in the Asia-Pacific to protect business, trade and economic growth**, as well as communities, from disruption caused by disasters.
- This workshop focus on strengthening **public-private partnership capacity for emergency preparedness and BCP**.

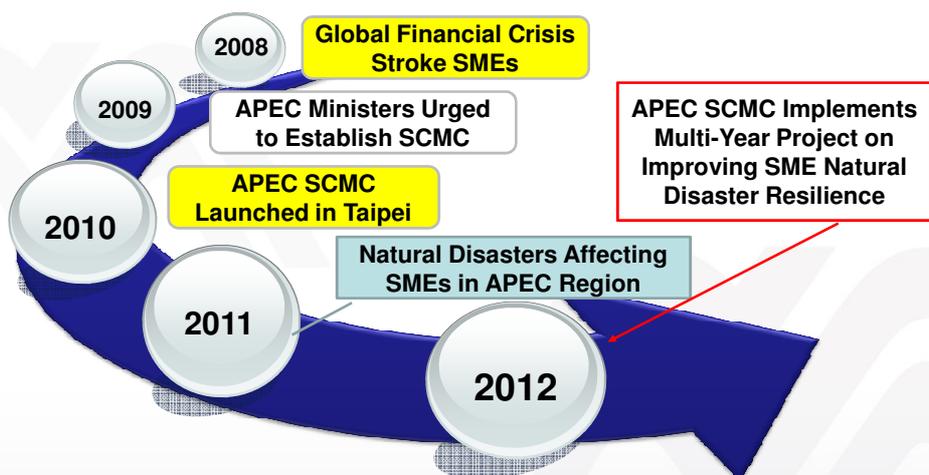


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APEC SME Crisis Management Center



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APEC SCMC is to help SMEs facing global challenges!

SME: Small and Medium Enterprises

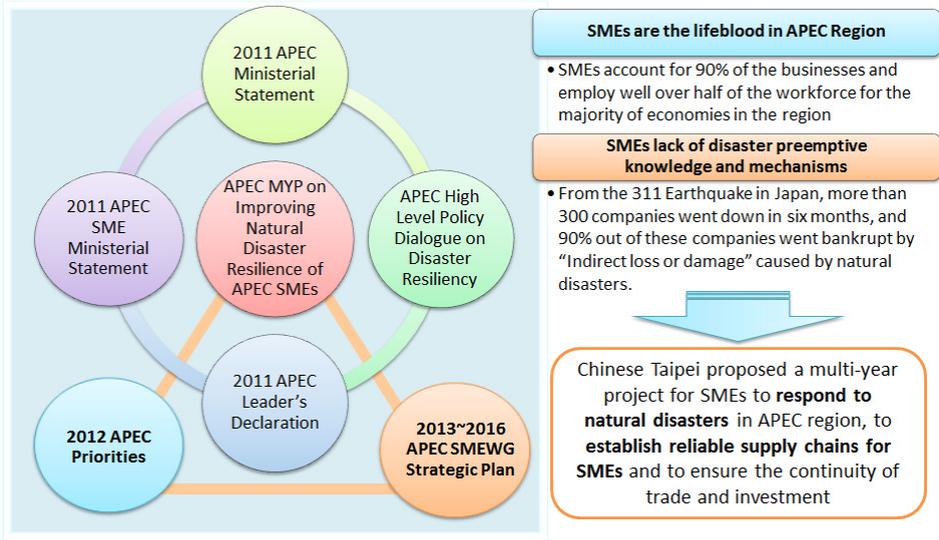
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Project Overview



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• Background



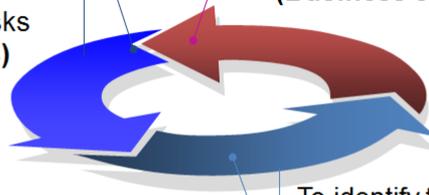
Project Overview

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• Objective

To enhance the awareness of SMEs and governments on natural disaster risks
(Policy Frameworks)

To share best practices and assist SMEs to implement disaster preemptive mechanisms
(Business Continuity Plans)



To identify threats and possible solutions for SMEs

• 2012 Deliverables **In collaboration with ADRC**



APEC SME Serial Meetings with EPWG



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- There are over 400 participants attending the events with assembling totally 28 speakers, 12 delegates, 12 EPWG steering committee members from 20 economies.
 - Including Australia; Canada; Chile; China; Hong Kong, China; Indonesia; Japan; Korea; Malaysia; New Zealand; Papua New Guinea; Peru; Philippines; Russia; Singapore; Chinese Taipei; Thailand; Mexico; USA; and Viet Nam



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APEC SME Serial Meetings with EPWG



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• Focal Point Network & Expert Meeting

- A joint meeting that brought experts and delegates from both APEC SMEWG and EPWG together
- Extensive discussions on experts' tasks and focal points' role
- Formulation of "Guidelines on Promoting SME Business Continuity Plans to Strengthen Reliability of Supply Chains"



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APEC SME Serial Meetings



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- **APEC Symposium on Promoting BCPs to Enhance SMEs' Participation in Global Production Chains**
 - Focusing on three industries: **Logistics, ICT and Auto Parts**
 - **The Role of Business Continuity Plans in Logistics Management**
 - **Ensuring Business Continuity in ICT Industry**
 - **Building Resilient Production Chains in Auto Parts Sector**



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Meeting Outcomes

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- **Focal Point Network & Expert Meeting**
 - Discussion on Experts' Tasks

Monthly Reports

- Objective:**
To assist SMEs obtain timely **information**, identify potential risks, and take necessary steps to prepare and cope with potential risks
- Target:** SMEs and government officials
- Submission:**
Once every two months

Research Paper

- Objectives:**
To review current policy framework of APEC economies; to examine SMEs' response and practices, and; to provide policy recommendations
- Target:** SMEs and government officials
- Submission:**
October 15th, 2012

Professional Supports

- Objective:**
To develop the Guidelines on Promoting SME Business Continuity Plans to Strengthen Reliability of Supply Chains; to constantly provide supports and expertise to the project

In collaboration with ADRC

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Meeting Outcomes



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- **Focal Point Network & Expert Meeting**

- Guidelines on Promoting Business Continuity Plans to Strengthen Reliability of Supply Chains

- Purposes

Identify key challenges of natural disasters facing SMEs
 Empower SMEs' awareness and knowledge on disaster reduction
 Promote the concept of BCPs and assist SMEs to develop BCPs
 Strengthen the reliability of global and regional supply chains

- Building Upon APEC and Non-APEC Frameworks

- Summary of Proceedings and Resource Guide from APEC Workshop on Private Sector Emergency Preparedness (2011)
 - APEC SME Disaster and Emergency Preparedness Checklist (2005/SMEMM/011)
 - Hyogo Framework for Action (HFA) from United Nation (2005~2015)
 - Business Continuity Management Standard (ISO 22301)

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Meeting Outcomes

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- **Focal Point Network & Expert Meeting**

- Guidelines on Promoting Business Continuity Plans to Strengthen Reliability of Supply Chains

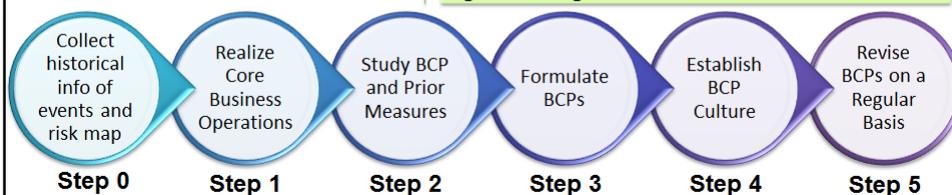
- Key Challenges Facing SMEs to Establish BCPs

- Role of BCPs

- Disaster risk identification
- Restoration/reconstruction
- Communication and adjustments with stakeholders
- Financial supports and control
- Logistic arrangement

- Establishing SMEs' BCPs

- Promoting SMEs' BCPs



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From data, information to understandable and action-based knowledge



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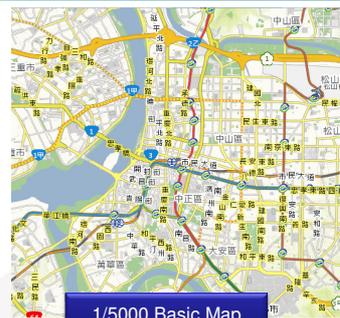
- **Source of Data**
 - produced, updated and maintained by the **20 more** regulating governmental agencies
 - Number of big data set: over **120**
 - Major four categories of data sets: **fundamentals, monitoring, modeling and situation**
- **Mechanism of data sharing and maintenance**
 - “Clouds”
 - Service-Oriented Architecture
- **Major challenges to overcome**
 - Mutual trust
 - Afraid of “openness”

Category 1: Data sets of fundamental information



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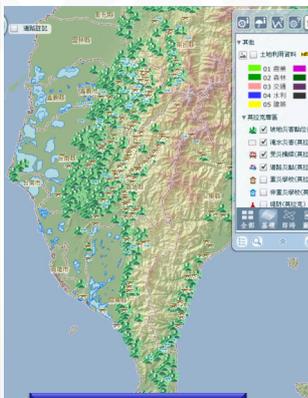
- **Administrative boundaries** 、 road 、 river 、 dam 、 dike
- **Potential debris location** 、 historic disaster location
- **Aerial photos** 、 satellite imagery



1/5000 Basic Map



Formosat Image



Historical Events



Potential Debris Flow Areas



Highly Vulnerable Village Locations

Category 2: Data sets of real-time or near real-time monitoring



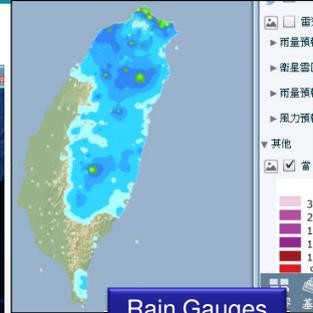
- precipitation · river level · dam level · tide · radar image



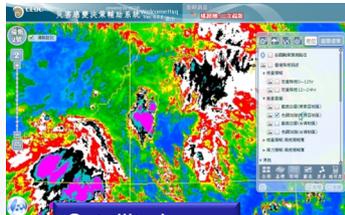
Tide Gauges



Radar Signals



Rain Gauges



Satellite Image



River Water Levels and Dam Operation

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Category 3: Data sets yielded by scientific models



- Precipitation Forecast · Flood potentials · Debris potential produced by scientific models

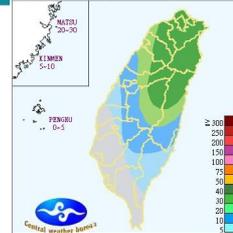


Flood Potentials



Slope Potentials

Quantitative Precipitation Forecasts (I)
Issued: Apr 15 2010 05:30
Valid: Apr 15 08:00 - Apr 15 20:00



Rainfall forecast ml

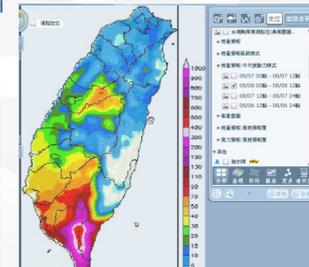
96年第08號颱風各地區24小時雨量預測
中央氣象局發布

縣市	發布時間：96年3月12日 08:00																							
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
台北	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
台中	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
台南	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
高雄	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Rainfall forecast table



Climatic Model



WRF model

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Category 4 : Data sets of situation collections



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- People Injured 、 Road and Bridge Broken 、 Flood Disaster 、 Slope Land Disaster 、 Evacuation condition 、 Electricity Interrupt.



Traffic Closures



Shelter Operations



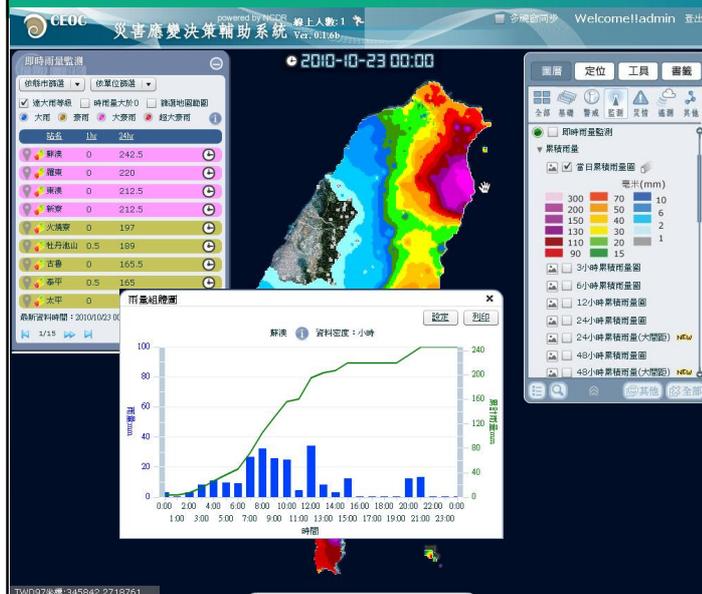
Black-out reports

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To government : Operation interface of the Decision Support System



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Overall concept

Integrate information
Provide situation awareness

Main window

Provide real-time map and other information for browse and overlay analysis

Bookmark

Predefined map layer combinations

Map control panel

Map switch, locate and analyze tools

Time line

Back to see any historic event

Imagery comparison

Remote sensing images provide pre and post disaster comparison

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To government : Operation interface of the Decision Support System



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GEOC 災害應變決策輔助系統 線上人數: 1 多視窗同步 歡迎admin 登出

影像比例尺縮放

地圖 衛星二號 航拍 地形 WMS服務清單

WMS服務清單

WMS服務清單

Overall concept
Integrate information
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Main window
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Predefined map layer combinations

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Time line
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Imagery comparison
Remote sensing images provide pre and post disaster comparison

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To the general public – collaboration with Google through CAP



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www.google.org/crisismap/taiwan-workshop-1

輸入位置

分享 地圖

警戒資訊 (Alerts & Warnings)

- 颱風警戒 (Typhoon warnings)
顯示至區域大小、下載 KML 檔
來源: 中央氣象局 (CWB)
- 河流水位警戒 (River flood alerts)
顯示至區域大小、下載 KML 檔
Legend
■ 一級警戒水位 (Level 1)
■ 二級警戒水位 (Level 2)
□ 三級警戒水位 (Level 3)
來源: 水利署 (WRA)
- 累積雨量及淹水警戒 (Rain accumulation flood alerts)
顯示至區域大小、下載 KML 檔
Legend
■ 一級警戒 (Flood occurring)
■ 二級警戒 (Flood predicted)
來源: 水利署 (WRA)
- 水庫洩洪警戒 (Reservoir release alerts)
- 土石流警戒 (Debris flow alerts)
顯示至區域大小、下載 KML 檔
Legend
■ 警戒地區的「實際降雨」大於當地的「土石流警戒基準值」
■ 警戒地區的「預測雨量」大於當地的「土石流警戒基準值」
(Mocked data) 來源: 水土保持局 (SWCB)
- 封閉路段及交通現況 (Road closures and current traffic)
- 交通狀況 (Traffic conditions)
顯示至區域大小、下載 KML 檔

Common Alerting Protocol 說明

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To general public : Public-Private Partnership on Information Dissemination and Situation Report

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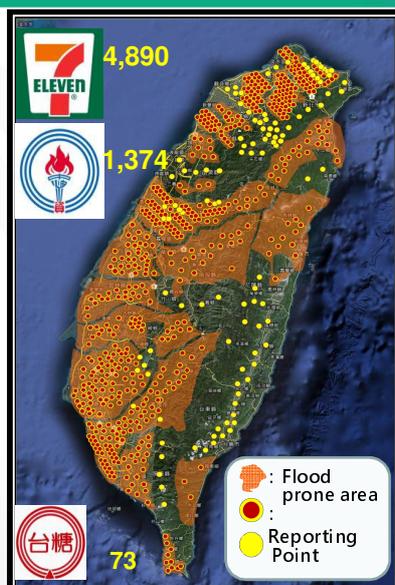
- **Advantages of Convenient Chain Stores in Taiwan**
 - Close to 10,000 island-wide
 - Almost 50% operated by 7-Eleven
- **7-ELEVEN provides not only close-to-consumer services, but also emergency preparedness.**
 - Local weather features
 - Flood situation reports



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Coverage of reporting points in flood-prone areas

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Story III– Collaboration between stakeholders, local residents, NOGs, researchers in affected communities

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Two cases of post-disaster recovery in Taiwan



1999, Chi-Chi Earthquake



2009, Typhoon Morakot

- Within 13 years, Taiwan had been seriously affected by two major disasters
 - 1999, Chi-Chi Earthquake
 - 2009, Typhoon Morakot
- Through process of recovery from two large-scale disasters, it identified why Public-Private Partnership is so important in a modern society.

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Major stakeholders for post disaster recovery



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- **Government sectors**
 - Central and local governments
- **Private sectors**
 1. **Organized groups**: religious or charity organization, professional community like civil engineers
 2. **Individual (Volunteer)** : the general public, people with professional expertise
 3. **Business sector**: Small and medium enterprise or international enterprises
 4. **Academia**
 5. **Organizations initiated by the affected people**

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Roles of private sector: assistance in emergency response phase



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- **Emergency Relief :**
 - Search and rescue operation by professional groups
 - Experts, human resource and heavy machinery
 - Donation and delivery of emergency materials
 - Distribution of condolence allowance
 - Mental Intervention



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Roles of private sector : quick recovery phase



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• Transitional relocation

- Organizing and coordinating NGOs to jointly provide services like **meals, education and mental intervention**
- Setting up **operation centers** in the affected areas
- Constructing **temporary housing for family-unit shelters and schools**
- Participating in **rehabilitation of livelihood**



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Roles of private sector: contributions for long-term recovery



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• Recovery :

- Collaboration between NGOs, business sectors and government for rebuilding school, house and community reconstruction
- Organizing centers for livelihood rehabilitation
- Monitoring the allocation of charity donation



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Successful Example of PPP: Taomi Village after Chi-Chi Earthquake, 1999



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Paper Dome

- **Community-centric training courses:**
 - cooking, painting and construction skill
- **Local Organization**
 - Establishment of Association of Community Development and Tour Association of Natural Conservation and Ecological Protection.
- **Promotion of Taomi eco-community :**
 - reservation of wetland, maintaining of eco-pounds
 - protection of original species, **frogs[23(79%)] and dragonflies [49(34%)]**

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Rinari Permanent Housing Base after Typhoon Morakot in 2009 – PPP on recovery



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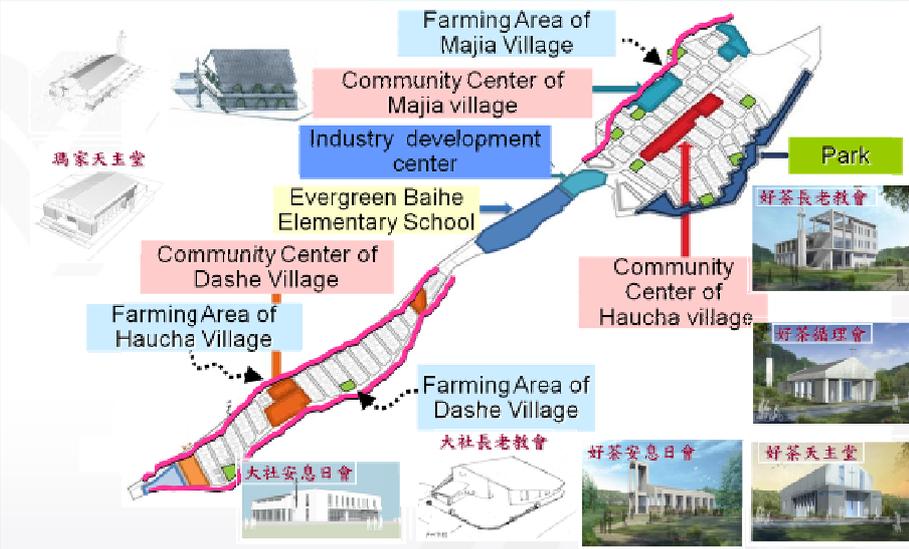
Three indigenous tribes

World Vision Taiwan

Government provides land and NOGs make plans with affected communities



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9 churches are planned in Rinari

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Street views in Renari

Complete 2,584 of 3,309 houses in 2 years



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Key elements to build up disaster-resilient community



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Risk and vulnerability assessment



Monitoring and early warning



Mature and reliable knowledge

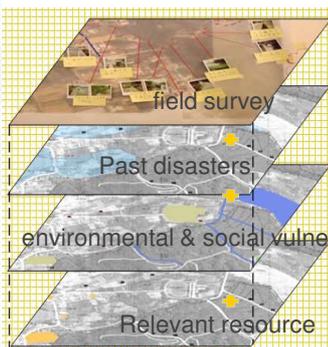


Preparedness plan

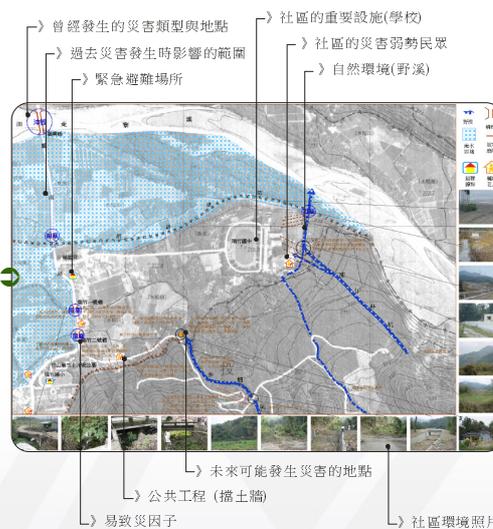
Mapping community vulnerability



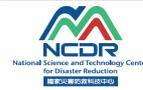
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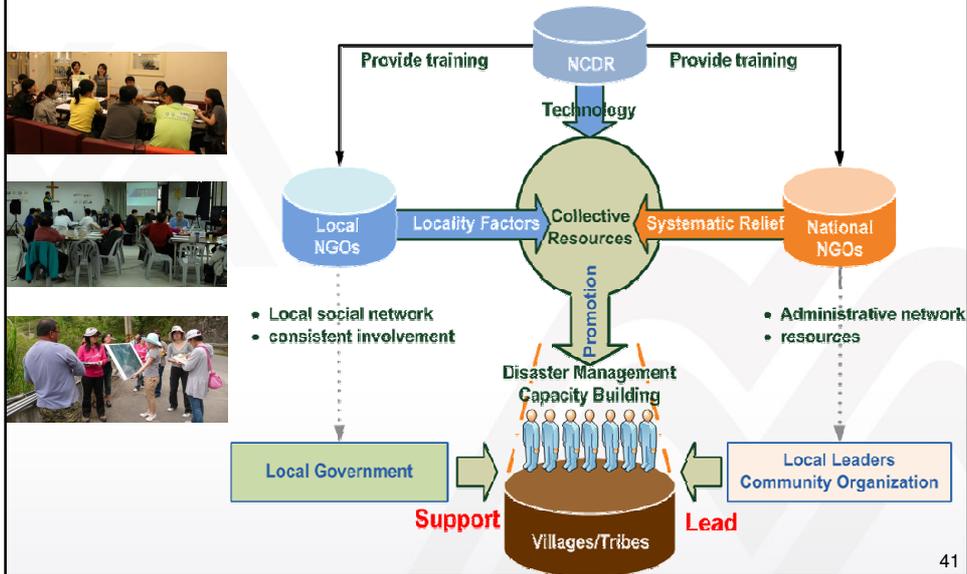
mapping ↻



Operational Model partnership with NGOs



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Risk Identification



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Dialogues, Assessment, Training and Scenario-based drill



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Group Discussion



Assessment



Training



Scenario-based drill

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Community-level hazard map for a indigenous tribe after Typhoon Morakot



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Case of successful early evacuation during Typhoon Fanapi, in Lai-Yi village, Sep. 2010



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9/18

05:30

14:00

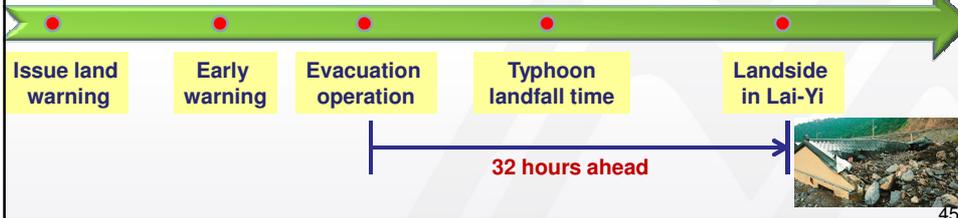
15:00

9/19

08:40

照片來源：水保局

23:00



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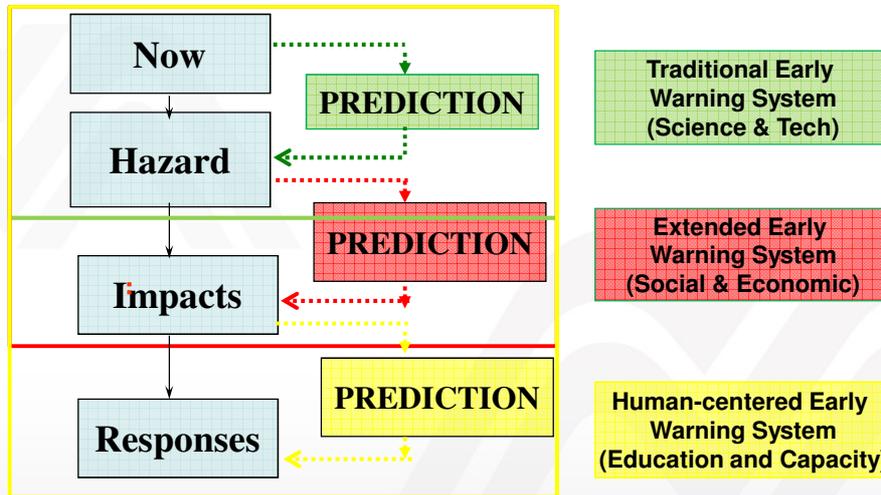
Conclusions

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Innovation of disaster resilience building in civil society



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Gordon McBean⁴⁷



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Thanks for Your attention

Video search on YouTube

- Key words: **Community-Based Disaster Management (NCDR)**
http://www.youtube.com/watch?feature=player_embedded&v=kFZ5jz8H17c
- Key words: **防災まちづくり (国家防災科学技術センター)**
<http://www.youtube.com/watch?v=zFky8QBIONY>