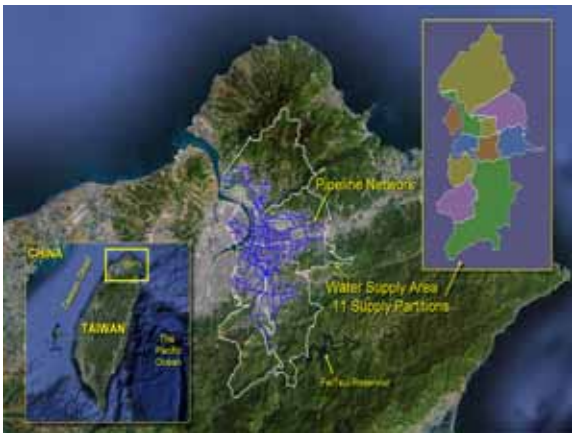
I. Problems Taipei Water Department Faced

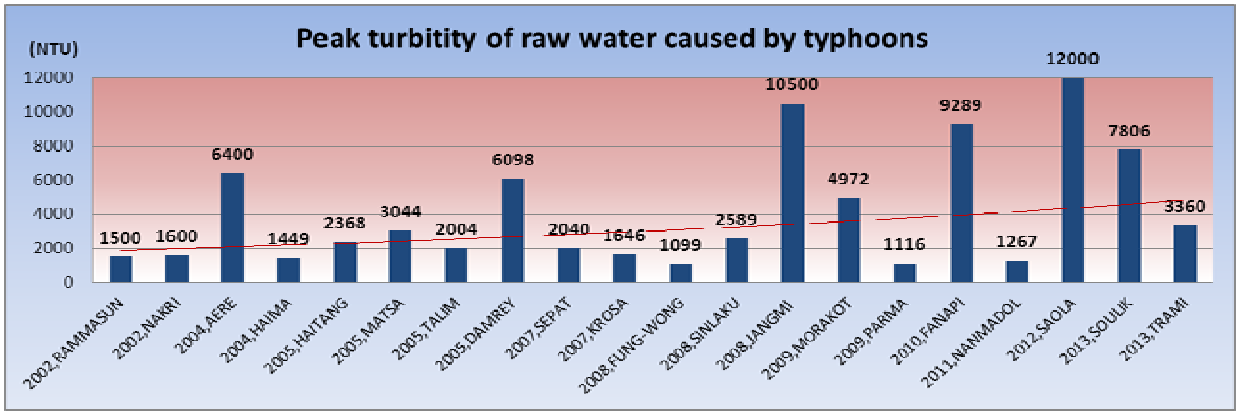


Taipei Water Department (TWD) supplies 2.5 M CMD of potable water to over 5 M consumers in Taipei and relies heavily on Xindian River(97%). Large amount of water is consumed due to the low water price despite the fact Taiwan is listed as the 18th water shortage country. In addition, under the impact of global warming in the past years, earthquakes occurred frequently and storm rain became heavier, which pushed up turbidity of raw water (one thousand times more than average) causing difficulties to water treatment process. For example, Chi-chi Earthquake in 1999 with a magnitude of 7.3 on Richter scale and Typhoon Morakot in 2009 which brought rainfall of 2,361 mm in 48 hours (world record of 2,467 mm).Therefore, strengthening and improving water supply systems become vital to TWD.

Chi-chi Earthquake, 1999

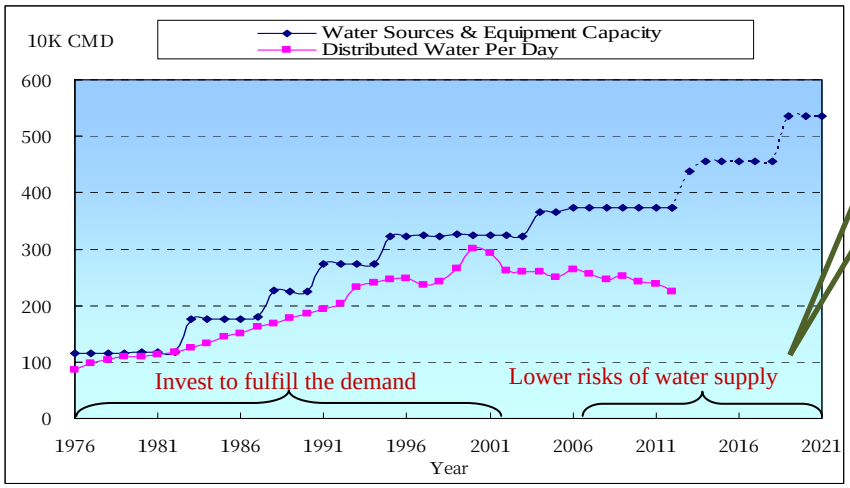
Typhoon Morakot, 2009

Rising of raw water turbidity

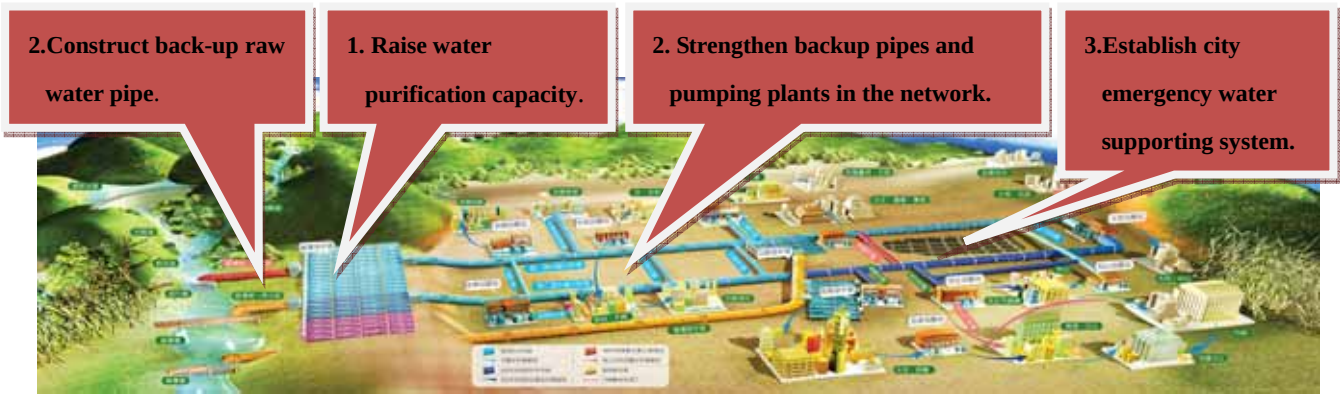


II. The Plan against Natural Hazards

Purpose	Project	Period	Budget
Against Typhoon	More redundancy of purification capacity	2007~2021	€98 M
Against Quake	Strengthening water supply back-up system	2007~2021	€434 M
Emergency Water Supply	Establishing emergency water supporting facilities	2007~2014	€ 3.7 M



Comparison of purification capacity targets and Average Daily Supply



1. Plan against storm rain: € 98 M will be invested for more backup purification capacity to meet emergency needs caused by high turbidity of raw water.

2. Plan against earthquake hazard：When earthquake occurs, major booster stations and pipeline might damage and results in water outage. TWD budgeted € 434 M to increase seismic resistance ability and to develop the backup mechanism of water supply system.

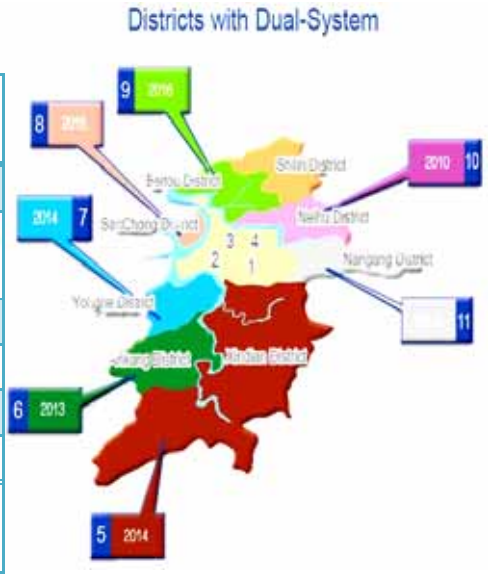
(1) TWD conducted seismic resistance evaluation of 13 important booster stations in 2009 and made necessary structural reinforcement. Full reinforcement will be completed

in 2014 and the seismic resistance ability is expected to be sufficient to resist earthquakes up to 360 peak ground acceleration (PGA).

(2) Zhitan Purification Plant which supplied 70% of the entire service area of TWD used to have only one raw water transmission main, which made annual repair impossible. The 2nd raw water transmission main at the Zhitan Purification Plant was completed in 2009 and achieved the goal of dual system intake.

(3) To make 11 water supply zones support each other by backup pipeline and booster stations, the following main projects are scheduled:

Year	Project	Dual-system Water Supply Zone Finished
2007	Plan Started	1、2、3、4
2010	Minsheng-Nangang Line and Minsheng Booster Station	10、11
2012	1st and 2nd Stages of Guandu Line	9
2013	Anhua-Ankang Line and Booster Station	6
2014	Anhua-Xindian Line	5、7
2015	Huanhe South Road Line	8
2016	3rd stage of Guandu Line, Datung and Dadu Booster Station	Support other entities.



2. In order to maintain supplying drinking water to citizens after earthquake striking the main supply system, TWD planned 45 Emergency Water Supporting Stations which can store a certain amount of water. These stations have been completed in 2013.

Distribution of Water Supporting Stations

III. Results of the Plan

1. **Increase of capacity of purification equipment:** After completion of the 6th purification facility of Zhitan plant in 2013, the total purification capacity of TWD increases from 3.67 M CMD to 4.37M CMD. It is expected to reach 5.35 MCMD in 2021, which will help to deal with the impact of sudden rise of raw water turbidity. That is why TWD was capable of turning raw water of 7,806 NTU to drinking water of 0.08 NTU and also supporting 0.3 million water to other entities in the period of Typhoon Soulik in 2013.
2. **Dual System Accomplished in 11 Water Supply Zones:** With the implementation of this plan, dual system accomplished in 11 supply zones increased to 73% in 2013, and when the projects are completed in 2015, it will reach 100%. Furthermore, water pressure in each water supply zone can be readjusted, which made the electricity consumption by all the booster stations decrease by 26% in 2012 compare to 2006.
3. **Support neighboring water supply entities:** Distribution of water resources in Taiwan is quite uneven. After completion of the plan, water supported to neighboring entities will increase from 350,000 to 1,005,000 CMD. This will lower the risks of water supply in Taiwan and 1 million people will be benefited.
4. 344,000 tons of life-supporting drinking water is stored for 28 days needs of people so that TWD can have enough time to repair damaged water supply facilities if needed.

Maneuver of drawing water

Main projects implemented in the plan and relative performance

The 2nd Raw Water Pipe , ϕ4000 mm
€ 33,250,000 , Finished

Guan-Du Line 2nd Stage, ϕ2000 mm
€ 23,000,000 , Finished

Zhi-Tan 6th Water Treatment Facility ,700KCMD
€ 37,500,000 , Finished

45 Emergency Water Supply Facilities
€ 3,725,000 , Finished

Guan-Du Line 3th Stage, ϕ2000 mm
€ 25,000,000 , On-going

Du-Tung 3th Pumping Station
€ 22,500,000 , Design stage

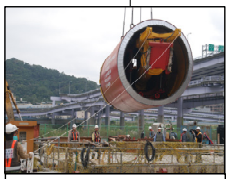
Water Treatment Plants Capacity Updating
€ 62,500,000 , Planning Stage

2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026

Mingshen-Nangang Line, ϕ1500 mm
€ 42,500,000 , Finished

Anhua Pumping Station
€ 7,500,000 , Finished

Anhua-Ankang Line, ϕ1500 mm
€ 2,500,000 , Finished



Anhua-Xindian Line, ϕ1500 mm
€ 21,500,000 , On-going

Earthquake Resistance Capacity Reinforcement
€ 500,000 , On-going

Huan-He South Rd. ϕ800 mm Pipe
€ 5,000,000 , On-going

Da-Du Pumping Station and ϕ1200 mm Pipe
€ 29,000,000 , Design stage