

# Response Measures Adopted by Taiwan Water Corporation during the Drought in Western Taiwan in 2015

**Taiwan Water Corporation**  
**Reporter: Thomas Tseng**

**2016/07/13**

1. Introduction to Taiwan?

2. How did the drought happen?

3. Drought-fighting measures,  
preparations and execution.  
(Phase1 → Phase2 → Phase3)

4. Outcomes of water rationing

5. Conclusions



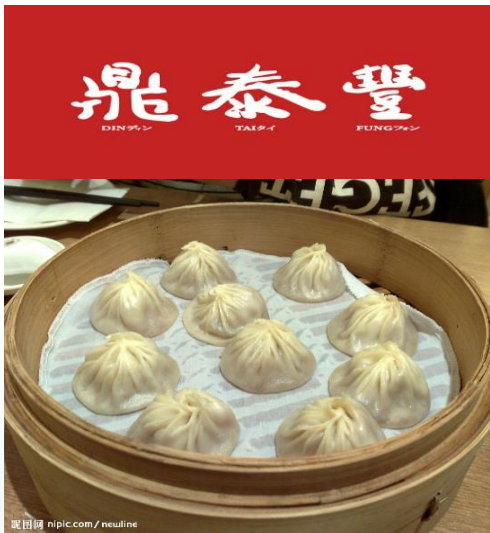
# 1. Introduction to Taiwan



*Touch Your Heart*



# 1. Introduction to Taiwan



## 2. How did the drought happen?

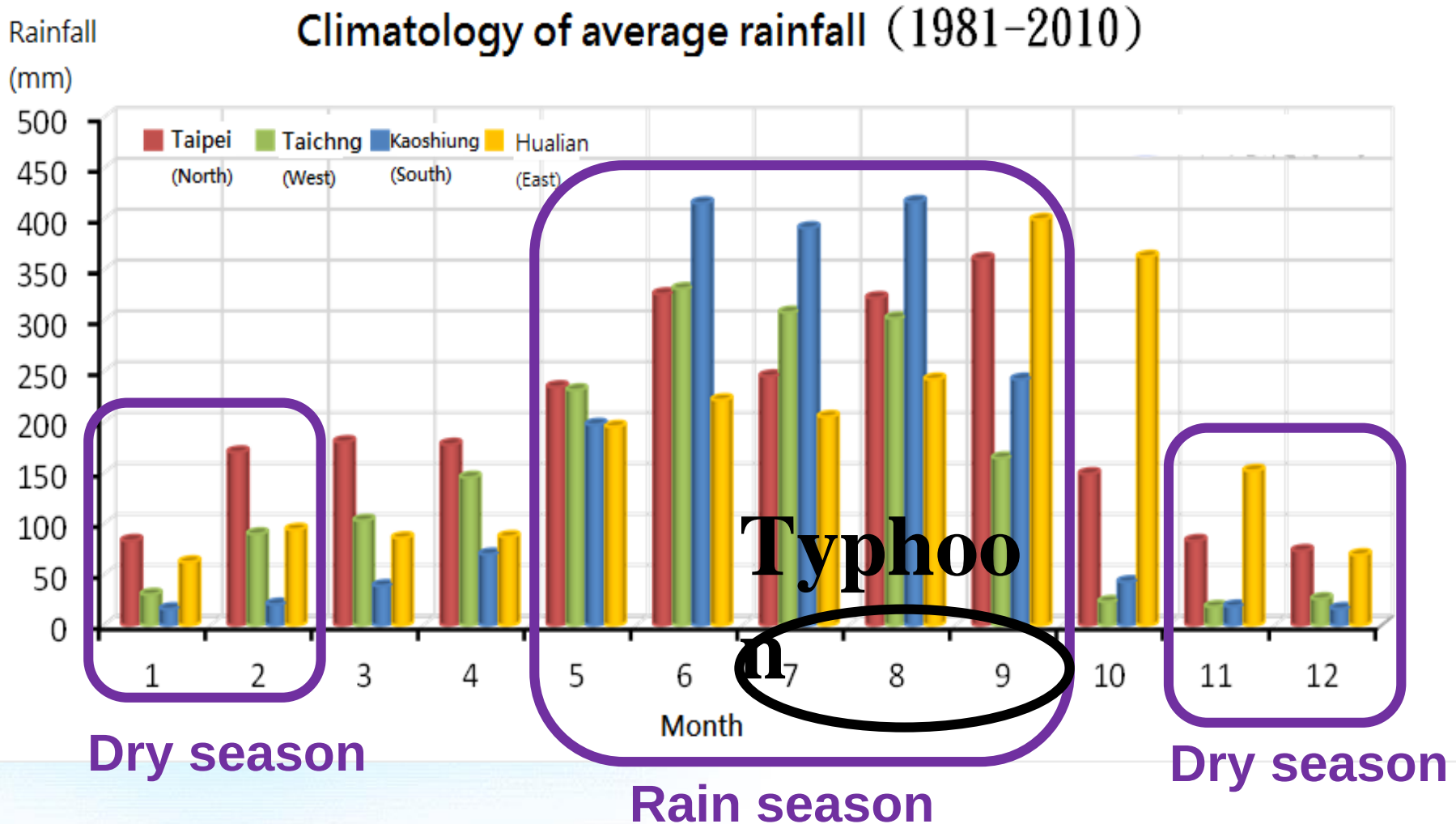


1. Mountains lies north to south

2. Rivers are short and fast-flowing

3. World's 18th most vulnerable country to water shortage

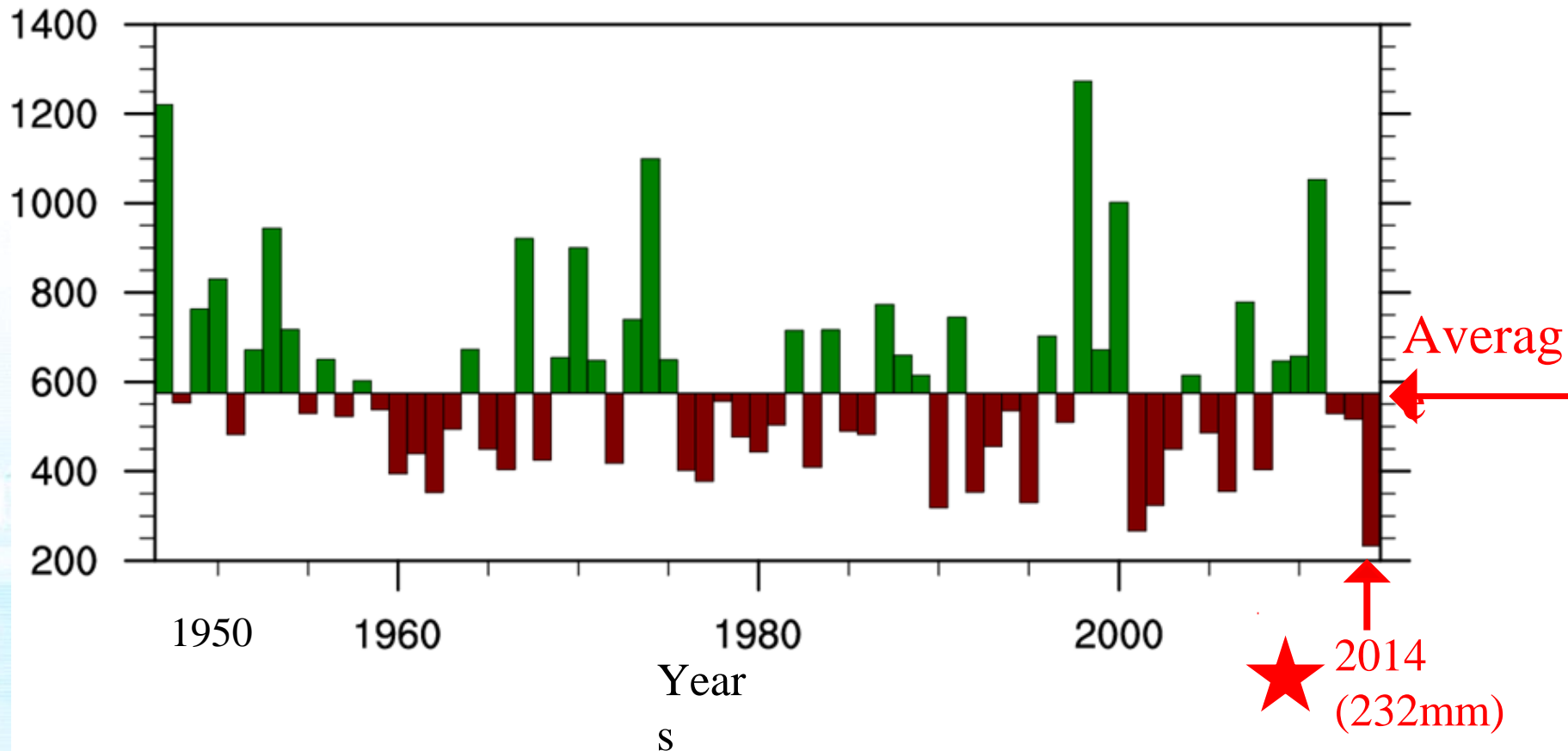
## 2. How did the drought happen?



## 2. How did the drought happen?

Rainfall

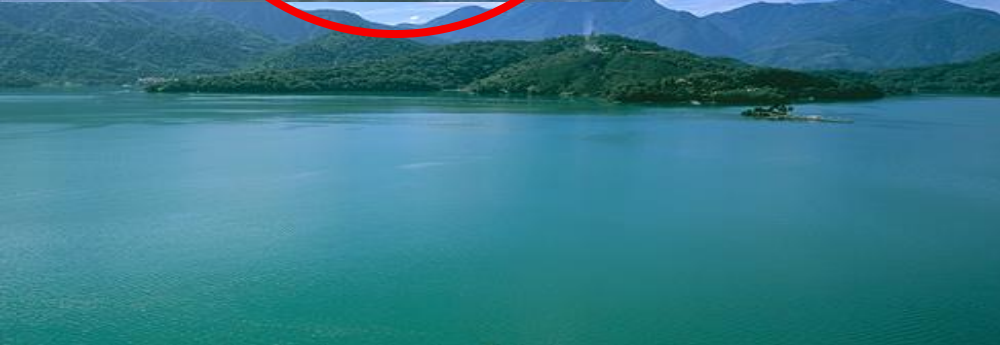
Timeseries for Rainfall of Taiwan 13 Stations Ave. in Oct-Feb, Climate 574.728



The rainfall recorded from Oct 2014 to Feb 2015 hit its minimum extent in history, **only 232 mm !**



## 2. How did the drought happen?





## 2. How did the drought happen?

◆ When the water level went down, nine frogs appeared !

Frog	Water Level(EL.M)	Rate(%)
1st	748.48	100.00%
2ed	748.31	98.94%
3rd	748.14	97.87%
4th	747.81	95.80%
5th	747.51	93.94%
6th	747.16	91.78%
7th	746.82	89.68%
8th	746.38	87.00%
9th	745.90	84.12%

EL.745.25meter

March 2015

Warning 743.00 67.48%

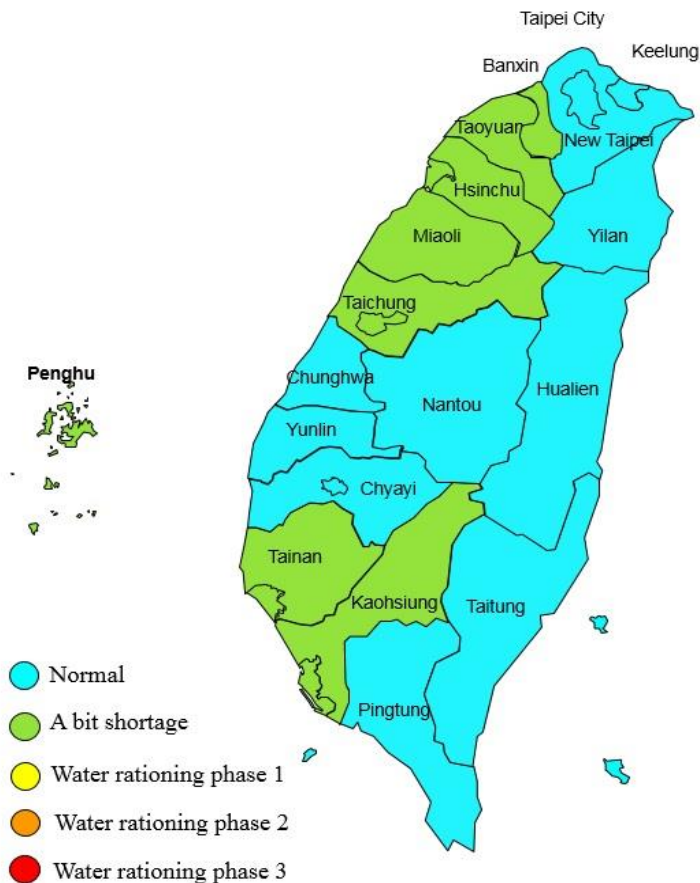
Wharf closed



# 3. Drought fighting measures, preparations and execution.

Water Supply Situation Map

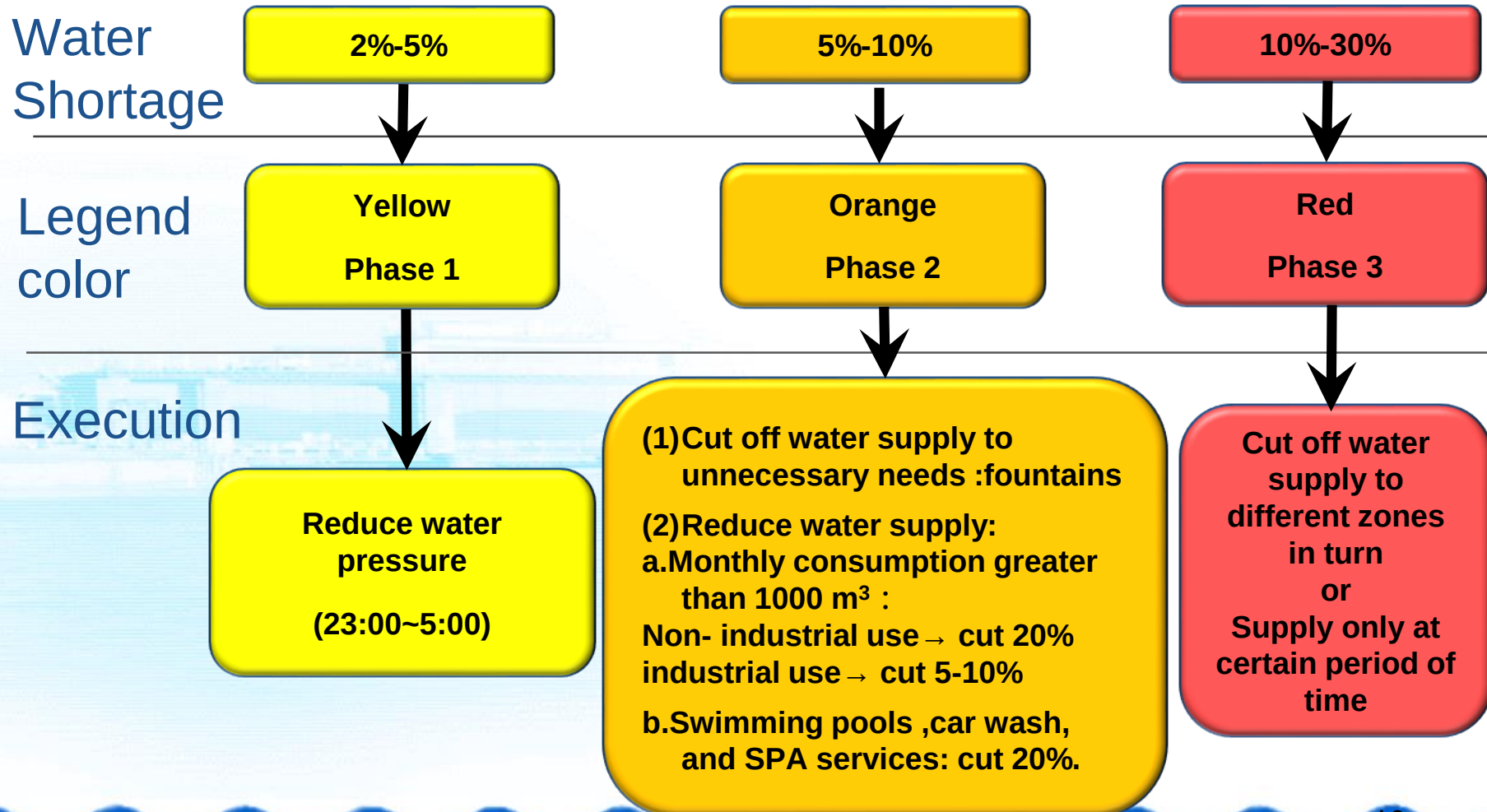
Date : 2014/11



- Normal
- A bit shortage
- Water rationing phase 1
- Water rationing phase 2
- Water rationing phase 3

# 3. Drought fighting measures, preparations and execution.

Water Supply Legend color & Each water rationing stage's execution





# **Water rationing Phase 1 (2014/11/27~2015/6/7)**

# Water rationing phase 1

**News:**  
Linkou Taoyuan first stage water rationing on Nov.27 2014

Rationing  
Poster

## 桃園林口 27日第一階段限水

2014年11月21日 04:10 記者劉朱松 / 台中報導

A A A

點閱 **470**



★ 2/10

我要評比 ★★★★★

f 分享至Facebook

g+ 分享至Google+

t 分享至Twitter

分享至Weibo

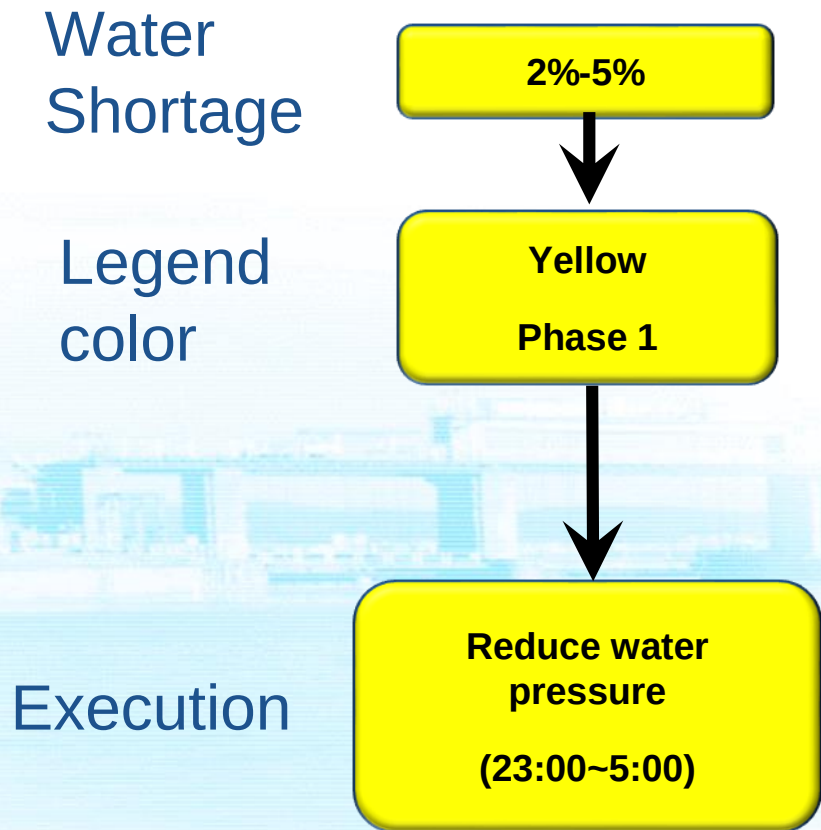
面對石門水庫集水區降雨不佳，造成當地水庫蓄水量拉警報！經濟部水利署北區水資源局昨（20）日開會檢討後宣布，將自27日起，針對桃園縣（含新北市林口區）實施第一階段的夜間減壓供水措施，且當地水情燈號同時也轉為代表第一階段限水的「黃燈」。

- Water rationing phase 3
- Water rationing phase 2
- Water rationing phase 1
- A little water shortage
- Normal





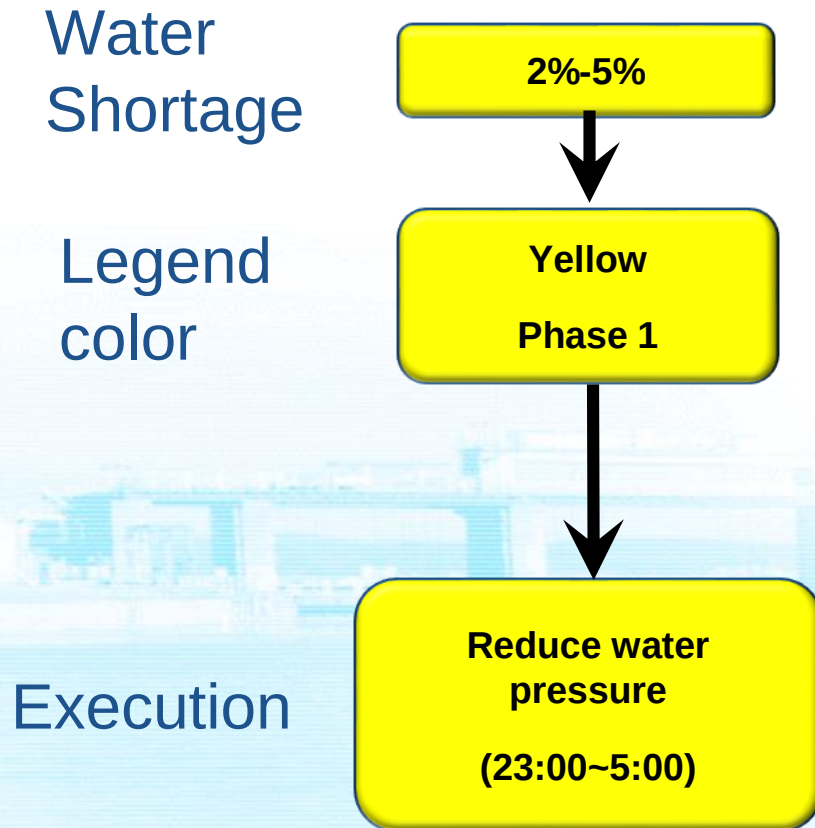
# Water rationing phase 1



## Preparation :

- (1) Built up water supply equipment operation mode for phase 1 rationing .
- (2) Released news to individual media and TWC website .

# Water rationing phase 1



## Execution measures :

- (1) Reduce water supply pressure
- (2) Monitor and log key nodes' pressure.
- (3) Measure water saving rates daily.



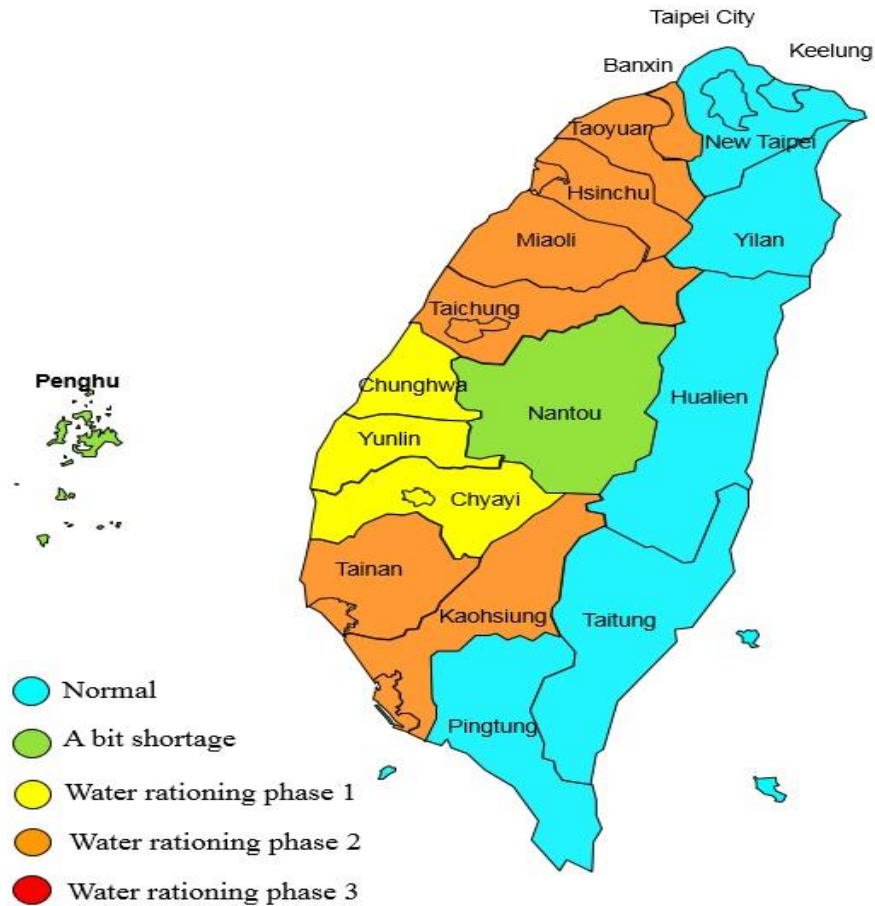
# **Water rationing phase 2 (2015/2/26~2015/5/24)**





## Water Supply Situation Map

Date : 2015/2



# Water rationing phase

2

Preparation :

Water  
Shortage

5%-10%

Legend  
color

Orange

Phase 2

Execution

(1) Cut off water supply to unnecessary needs .

(2) Reduce water supply:  
a. Monthly consumption greater than 1000 m<sup>3</sup> :  
Non- industrial use → cut 20%

industrial use → cut 5-10%

b. Swimming pools , car wash, and SPA services: cut 20%.



Stage 2 rationing seminar for users in industrial zone



Stage 2 rationing seminar

# Water rationing phase

## 2

Water Shortage

5%-10%

Legend color

Orange

Phase 2

Execution

(1) Cut off water supply to unnecessary needs .

(2) Reduce water supply:  
a. Monthly consumption greater than 1000 m<sup>3</sup> :

Non- industrial use → cut 20%

industrial use → cut 5-10%

b. Swimming pools ,car wash, and SPA services: cut 20%.

Execution :

1. Regulated water control valve or stopcock at user sites to control inflow of water.
2. Visit and check the rationing outcome weekly .



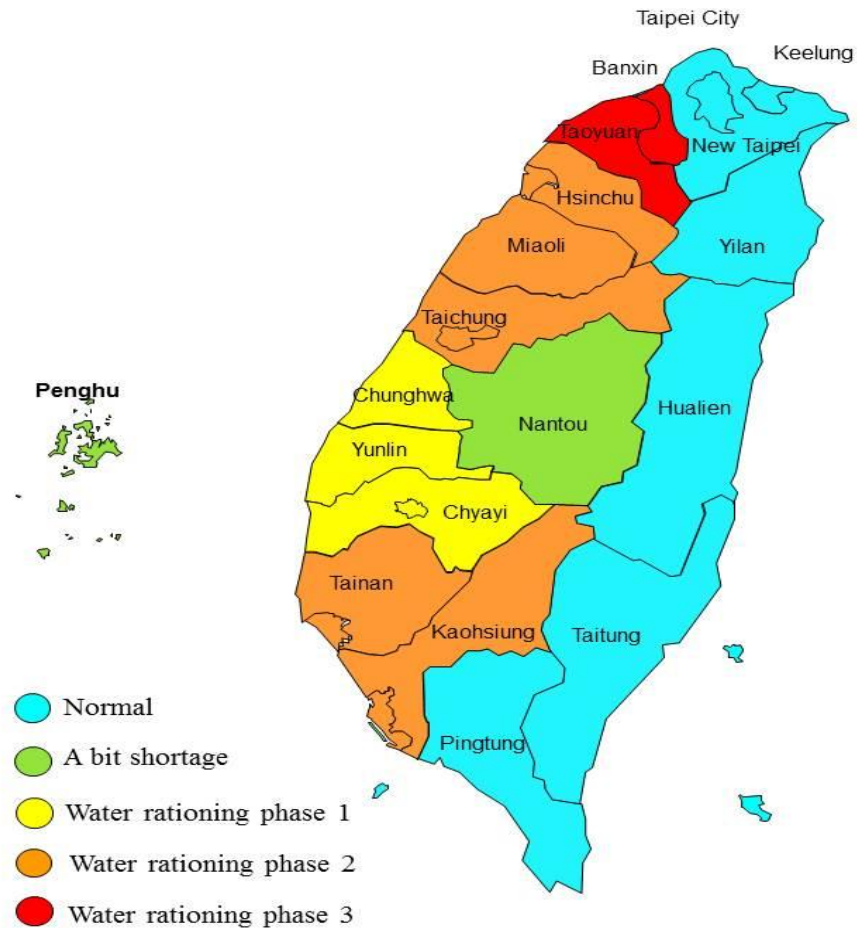


# **Water rationing phase 3 (2015/4/8~2015/5/5)**



# Water rationing phase 3

## Water Supply Situation Map



# Water rationing phase 3

Water Shortage

10%-30%



Legend color

Red  
Phase 3



Execution

Cut off water supply to different zones in turn  
or  
Supply only at certain period of time

## Preparation :

Set up contact window with water source management agencies to unify source water marshalling operations before and after water outage.



# Water rationing phase 3

Water Shortage

10%-30%

Legend color

Red  
Phase 3

Execution

Cut off water supply to different zones in turn or Supply only at certain period of time

Preparation :

Work with fire department in advance to set up fire fighting plans





# Water rationing phase 3



## Preparation :

Water Shortage

10%-30%



Legend color

Red  
Phase 3



Execution

Cut off water supply to different zones in turn or Supply only at certain period of time



**台灣自來水公司第十二區管理處停水通知**  
104.03.24

茲因久旱不雨，各河川流量明顯降低，水庫水位嚴重下降，水情嚴峻，依據「旱災中央災害應變中心」第2次工作會報決議：104年4月1日起新北(板新、林口)及桃園地區實施第三階段限水(供水5天，停水2天)，請 貴用戶注意配合節約用水並預作準備，停水區域及時間如下：

停水區域	影響時間
鶯歌區 全部 三峽區 全部 樹林區 柑園地區 吉祥街、中和街、信和街、德和街、民和街 八德市 大發里、大明里(福德一、二及三路、興隆街、桃鶯路(單號1至133號、雙號2至126號)、福隆及二街、後庄街)、大仁里、大安里。 龜山區 山頂里(聖德新村2至162號)	第二供水區 每週二及周二 (4月6、8、0時起)

**設置臨時供水站地點：**

- 鶯歌區朝陽街與國際一路口。
- 鶯歌區鶯歌區湖山路71巷口。
- 鶯歌區中正三路335巷與震源新村口。
- 三峽區橋溪路99巷幼雅園門口。
- 三峽區榮新路16巷口。
- 三峽區介壽路三段200巷口。

**停水注意事項**

停水前：請提早於停水前六小時完成儲水，以避無集中於開始停水前大量儲水，造成管線末端用戶無水可用。

停水期間：

- 一、停水期間應關閉進水開關、抽水機電源，大德管理單位以手動操作抽水機為宜，嚴禁濫開水閥。
- 二、如未關閉抽水機電源：  
1、馬達空轉過久會產生高溫致馬達損壞或造成火災。  
2、易造成供水管線產生負壓吸入污水，危害用戶衛生安全。
- 三、建築物之自來水進水口低於地面之用戶，在停水期間，請將總表製水開關關閉，以避免發生可能虹吸污染。
- 四、水龍頭使用橡皮管接水時，勿將橡皮管浸在水中，以免水龍頭因虹吸作用產生二次污染。

復水後：剛恢復供水時，請將全部水開關閉閉，以利迅速恢復供水，管線末端高地區用戶，如因水壓較低，致延遲供水，應積極儲水，恢復供水後，如仍無(缺)水時，請通知水公司，本處將派專人到府服務。

客服中心:1910 鶯歌服務所:2679-2224 12區管理處:2996-8961  
水公司停水消息請上網查詢 [www.water.gov.tw](http://www.water.gov.tw)

台灣自來水公司第十二區管理處

Delivery water rationing phase 3 notice to household users .



# Water rationing phase 3

## Preparation :

Water  
Shortage

10%-30%

Legend  
color

Red  
Phase 3

Execution

Cut off water  
supply to  
different zones  
in turn  
or  
Supply only at  
certain period of  
time



Banner of third phase water rationing (red strip)



Banner promotion of third phase water rationing



# Water rationing phase 3

Water Shortage

10%-30%

Legend color

Red  
Phase 3

Execution

Cut off water supply to different zones in turn  
or  
Supply only at certain period of time

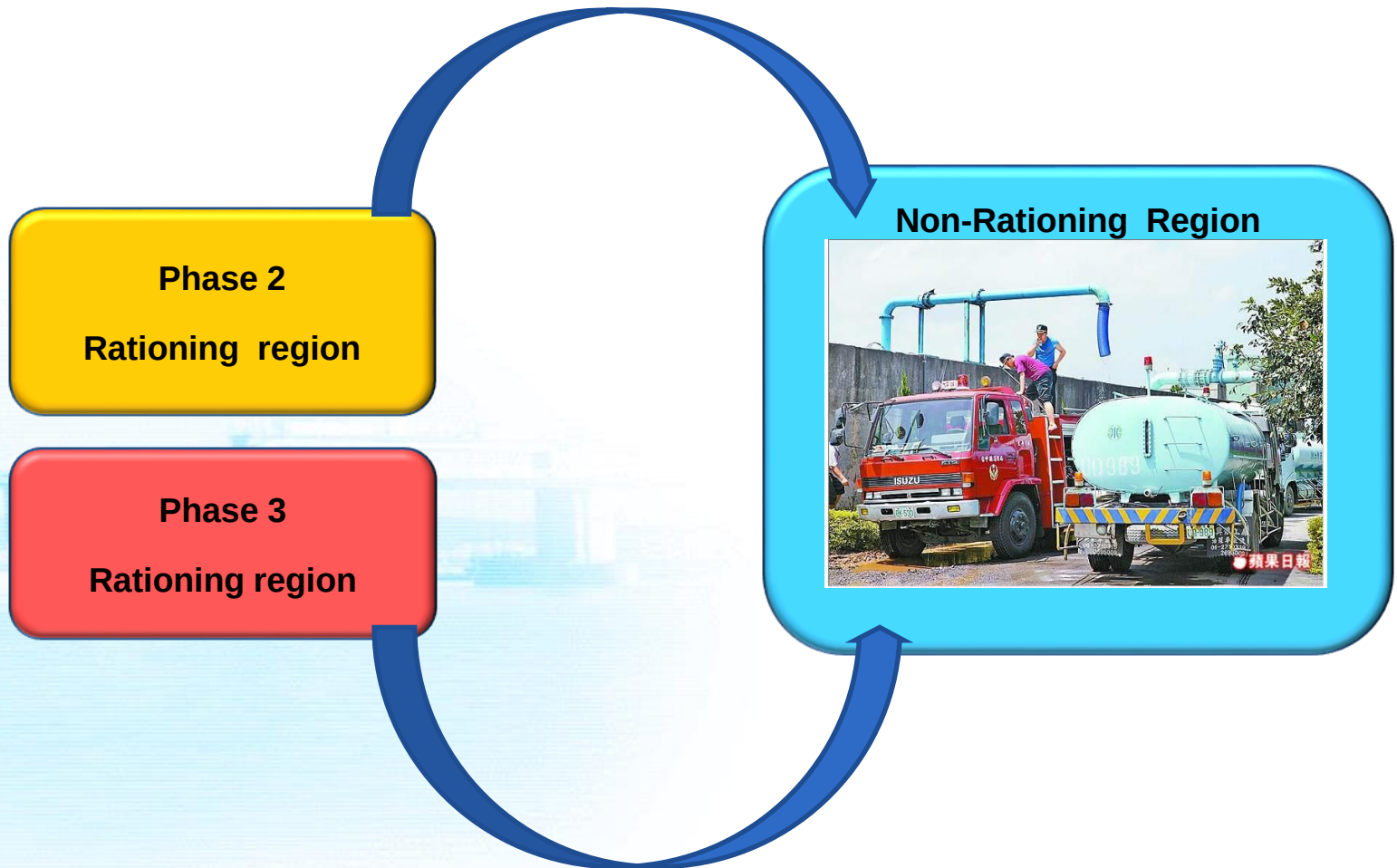
Preparation :



Water tank and water supply operation at temporary water supply station.



# Water rationing phase 3

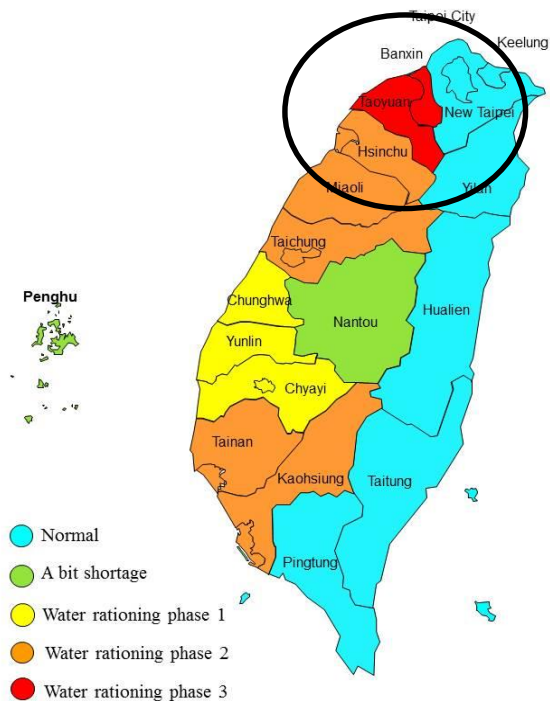


# Water rationing phase 3

Execution :

Divide into three zones


Water Supply Situation Map



# Water rationing phase 3

Execution :

	Households	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
<b>Zone 1</b>	220 thousands							
<b>Zone 2</b>	130 thousands							
<b>Zone 3</b>	806 thousands							

 Cut out off water day.

**Four round in phase 3**



## 5. Outcomes of water rationing

# Outcomes of water rationing

In unit of million cubic meters

	Water supply (per day)	Days	Total saving(m <sup>3</sup> )	Saving rate
Phase 1	7.59	189	39.23	3.18%
Phase 2	7.59	88	29.36	5.53%
Phase 3	1.86	28	<b>+</b> 4.93	9.45%

**= 73.52**



# Conclusion

## Taiwan lifts water rationing as rains from Typhoon Noul ease drought

PUBLISHED : Wednesday, 13 May, 2015, 3:52am

UPDATED : Wednesday, 13 May, 2015, 3:52am



Taiwan lifted water rationing in some major cities yesterday after recent heavy rains caused by Typhoon Noul helped ease its worst drought in over a decade.





# Conclusion

## S

The water rationing work gives people a sense of water shortage crisis more than water-saving itself. It has a significant impact on promoting water conservation policy in the future.

“Good performance mandates good tools.” The Taiwan Water Corporation had made comprehensive preparation in advance and cooperated with the government and people. We had thus succeeded in drought fighting.

A young girl with dark hair, wearing a light-colored, short-sleeved dress, is kneeling on a wet, rocky ground. She has her head tilted back and her hands clasped together in front of her chest, looking up at the sky. It is raining heavily, with raindrops visible as streaks in the air. In the background, there is a wooden fence and a structure covered with a blue tarp. The overall scene is one of a rural, possibly impoverished, setting during a rainstorm.

**Thank you for your  
attention**

**Save water Today,  
for a better Tomorrow.**