

The Emergency Actions for Centurial Drought in Taiwan



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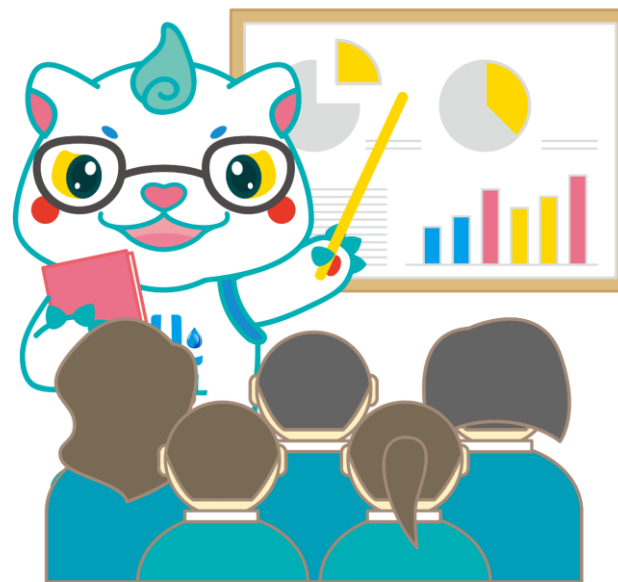
**Northern Region Water Resources Office, Water
Resources Agency, Ministry of Economic Affairs,
Taiwan**

April 2022

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**Taiwan's worst
drought in a century**



**Strengthen Drought
Resilience**

Water Resource Allocation

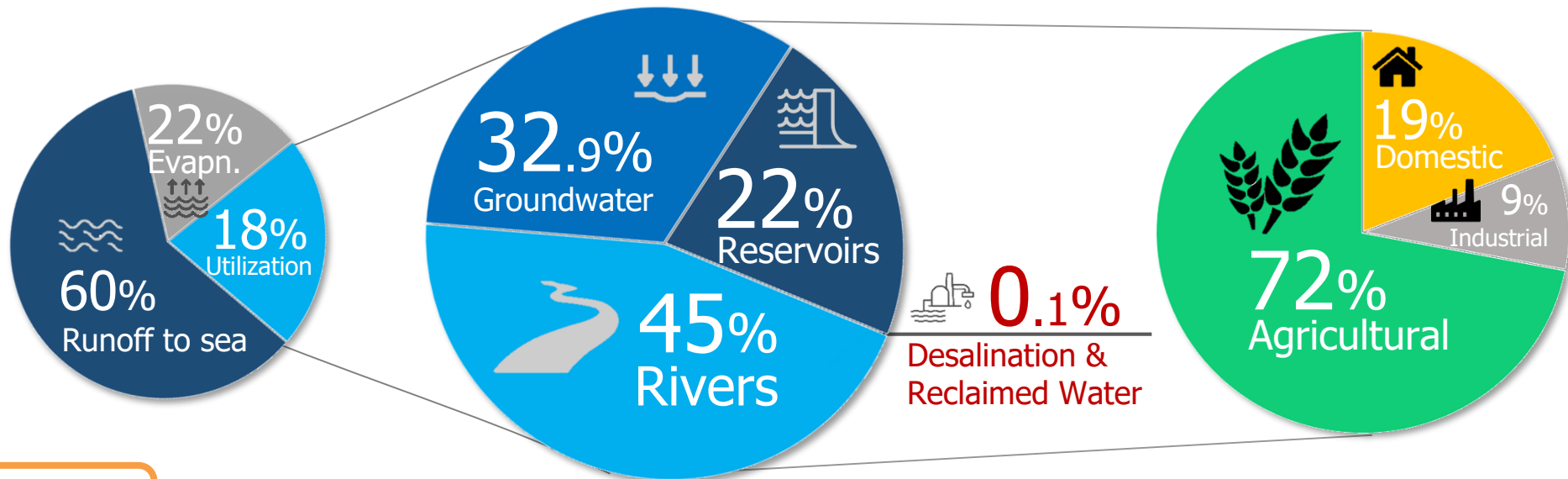


Precipitation **93.8**
(billion tons of water / year)



Challenge 1

◆ The total water usage : **17.1 billion tons/year**
(only 18% of the precipitation)

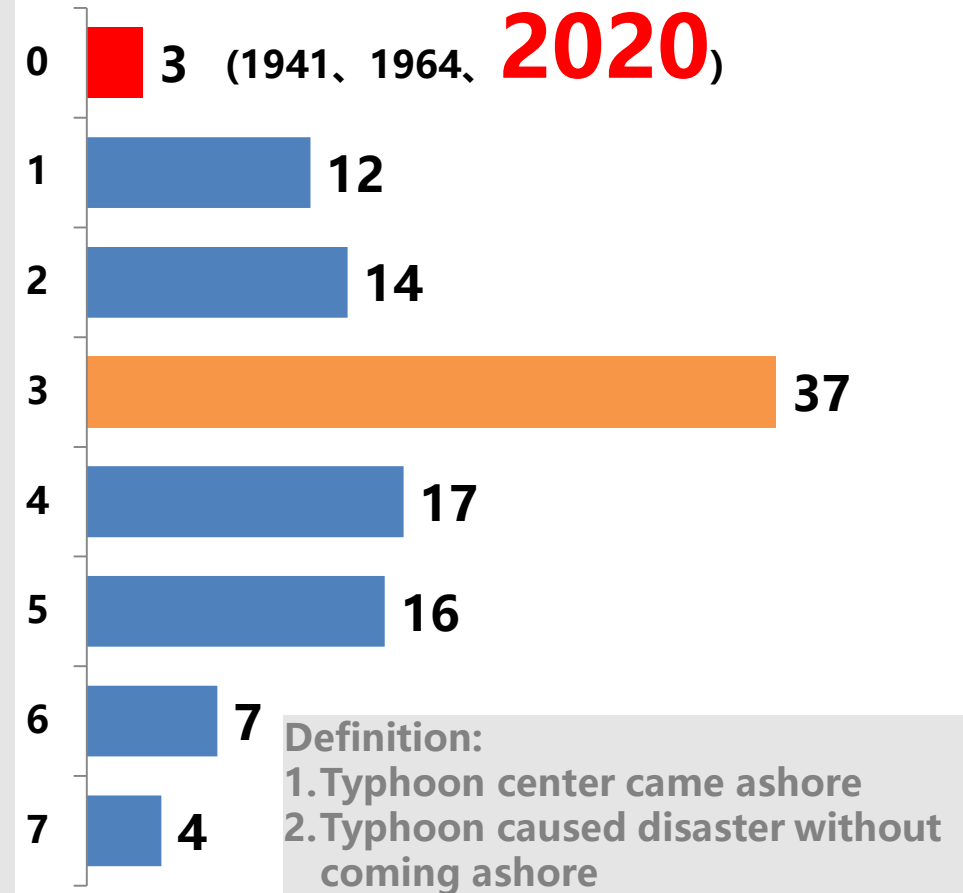
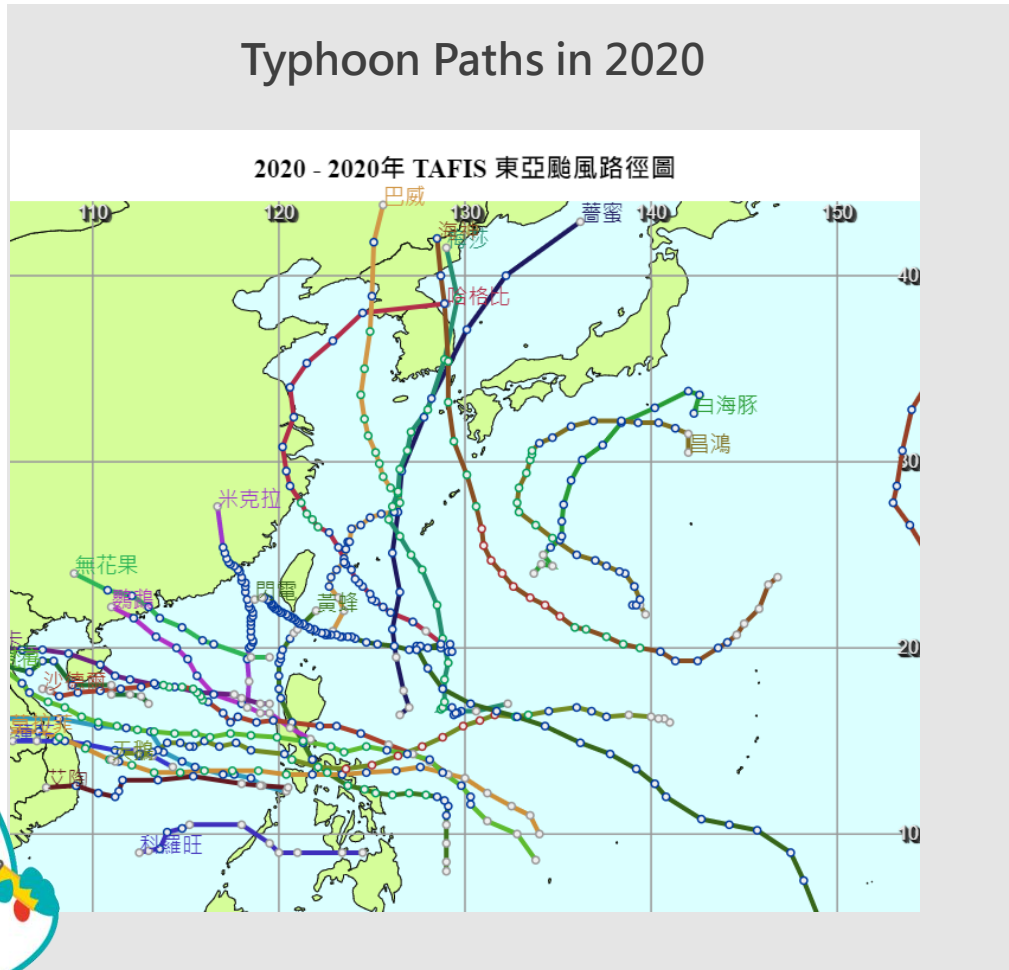


Challenge 2

◆ Uneven distribution either in time or locations

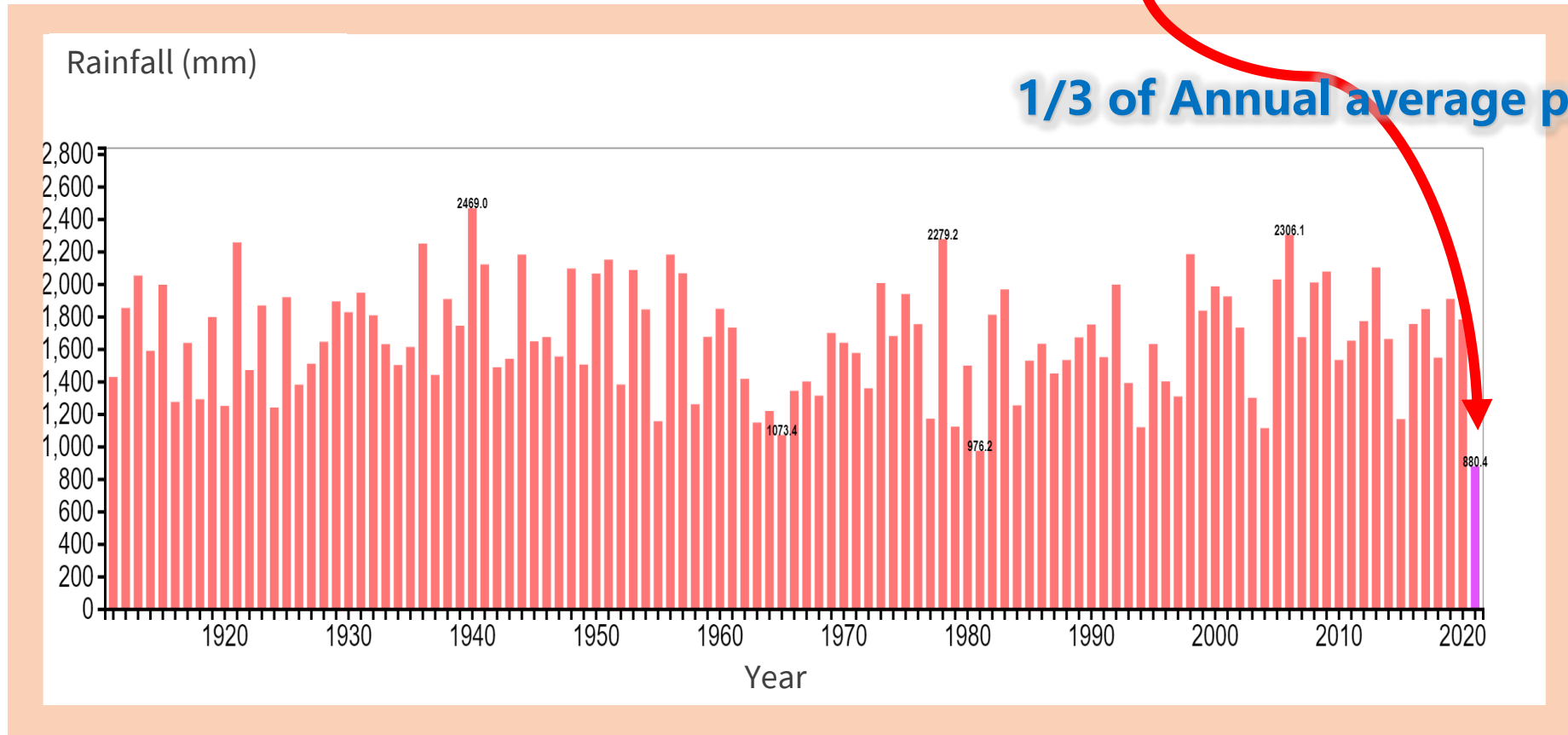
No Typhoon passed Taiwan in 2020

3.5 typhoons / year on average



The worst drought in Taiwan history

From June 2020 – May 2021,
Lowest recorded precipitation rate (**880mm**) since 1911.



(Data source: Prof. H.H. Hsu, Atmospheric Sciences, NTU)

1911-2021

Unprecedented Challenge

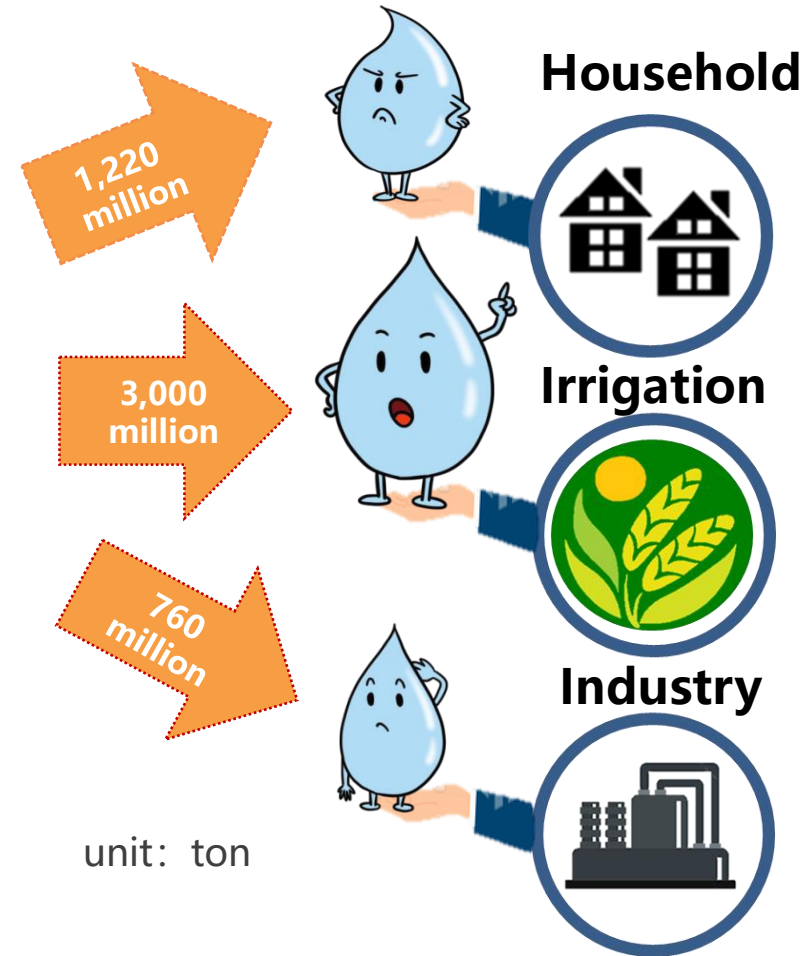
Accumulated inflow of Reservoir

About **4,600** million tons/year

Only **1,580** million tons between
2020/1/6~2021/5/28



Water requirement/per year



Statistical data : Accumulated inflow of Reservoir and water requirement include Taoyuan 、 Hsinchu 、 Miaoli 、 Taichung 、 Chiayi and Tainan areas.

Early preparedness & response



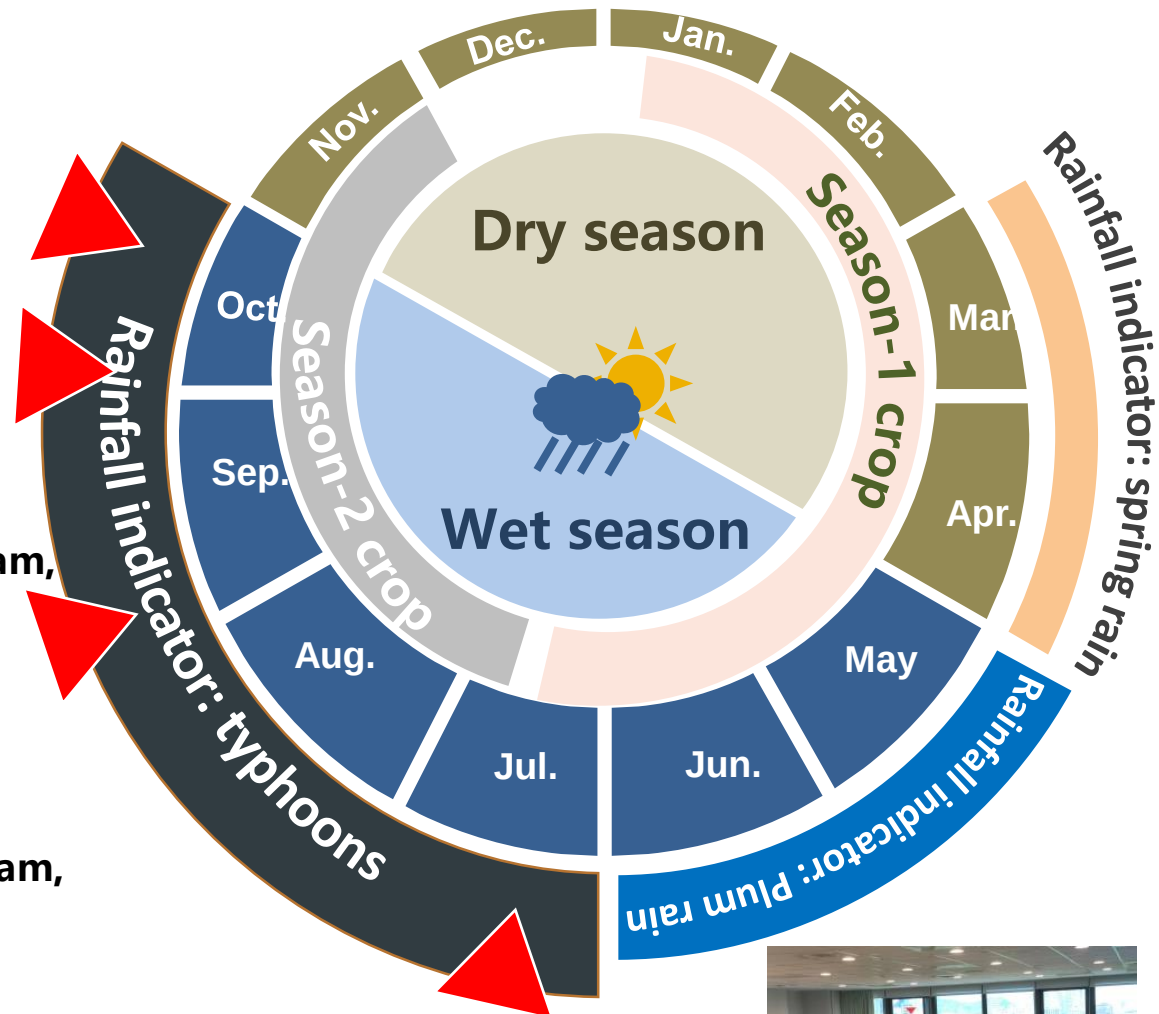
2020.10.14
Central
Emergency
Operation
Center



2020.10.1
Drought
Emergency
Response Team,
MOEA



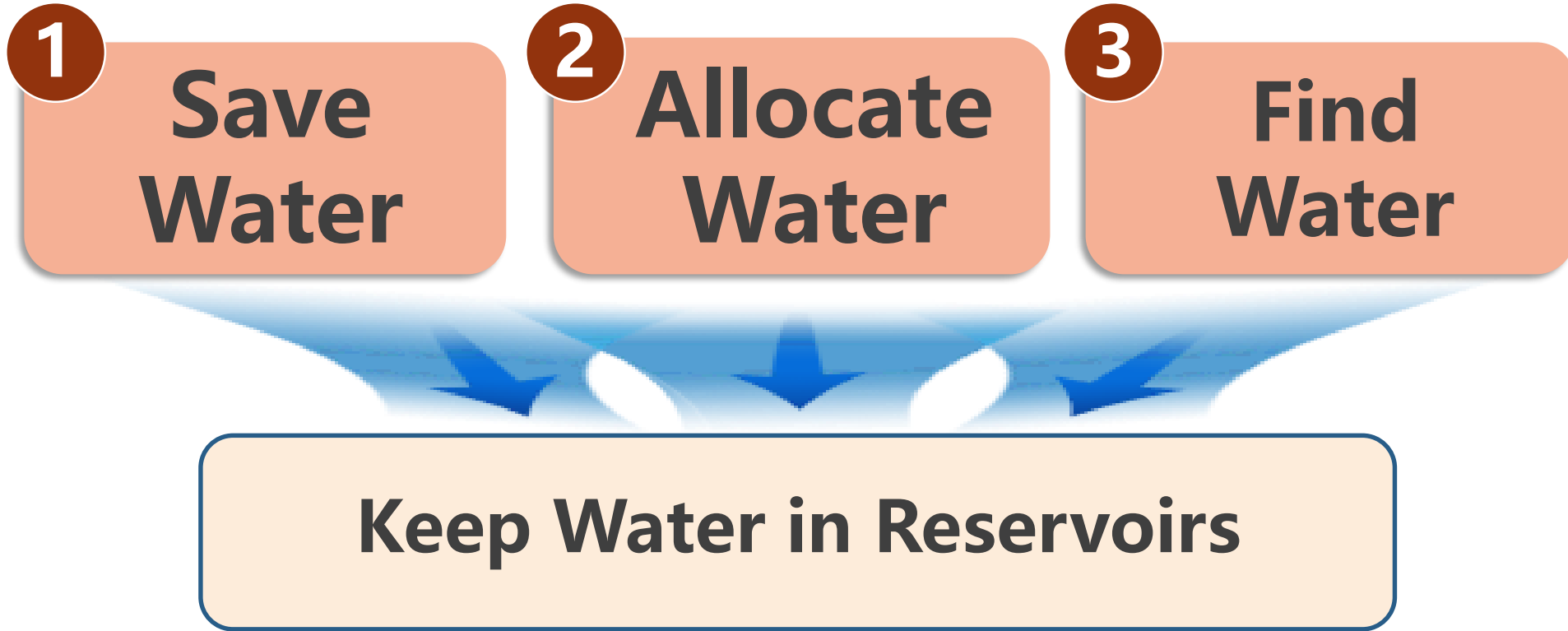
2020.9.16
Drought
Emergency
Response Team,
WRA



2020.7.13
Water Allocation Meeting



Mitigation measures



Groundwater Wells



Subsurface Water



Desalinated Seawater



Construction Site Groundwater



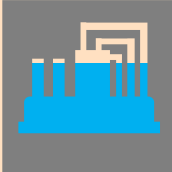
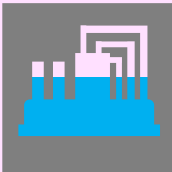
River Water



ER. Pipelines

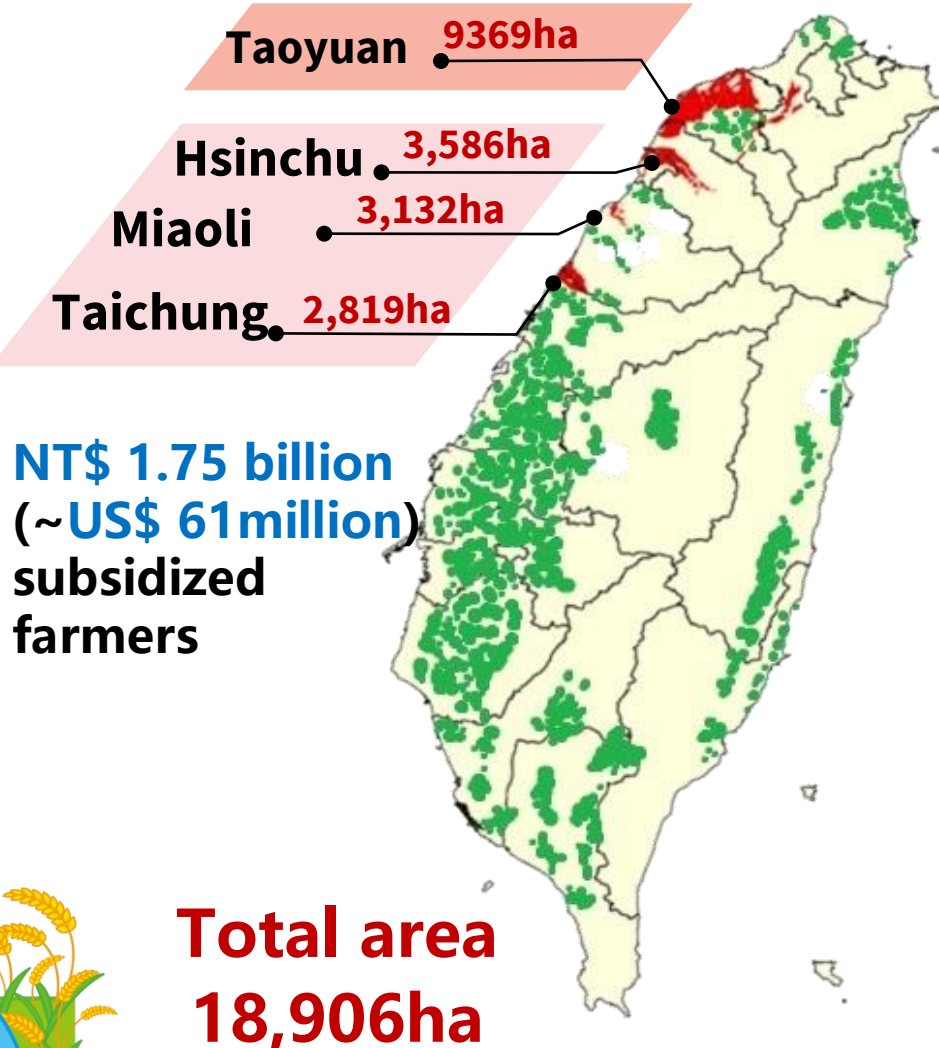
Save Water - Domestic/Industrial Sectors



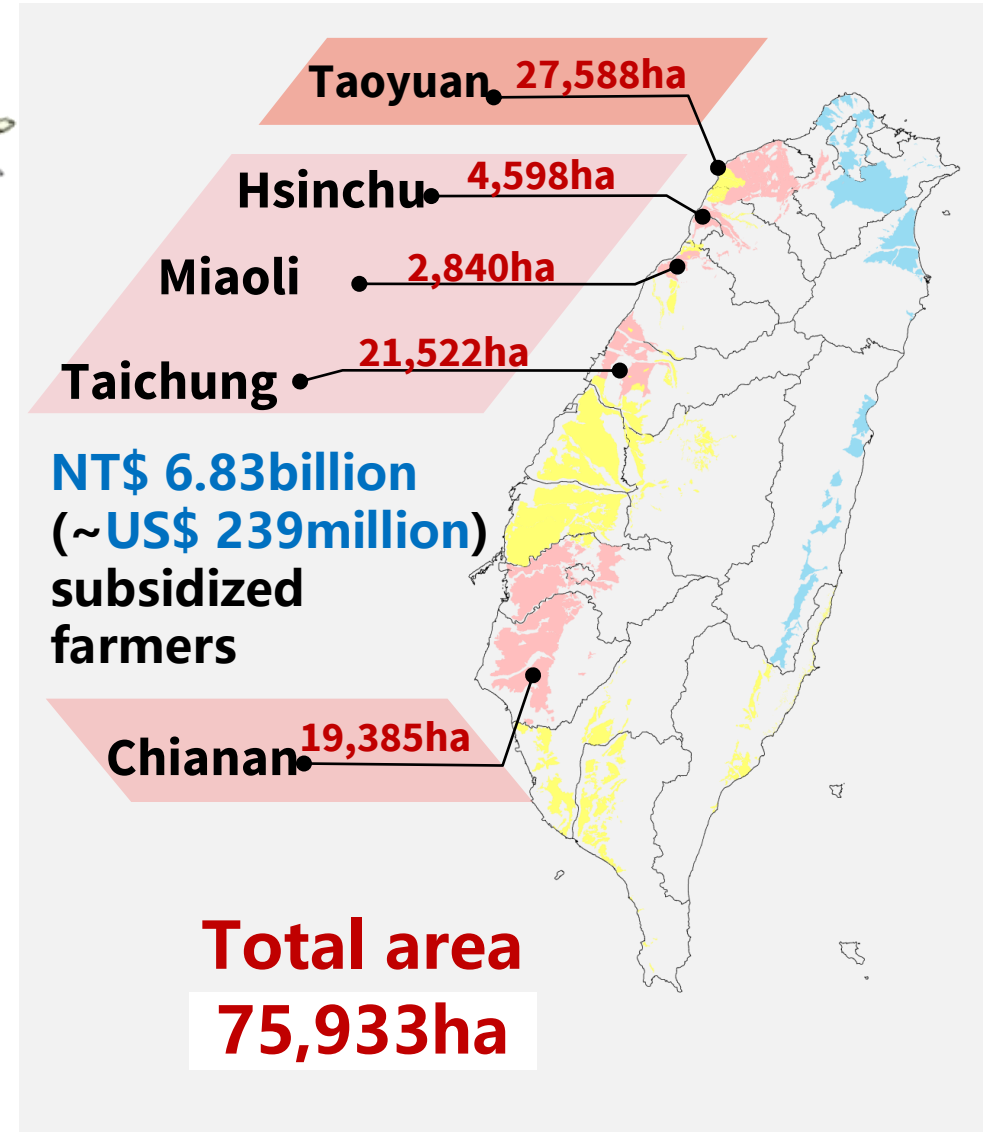
	Domestic uses	Industrial uses	Non- essential uses	Non- Industrial Water
Green	 Low pressure (Pm11~Am5)	 - 5%		
Yellow	 Extend lower pressure (Pm10~Am6)	 -5~-7%	 Prohibited	
Orange	 All Day Low Pressure	 -7~-15%	 Prohibited	 -10~-20%
RED	 2 days off in a week	 -15%	 Prohibited	 -20%

Save Water- Agriculture

2020 Second Season Crop

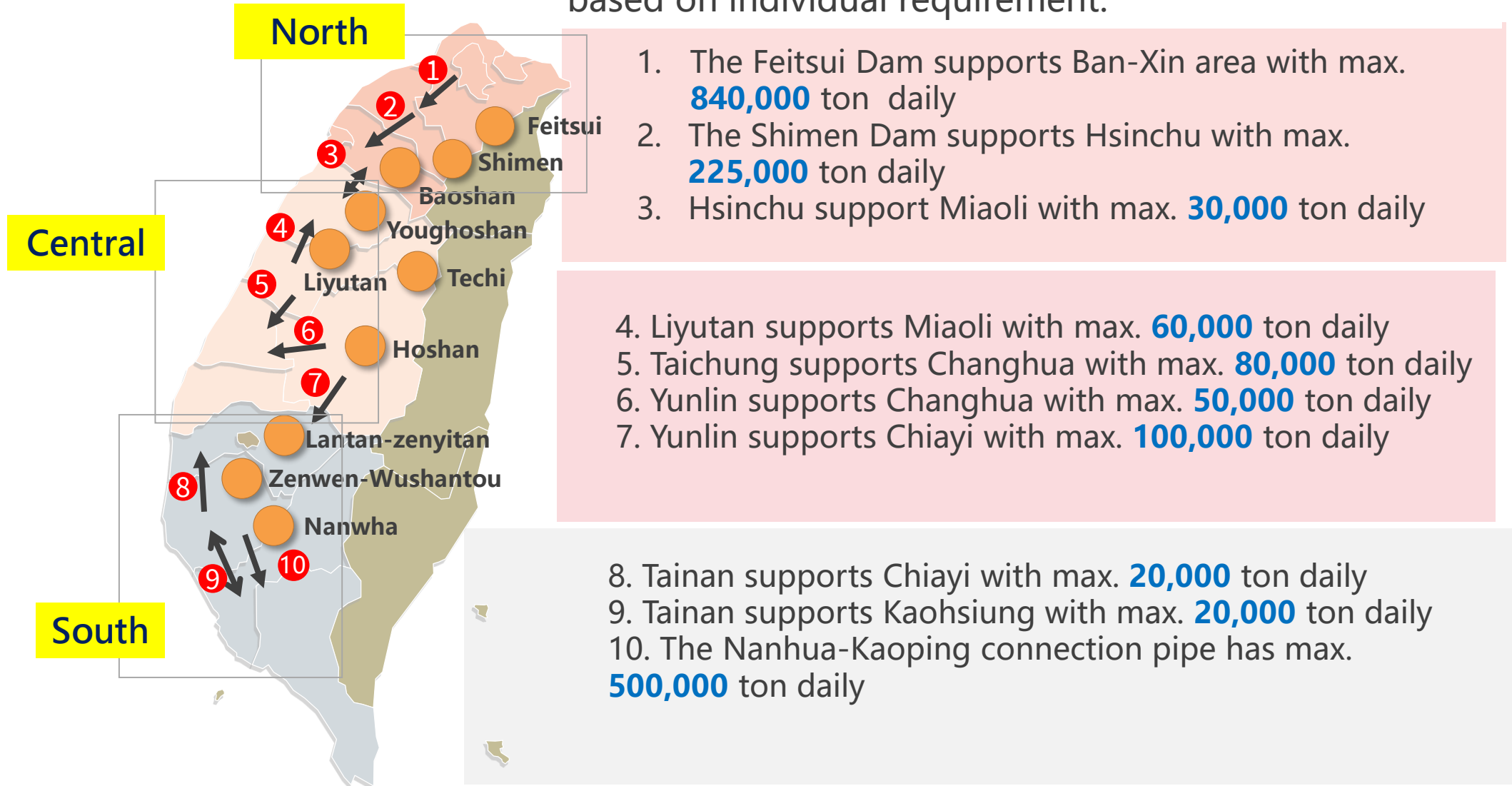


2021 First Season Crop



Allocate water – Water Supply Corridor

Available water supply was allocated to each region based on individual requirement.



Allocate water - Regional Allocation

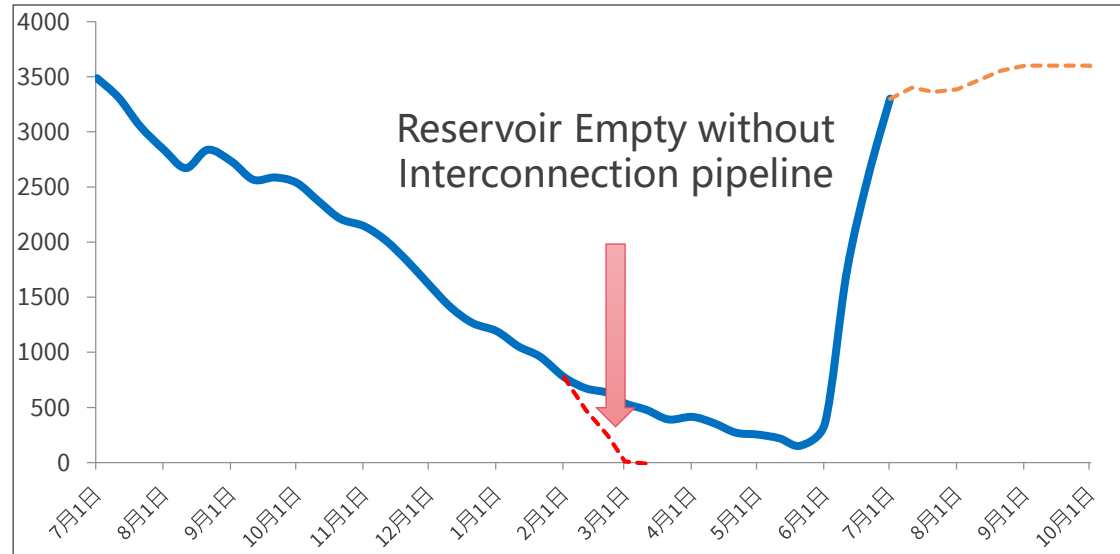


Interconnection Pipelines



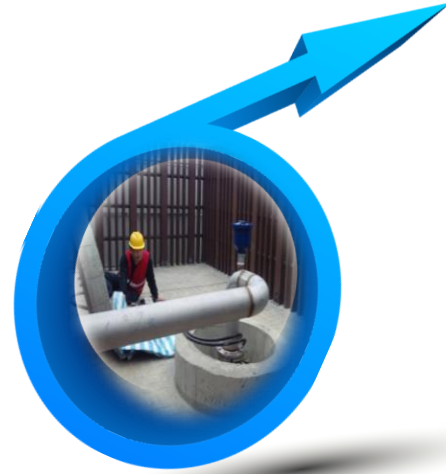
Construction Works

- Taoyuan to Hsinchu **interconnection pipeline** was completed ahead of schedule in Feb. 2021 (originally to be June).
- Supply Hsinchu 200,000 tons/day, about **40%** of the water demand.
- About 23 million tons was supplied, about 60% of the totally volume of the Reservoir.



Find water - Emergency Water Supplies 1.0

- Nov. 2020 – Feb. 2021
- **Additional water supply of 780,000 ton/day**
- Funding: NT\$ 1.4 billion (~US\$ 49 million)



Drought-Resistant Wells
160 wells
340,000 ton/day



Agricultural pond water
64 ponds
2.09 million ton



Effluents in the Water Resources Centers
65 plants 425,000 ton/day



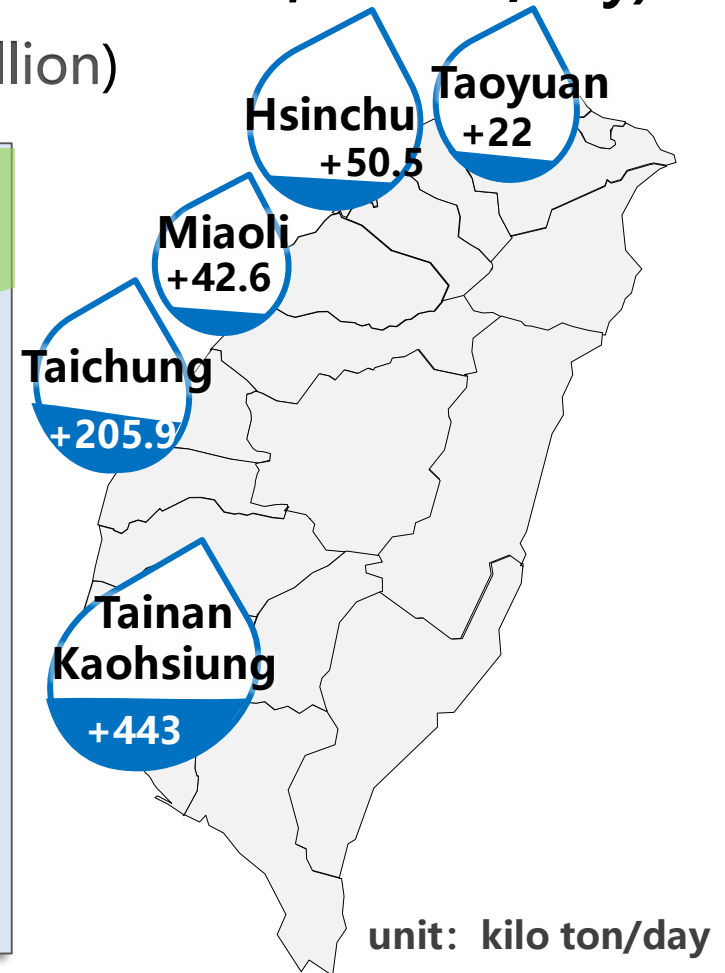
Hsinchu Emergency Desalination Units
13,000 ton/day



Find water - Emergency Water Supplies 2.0

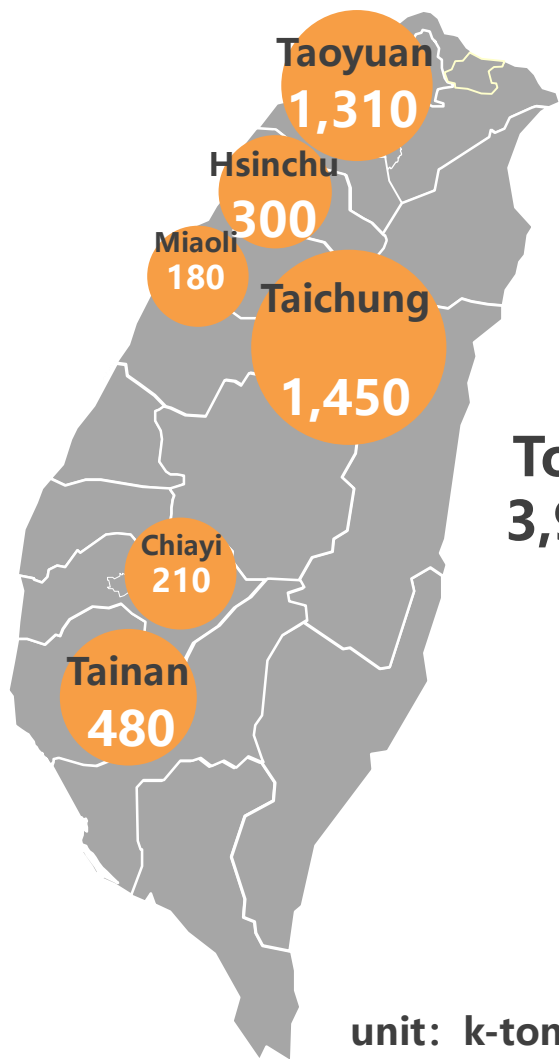
- Plan 2.0 was completed in May, 2021
Increase **880,000** ton/day (Original to be 168,000 ton/day)
- Funding: NT\$ 4.92 billion (~US\$ 172 million)

- Emergency interconnections with nearby water utilities (+393,000 ton/day)
- Drought-Resistant Wells (+309,000 ton/day)
- Hyporheic Flow Water (+70,000 ton/day)
- Taichung Emergency Desalination Units (+15,000 ton/day)
- Construction Site Dewatering System Water Use (+93,000 ton/day)



Keep Water in Reservoirs

2020/10



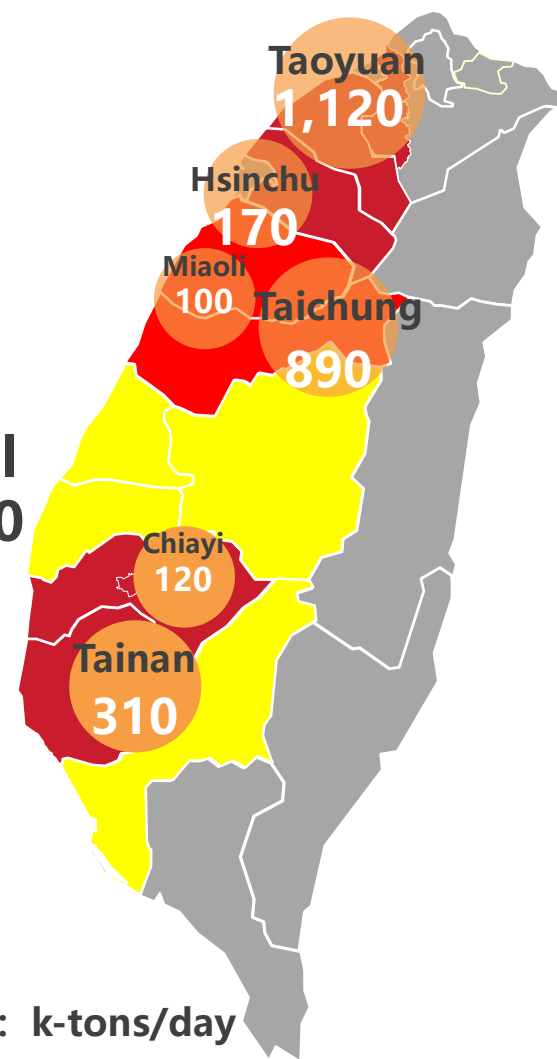
Water Demand
from reservoirs

Total
3,930

31%
Reduced

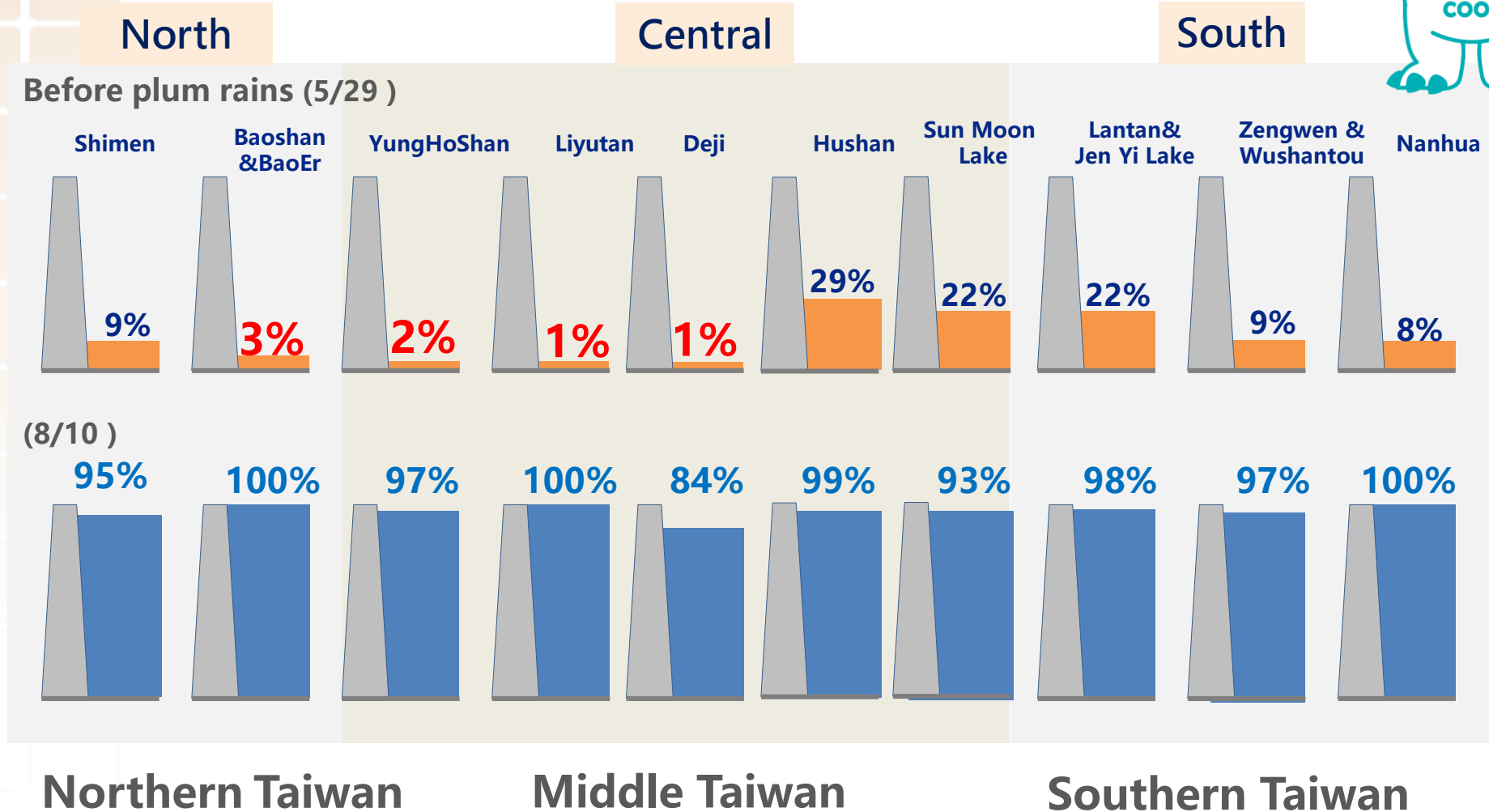
Total
2,710

2021/5



Plum rains broke the drought

the capacity of the reservoir



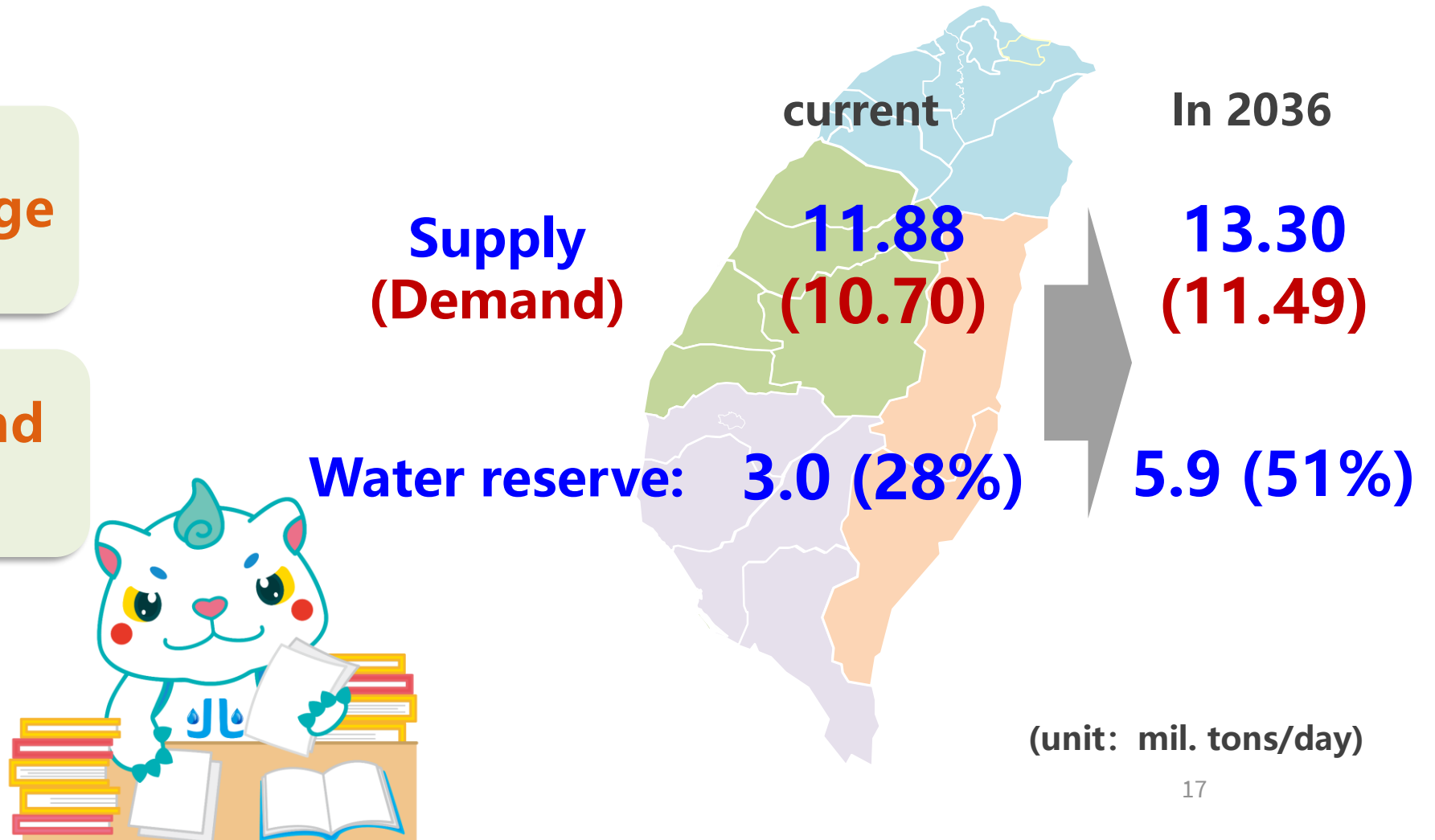
Increase Investment in Water Resources

Challenge

Climate Change

Water Demand Increase

Goals in 2036



Thank you

