



# Key Measures and Implementation Effects on Water Dispatching in Pearl River's Dry Season

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# The origin of Water Dispatching

The Pearl River is located in the south of China and is the second largest river in China. with an annual runoff is second only to the Yangtze River. The Pearl River Basin is composed of Xijiang River, Beijiang River, Dongjiang River and Pearl River Delta rivers.

Due to the influence of terrain change and monsoon climate, the spatial and temporal distribution of precipitation in the basin is very uneven. Spatially, it gradually decreases from southeast to northwest, and changes within the year.



# The origin of Water Dispatching



The Pearl River Delta (PRD) is an important economic center in China, and is also the location of the Guangdong-Hong Kong-Macao Greater Bay Area, mainly relies on rivers for water supply.

Since 2000, the water supply in the Pearl River Basin has decreased over the years during the dry season (October to March), and serious salty tides upstream have occurred in estuarine areas, resulting in intermittent water cuts in the PRD and increased salinity in water supply, which has seriously threatened water supply security and ecological security of the Guangdong-Hong Kong-Macao Greater Bay Area.

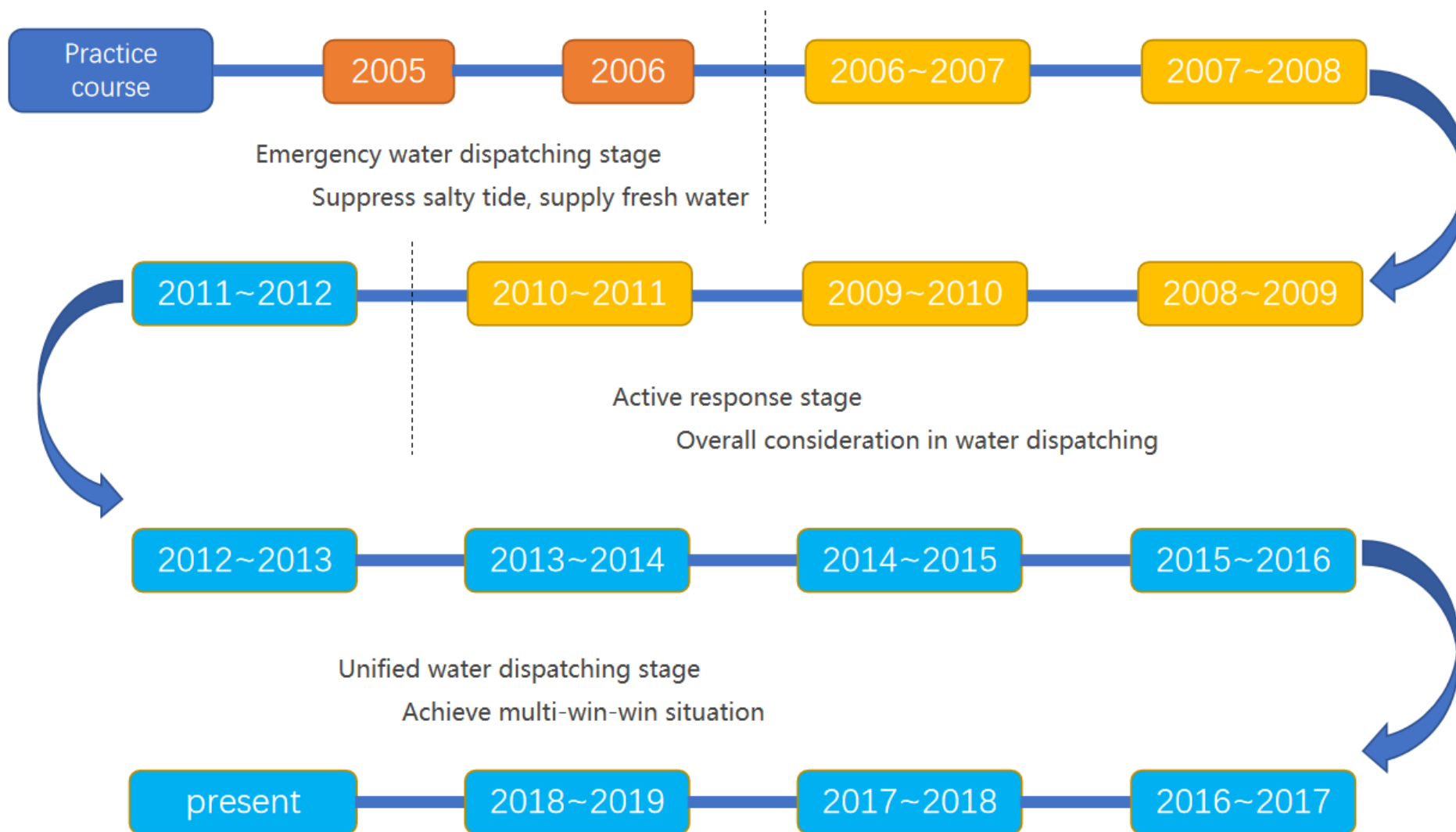
# The origin of Water Dispatching

In the autumn of 2004, there was a severe drought in the Pearl River Delta (PRD) region, serious salt tide upstream occurred in the estuarine area, the water supply security situation in the Pearl River Delta region was quite severe.

According to the law of salt tide activity, the Pearl River Water Conservancy Commission creatively put forward the measure of thousands of miles of water dispatching. On the eve of the Spring Festival in 2005 and 2006, the emergency water dispatching was successfully implemented twice, which effectively guaranteed the safety of water supply during the Spring Festival in Macao.



# Practical Experience of Water Dispatching

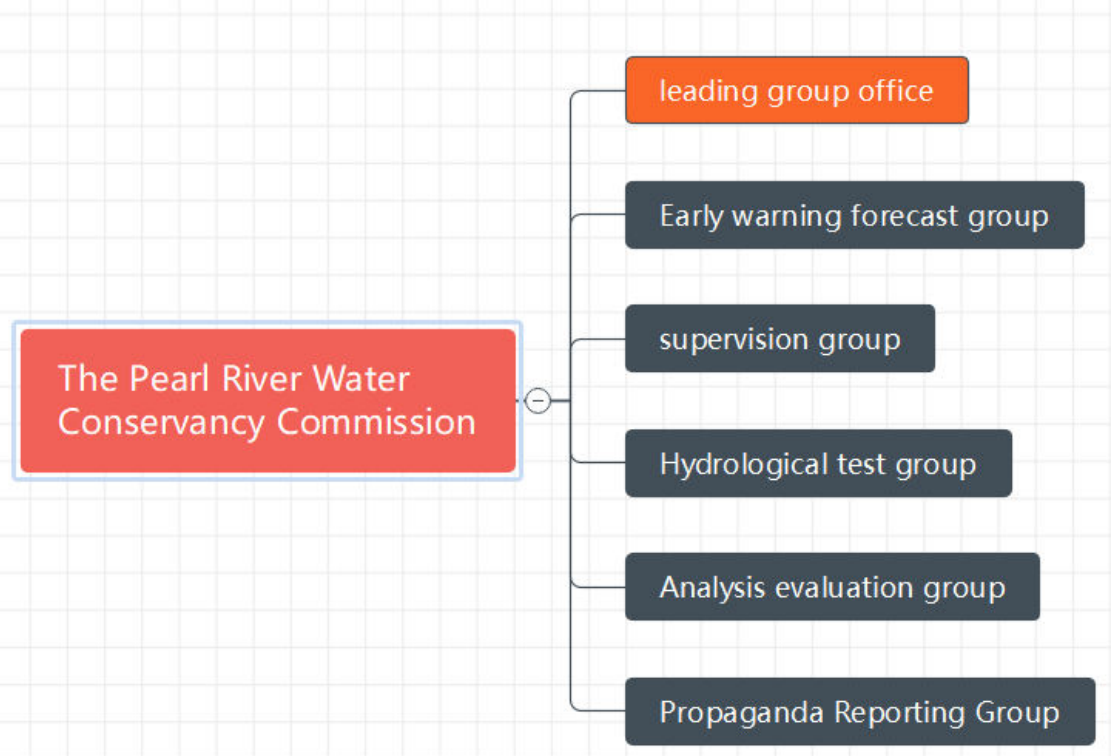


# 1、Emergency water dispatching stage (2005 ~ 2006)

**Background:** Severe drought occurred in the Pearl River Delta region, and the salt tide was more active than before. During the Spring Festival, Zhuhai ( Macao ) were facing the threat of water cut.

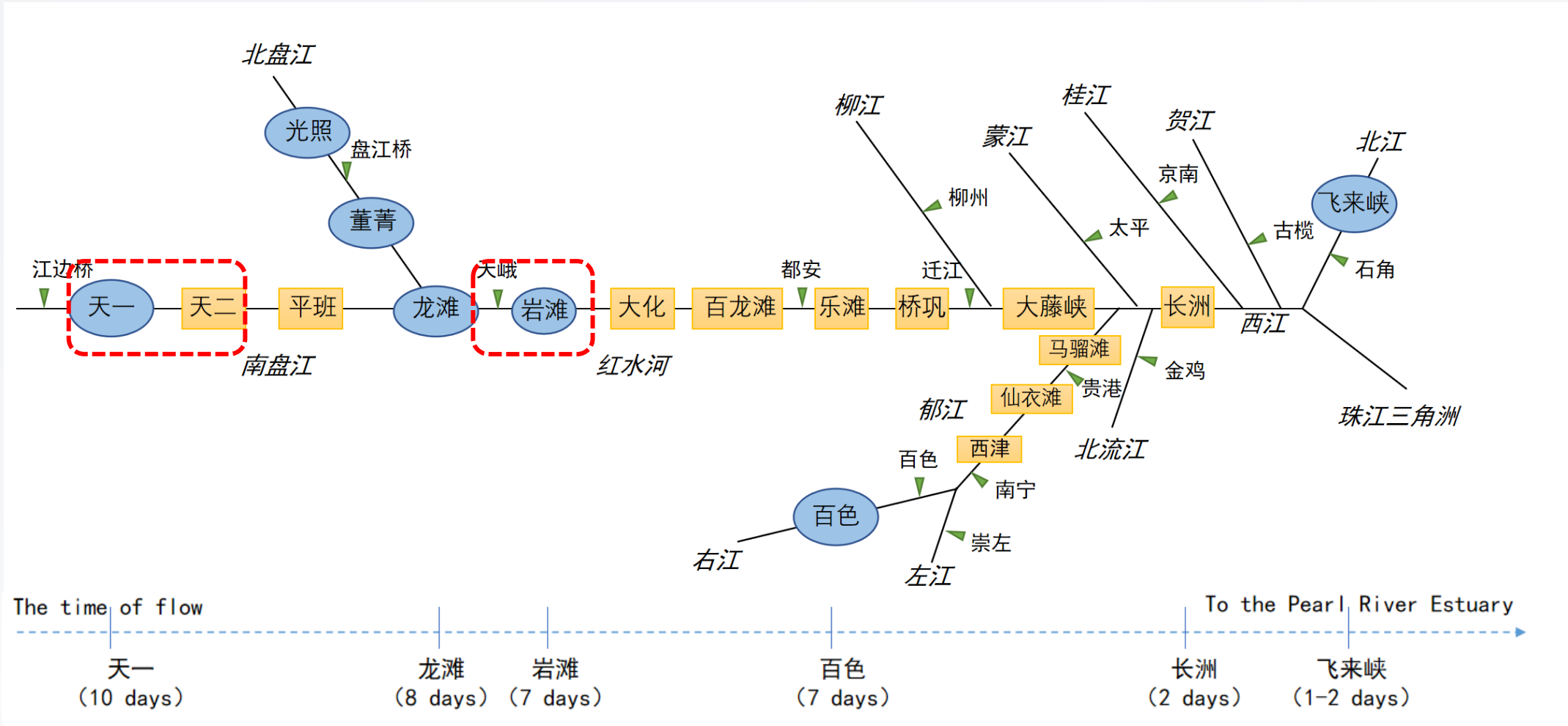


**Main Body:** The Pearl River Water Conservancy Commission acted as the main body of dispatching, and implemented two emergency water dispatchings.



# 1、Emergency water dispatching stage (2005 ~ 2006)

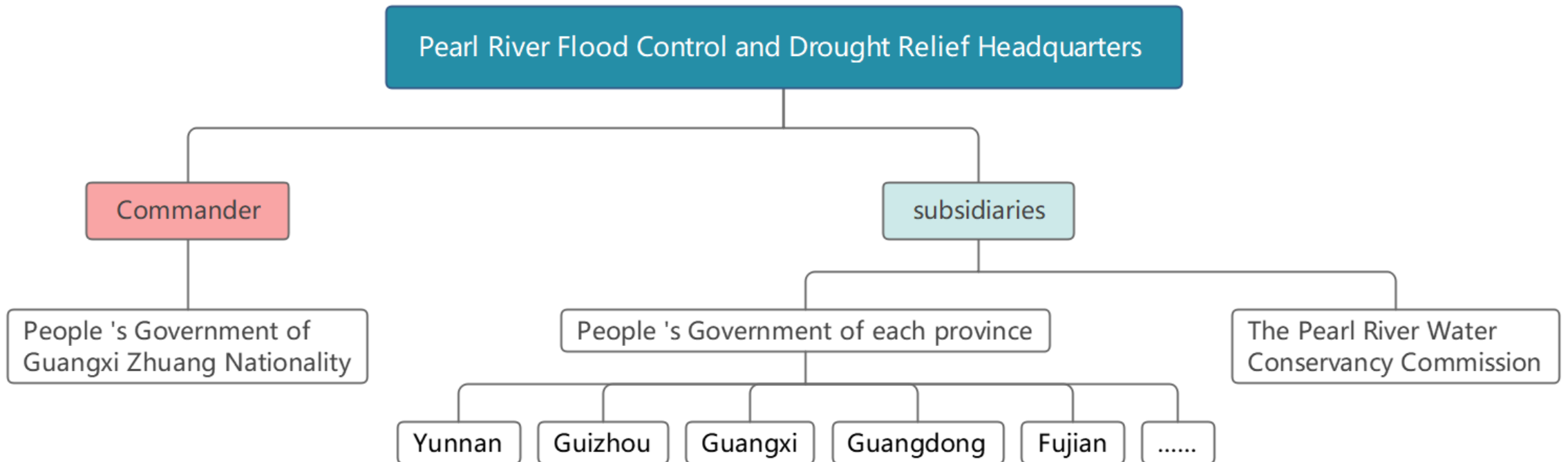
**Dispatching Mode:** Dispatch a single reservoir for water replenishment.





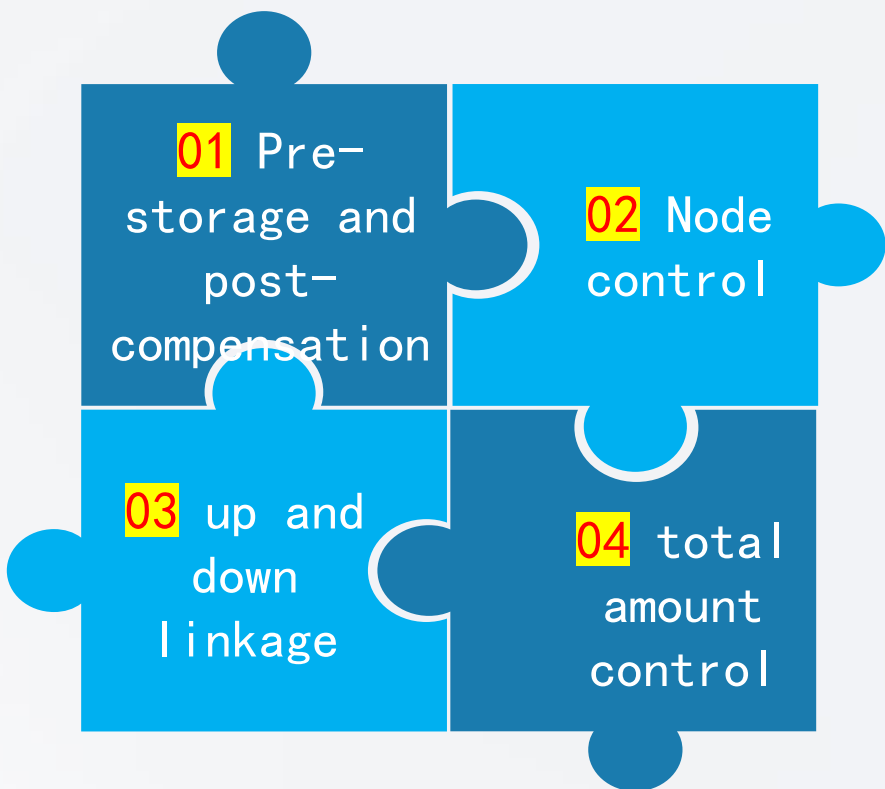
## 2、Active response stage (2006 ~ 2011)

**Main Body :** In July 2006, the National Defense Administration officially approved the establishment of the " Pearl River Flood Control and Drought Relief Headquarters " . It provides a strong institutional guarantee for the joint operation of key reservoirs in the Pearl River Basin.



## 2、Active response stage (2006 ~ 2011)

### Dispatching Mode:



**01.** Seize the flood resources at the end of the flood season and after the flood season, store sufficient water resources, and gradually replenish water to the downstream according to the water supply demand in the dry season

**02.** The water allocation of the control node reservoir is carried out, and then according to the law of salt tide activity in the downstream, the centralized water replenishment of the main control node reservoir is dynamically controlled to suppress the salt tide.

**03.** In the stage of water replenishment dispatching, the joint dispatching of reservoir groups in the whole basin is implemented. The upstream reservoir group is used to replenish the water along the reservoir in turn, and the main control dispatching node is used to implement the centralized water replenishment.

**04.** According to the required total amount of water replenishment, the upstream water replenishment reservoir group will replenish the water to the Changzhou Water Conservancy Hub, and the flow will be dynamically controlled by the Changzhou and Feilaixia Water Conservancy Hub based on the law of salt tide activity.

# 3、 Unified dispatching stage (2011 to the present)

**Background:** In 2011, the 'Pearl River Water Regulation Plan in Dry Season' was officially issued and implemented, and the engineering system and non-engineering measures for guaranteeing the safety of water supply to Macao and Zhuhai have been perfected, which has turned the Pearl River water dispatching into a regular water transfer during the dry season every year, and the dispatching work has stepped into standardization and systematization, and entered the stage of unified dispatching.

## Dispatching Mode:

Based on the local, focusing on pre-storage, node regulation, risk management



The chances of taking fresh water from major pumping stations in the Pearl River Delta during the dry season has been significantly improved



A win-win situation has been realized in various aspects such as water supply, power generation, shipping, and ecology.

win-win  
cooperation



The water environment in the lower reaches of the Pearl River and the delta has been enhanced.



The dispatching technology and management system have been perfected