

Social and Economic Applications and Benefits of  
Weather, Climate, and Water Services  
Geneva, 18-19 June 2009

# Partnership Practice in Public Weather Service

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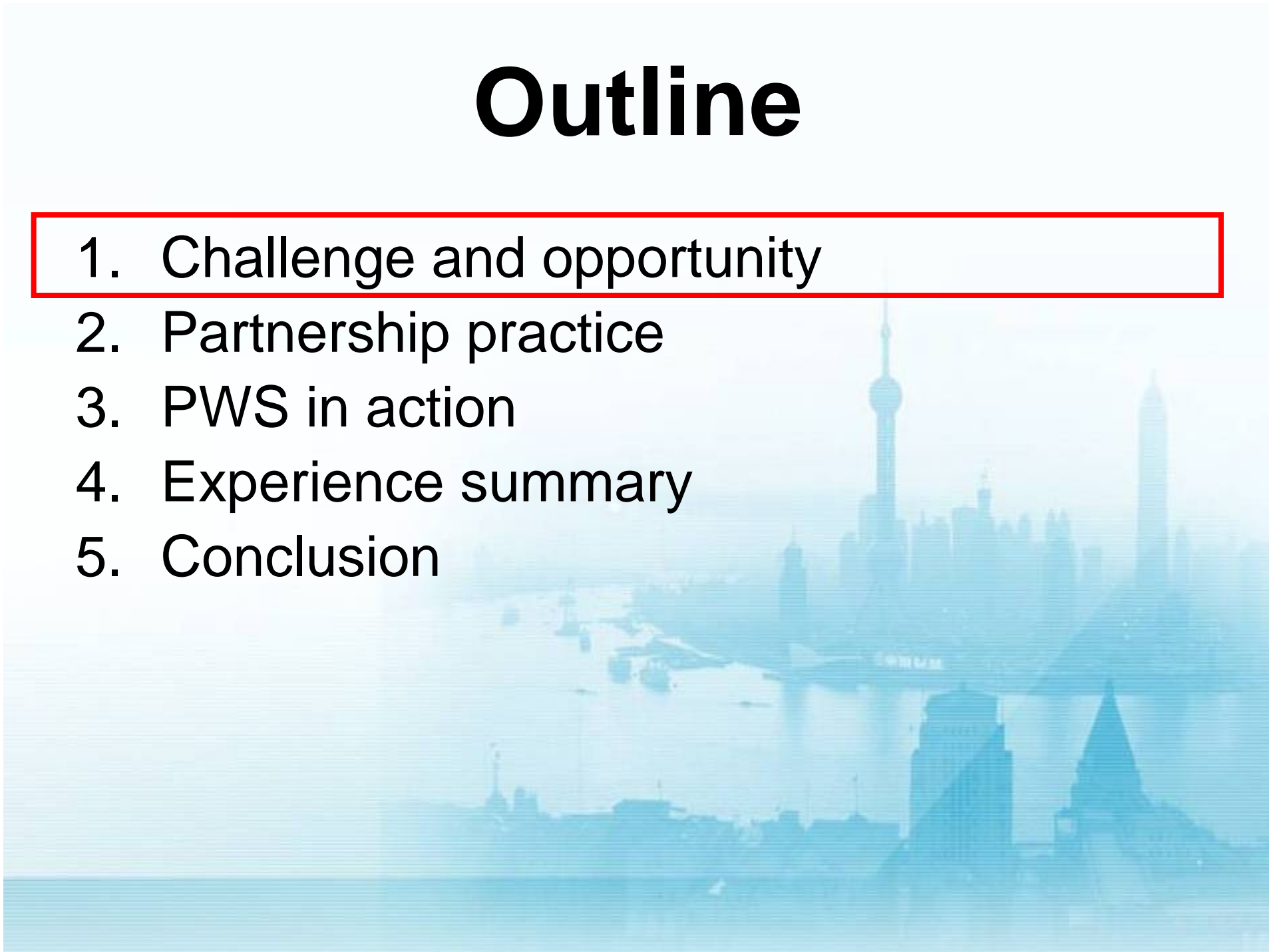
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# Outline

1. Challenge and opportunity
2. Partnership practice
3. PWS in action
4. Experience summary
5. Conclusion



# Challenge and Opportunity for PWS

**Emergency response exercise**

**Requirements from Emergency Response Management**

**Emergency Response Center**

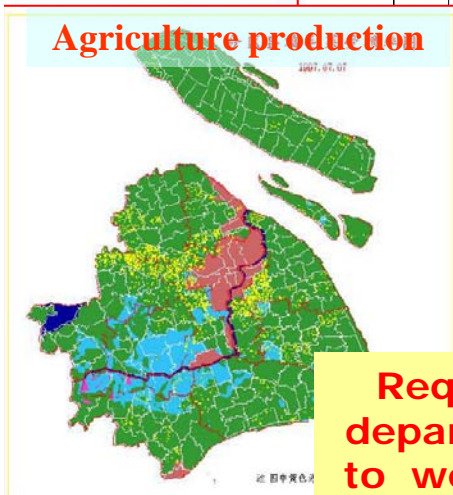
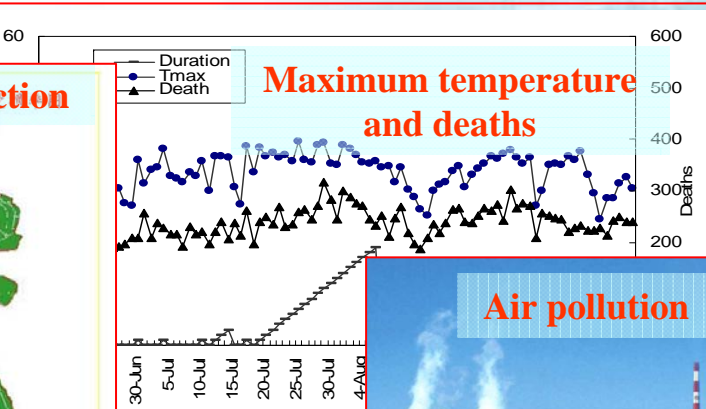
**Requirements from City Operation**

**Agriculture production**

**Maximum temperature and deaths**

**Air pollution**

**Requirements from service wide coverage**



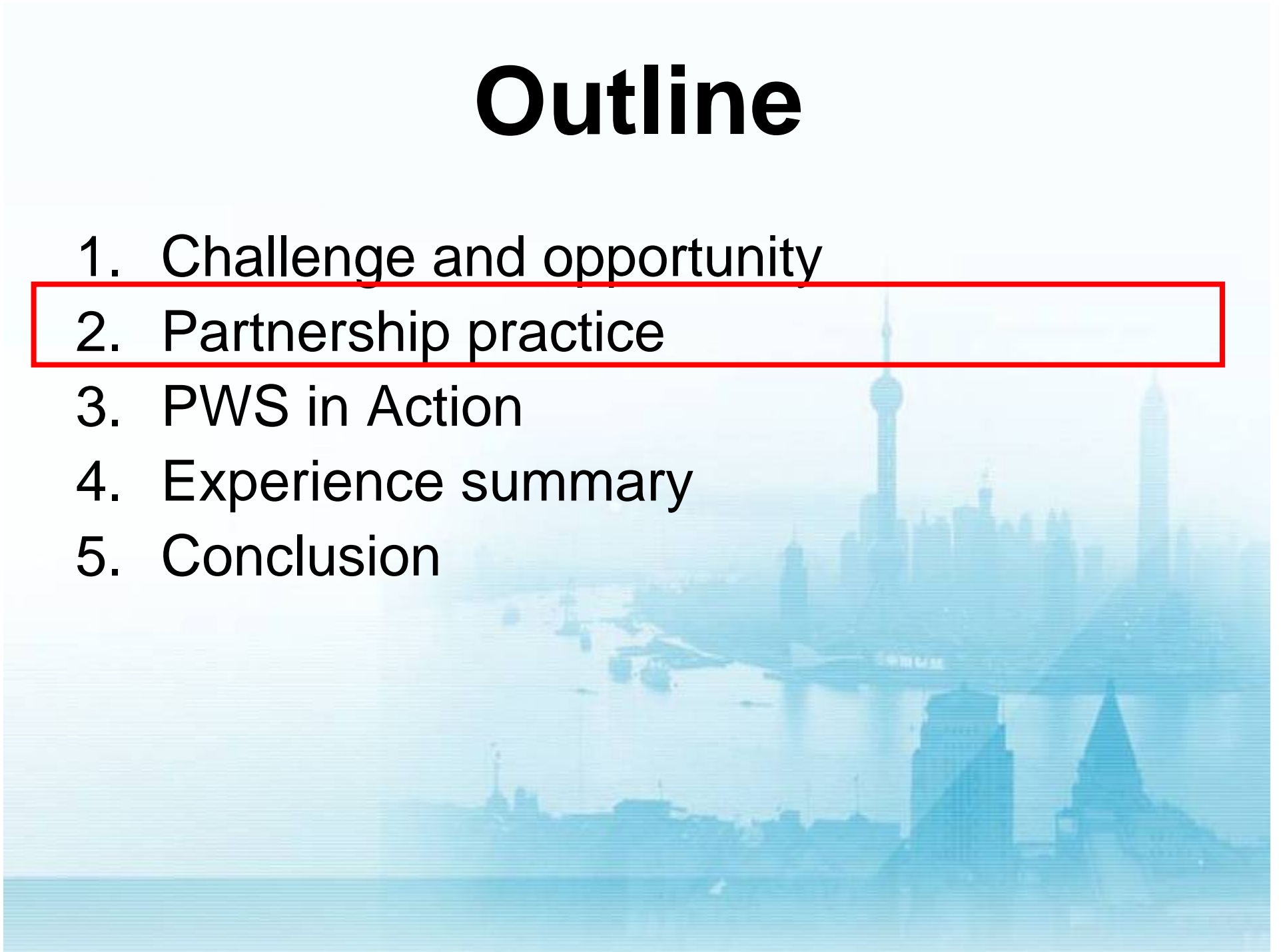


How to  
Bridge  
*Gap?*

- **Partnership** is critical to better PWS.
- Establishing **standard operating procedures** (SOPs) for Multi-agency response is an effective approach for better **partnership**.

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# Partnership Practice of CMA

The CMA has established partnership with 15 relevant ministries for better service to prevent and mitigate the impact of severe weather and related disasters.



# Establishment of PWS platform and SOPs

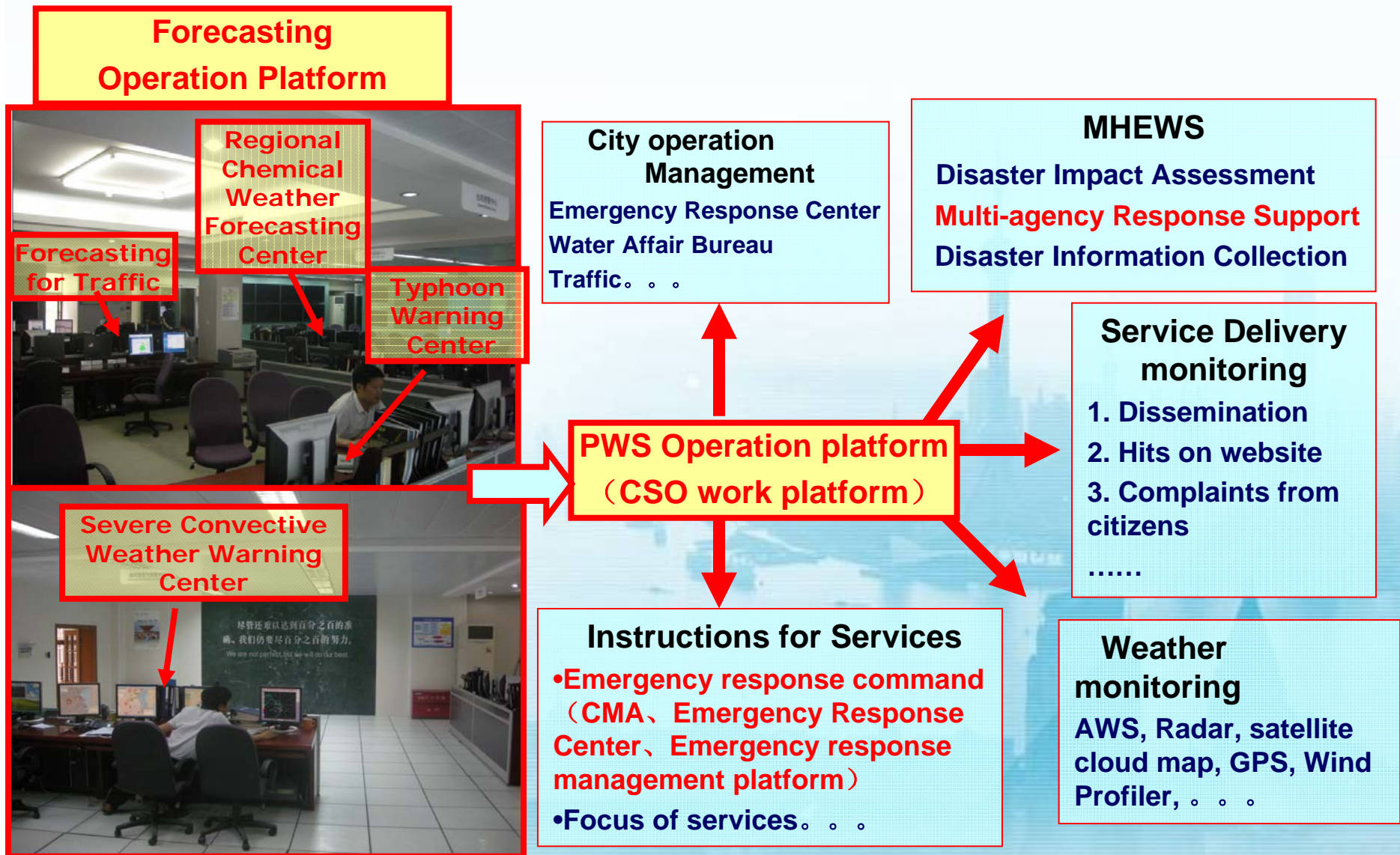


## Work Team:

Taking the Chief Service Officer (CSO) as the core position, based on partnership in the PWS platform, a fast, efficient, and unified meteorological service delivery operation system was established.

# Establishment of PWS platform and SOPs

## Functions of PWS platform



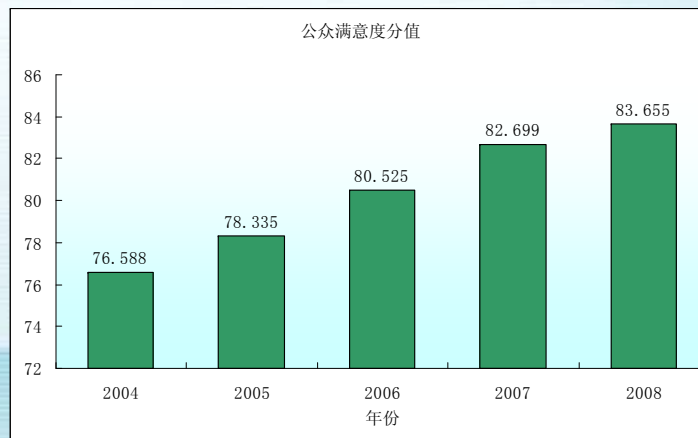


# Establishment of PWS platform and SOPs

## Vital link to the user community: Chief Service Officer

- *The coordinator/advisor in charge of establishing service delivery and organizing internally, is a special service delivery professional .*
- *Responsible for:*
  - *Dealing with daily comprehensive data flows.*
  - *Collecting the detail requirements of the agencies.*
  - *Providing the specialized information to the right people.*

**In 2006, The Chief Service Officer centered service delivery procedure was established at the SMB.**

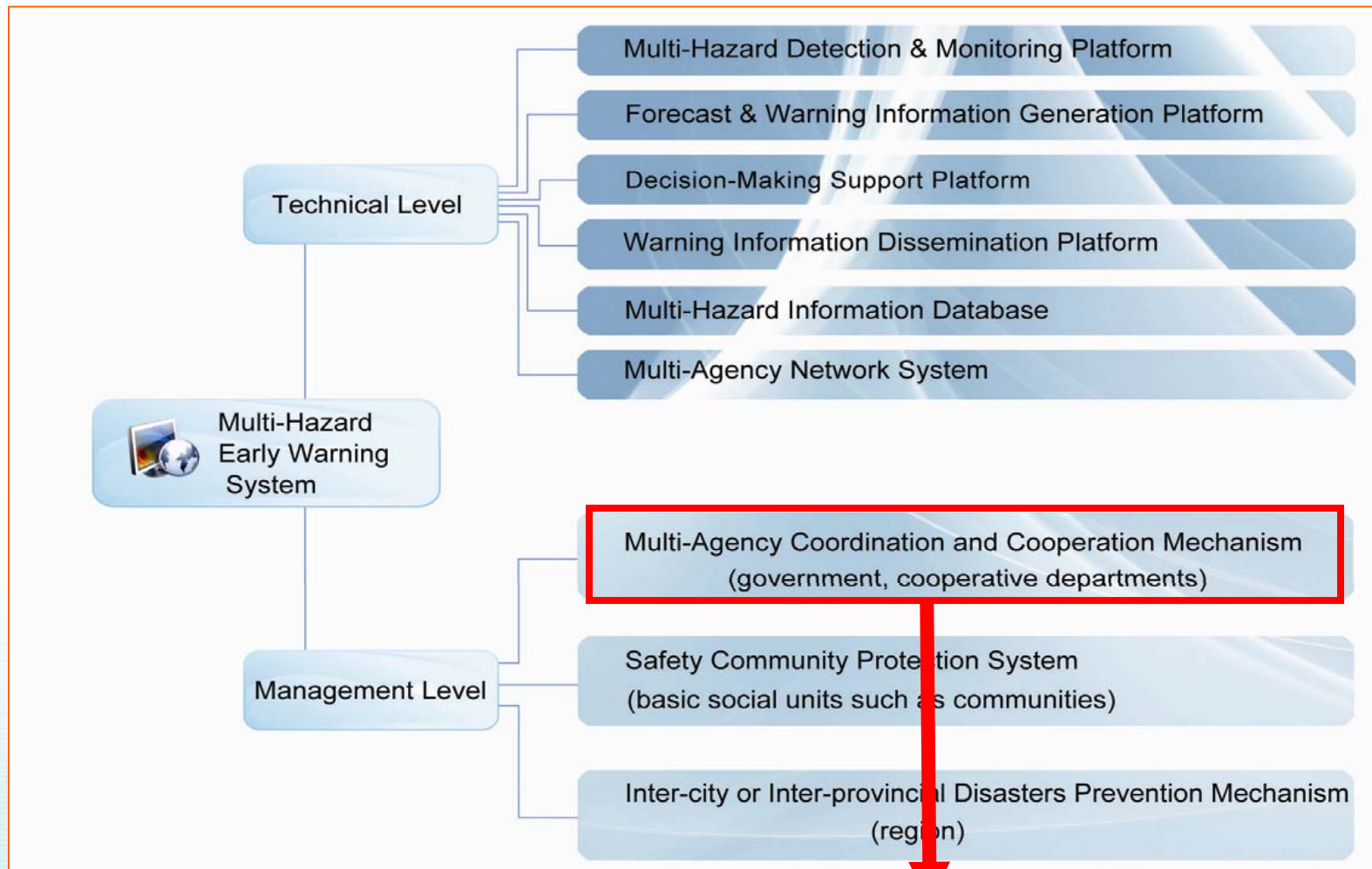


According to survey results of the State Statistical Bureau, the degree of public satisfaction with meteorological services in Shanghai increased steadily year by year. In 2008 the degree reached 83.655, as result the SMB was awarded the prestigious title for outstanding service delivery by the Mega-city government.



# Establishment of PWS platform and SOPs

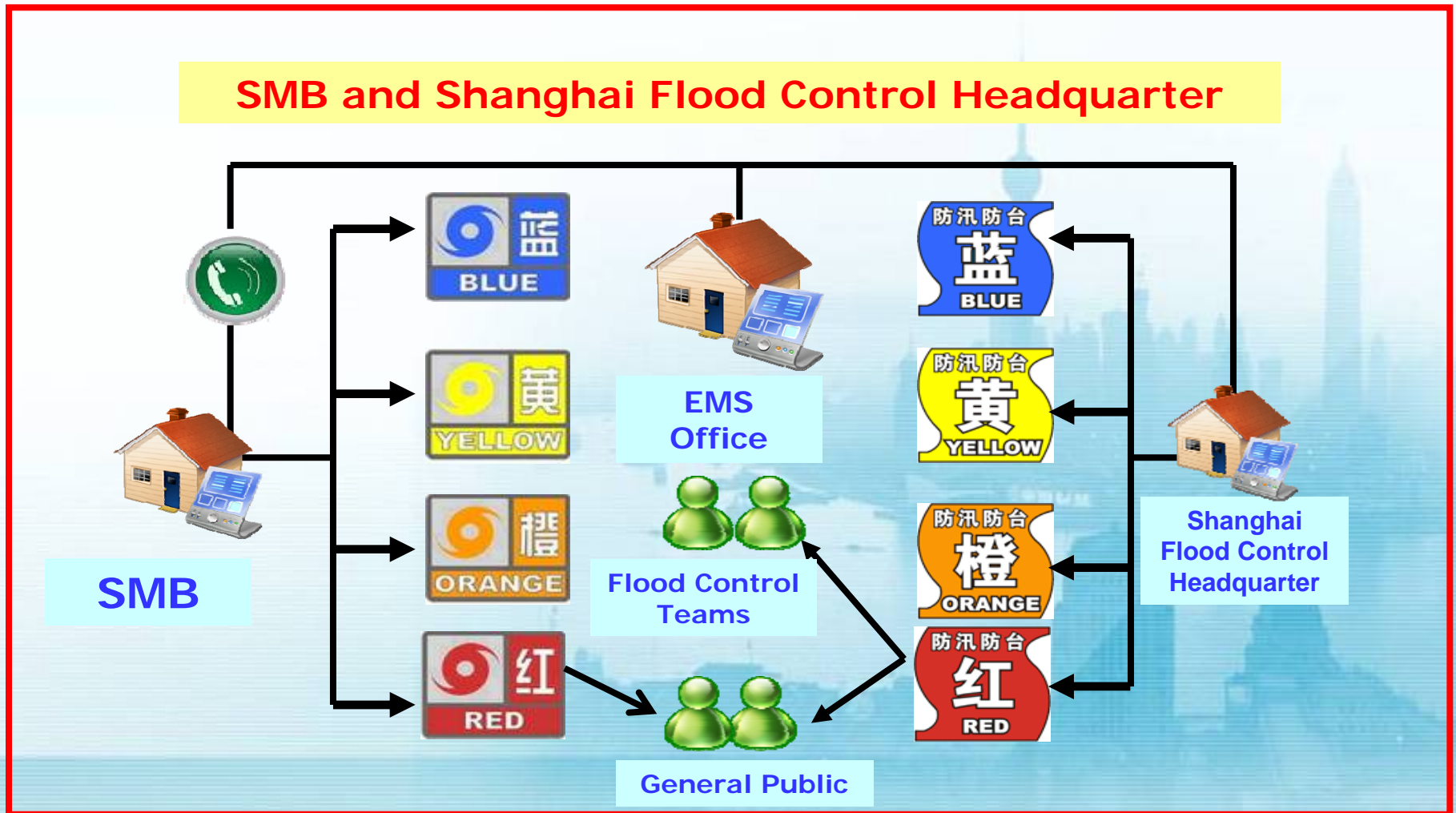
## Tools of PWS platform: Shanghai Multi-Hazard Early Warning System



**Establishment of Standard Operating Procedures**

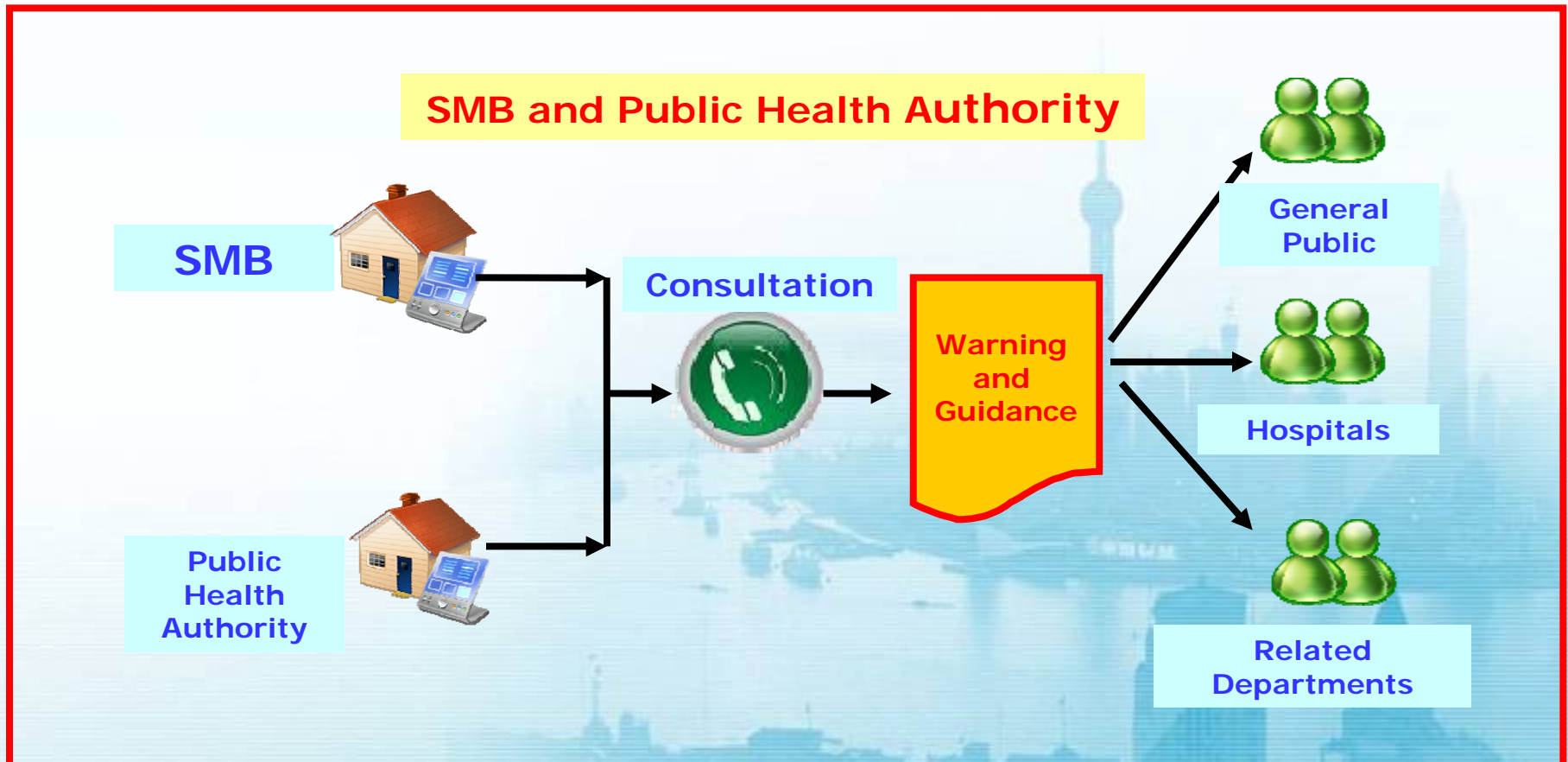
# Establishment of PWS platform and SOPs

## Coordination Mechanism (1): Joint Response Warnings and Standard Respond Actions



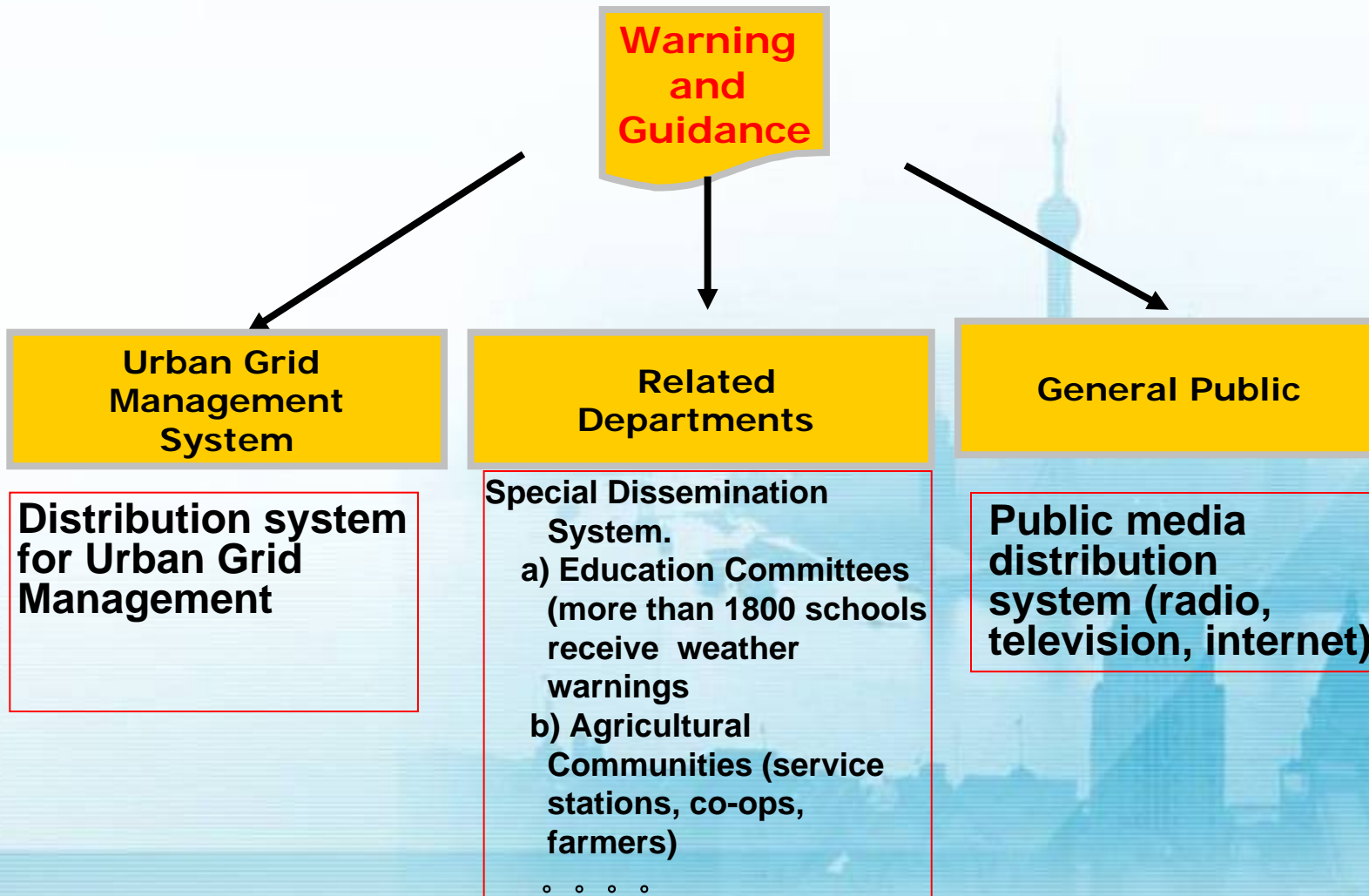
# Establishment of PWS platform and SOPs

## Coordination Mechanism (2): Joint Produce and Joint Dissemination



# Establishment of PWS platform and SOPs

## Coordination Mechanism (3): Joint Dissemination



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# PWS in action: Cooperation with Power Company

## ➤ Electricity production and supply of Shanghai is weather sensitive

Not only major weather events such as thunderstorms and typhoons have great impact on electricity production, a shower or heavy fog also may induce power supply failure

## ➤ Electricity load of Shanghai has a close relationship with weather

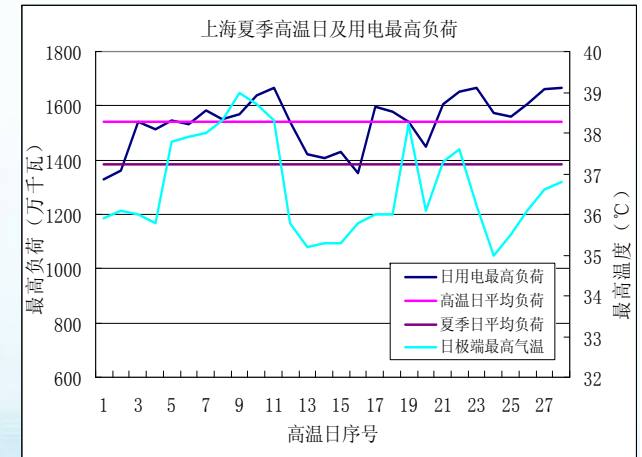
- On summer workdays with mean temperatures over 30 °C, if the maximum temperature increases by 1 °C, the electricity load will increase by about 600,000 kilowatts.

- In the coldest period of winter with maximum temperatures below 15 °C, if the mean temperature increases by 1 °C, the electricity load will be reduced by about 200,000 kilowatts;

- A heavy rain will result in changes to the city's electricity consumption by 3000 kilowatts.

## ➤ Reliable power supply is essential to weather services

Electricity is widely used in operational works of weather services such as meteorological observation, forecasting, etc. So reliable electricity supply is essential to the weather service, and support from Power utilities plays the most important role in timely response to sudden power failure.



**Maximum temperature and maximum electricity load in days with temperatures above 35°C**



**Shanghai Meteorological Bureau and Shanghai Municipal Electric Power Company signed an agreement on inter-agency cooperation to:**

- Ensure safe electricity supply in Shanghai;
- Raise the technical level of power dispatching;
- Strengthen the meteorological service capability with respects to protecting the safe operation of the urban power network in Shanghai.

# PWS in action : Cooperation with Power Company

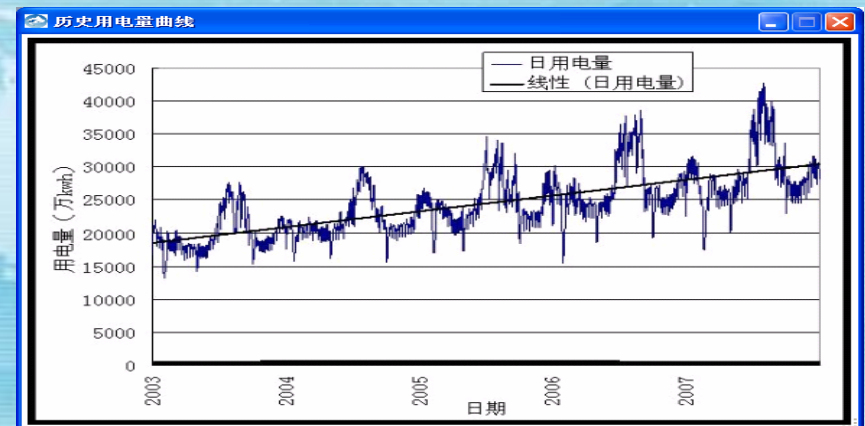
- Establishment in 2002 of a comprehensive Forecasting System for providing special meteorological services to Power Utilities.
- In cooperation with the Shanghai Power Company, The Shanghai Meteorological Bureau built a power consumption and electricity load forecasting system in 2008.
- The **CSO (Chief Service Officer)** integrates outputs of those systems into comprehensive suggestions to power companies, which is helpful to ensure the adequate and reliable delivery of electricity.

## Economical benefits

Shanghai purchases a lot of electricity during the peak period of electrical consumption every year. And there are obvious differences between the expected purchase price of electricity and the temporary purchase rate. If we make full use of the weather conditions and predict the electricity consumption more accurately, considerable economic benefits can be generated



Power Security Warning System



The power consumption (2003-2007)



# Hazard Domino Effect

Severe weather hazards may bring many other disasters, which further threaten city safety. Weather factor resembles the first piece of domino, and will impact other aspects of social activities.

## Natural Events

Weather factor is the first collapsed plat of domino.



# PWS in action: the Snow Storm

During the snow storm, Early briefing mechanisms were established, multi-agency consultation was conducted, and remarkable progress was achieved in multi-agency cooperation and coordination in Shanghai.

## Benefits:

- The Agricultural Department---100,000 farmers harvested their vegetables in advance, protecting the livelihood of tens of thousands of families and keeping food costs down.
- The Government---Issued snow removal notification and called on millions of citizens to take actions;
- The Traffic Control Department ---based on timely delivery of reliable weather service products, A 'no road closed' policy was taken during the snow storm, the traffic conditions were kept in normal levels and chaos in traffic was avoided, which contributes to the city normal function and operation. Whereas in some regions the roads were closed, which had great impact on social activities and economical production.
- The Public Health Department - took the secondary level of emergency response action to require all public hospitals to be ready for medical treatments to help people who were injured from frostbite and storm related accidents.

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# Summary on Partnership Practices in PWS

- **CLAP** Approach: **C**ritical locations, **L**ine, **A**rea and **P**eople
- **SMART** Mechanism : **S**tandardized **M**ulti Agency **R**esponse and in-**T**ime Coordination
- **Grassroots** experience

## ***CLAP Approach: Critical locations***

The so-called "Critical locations" means that the PWS delivery should focus on the city's hot spots which are safety-sensitive such as airports, public transportation network, and logistics infrastructure.

**Shanghai Railway Station**



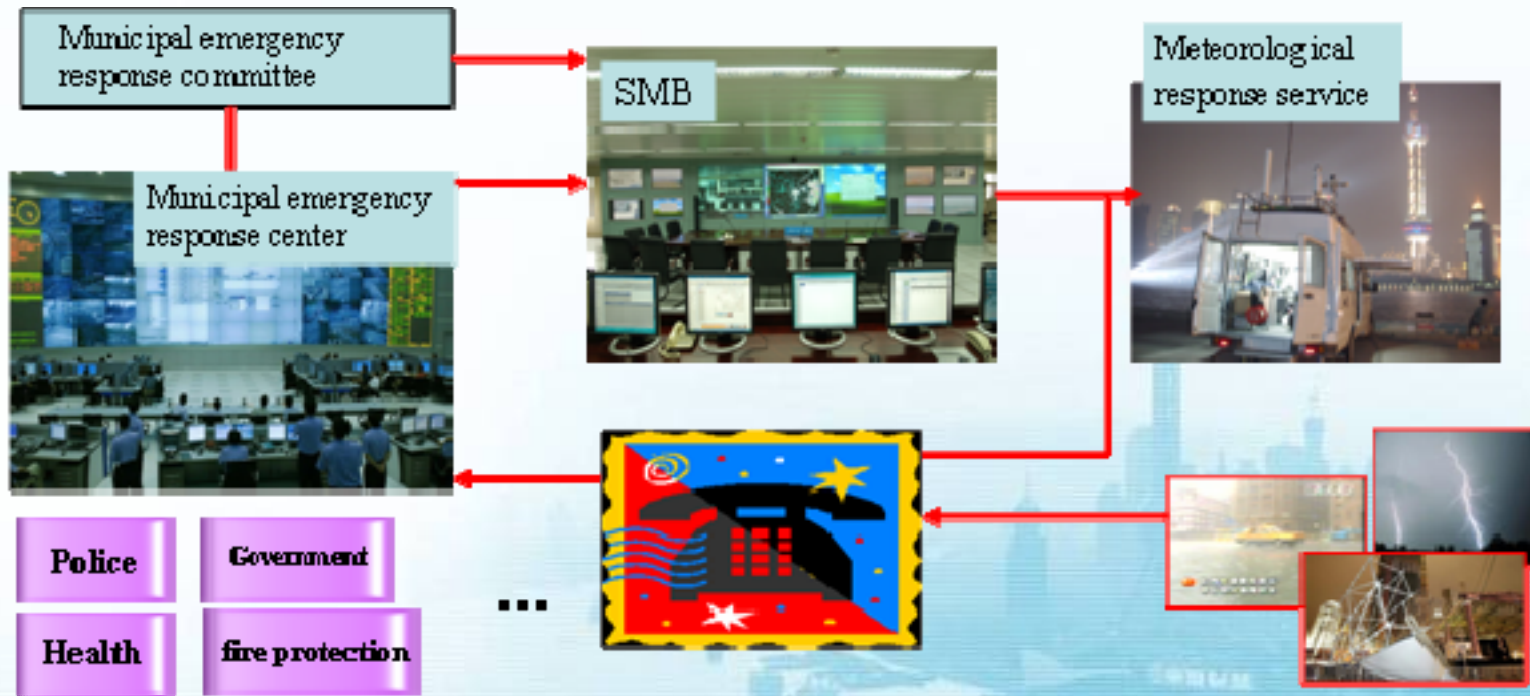
**Yangshan Harbor**



**A Meteorological Warning Service has been set up for the hot spot of the Harbour of Yangshan, and the establishment of a marine observatory will provide timely service for the shipping, loading and unloading, logistics and, if necessary timely evacuation from the coast.**

## CLAP Approach: Line

The delivery of PWS as one chain from monitoring, warning, prevention, mitigation, and rescue can meet the needs to reduce the influence of the hazard catenation effect and social domino impacts.



- The Flood Control Department and Meteorological Service has established a standard joint emergency response mechanism concerning typhoons, rainstorms and other city disasters through the whole procedure of DPM.
- The Food and Drug Supervision Administration and Meteorological Service has established a joint mechanism for information-sharing, development of technology and dissemination of early warning for food poisoning.

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## CLAP Approach: Area

Combination with urgent emergency response mechanism with the daily Urban Grid Management System is an important approach. The efforts to enlarge coverage of warning are also important.



# CLAP Approach: People

PWS is critical for decision-makers, social groups, individuals, and the general public. However, implementation of a people-centered concept is very important in the whole procedure of PWS to meet needs.

**重要气象信息市领导专报**  
2008年第32期  
上海市气象局  
2008年6月15日10时15分 签发: 苗 隽

**“风神”今晨登陆广东深圳**  
--27-28日本市有较强降雨--

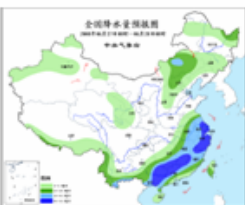

今年第6号强热带风暴“风神”今天早晨5时30分前后在广东省深圳市葵涌镇沿海登陆, 登陆时减弱为热带风暴, 中心附近最大风力有9级(23米/秒)。

目前热带风暴中心正以每小时10-15公里的速度向偏北方向移动, 强度继续减弱, 预计今天半夜前后进入江西境内, 并逐渐转向东方向移动。

受该热带风暴减弱后的低气压影响, 预计27-28日本市将出现一次较明显的降雨过程, 过程累积雨量50-80毫米, 部分地区100毫米以上, 华东中南部沿海海面将出现阵风8-10级的偏南大风。

我们将密切监视热带风暴“风神”强度和路径的变化以及对本市的风雨影响程度, 如有新的情况及时报告。

报: 市委办公厅、市政府办公厅、市政府机要局。



• for social groups, disaster prevention capacity of basic social units will be enhanced through establishing the security system in communities.

• awareness and knowledge for disaster prevention and mitigation of individuals will be improved through the collaboration with the education departments and public training programs.



# SMART Mechanism

**Standardized Multi Agency Response and in-Time Coordination**

- To bridge the Gap between Meteorological (scientific) language and User Language.
- To ensure that the necessary stakeholders (users) receive the necessary information at the right time so that they can timely action to avoid unnecessary catastrophic consequences.
- It must be actionable. Information must be actionable based on operational Met Service delivery capability.

**Standardized Multi-agency Cooperation  
and Coordination Mechanism**



**Meteorological Language**



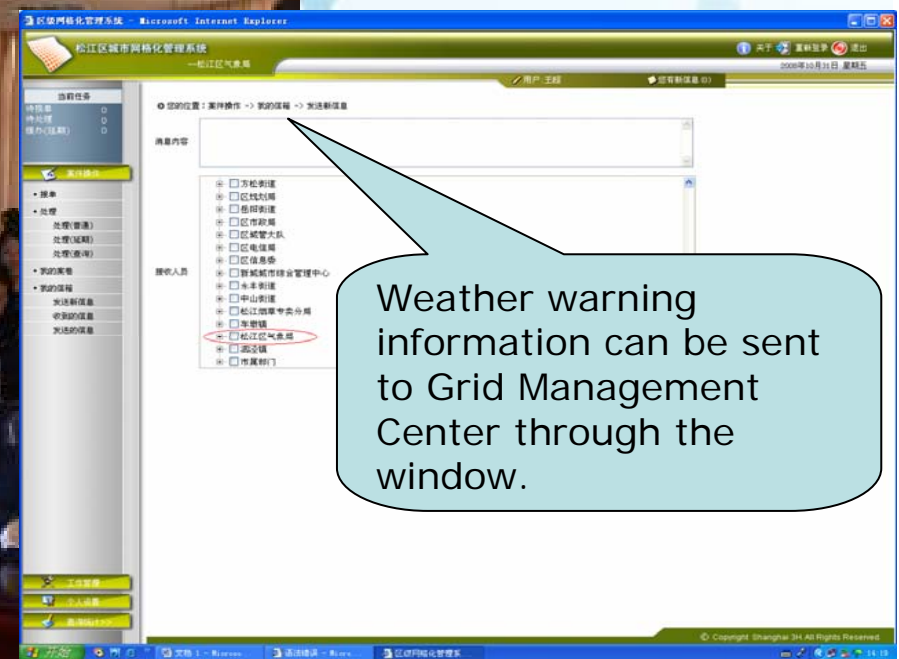
**User Language**

# Grassroots experience

**SMART practices should be extended the community level**

PWS was integrated into City grid management system in Songjiang district for better service delivery and timely feedback information collection.

## Training for Grid Managers



# Grassroots experience

**SMART practices should be extended the community level**

**Community warning light system in Baoshan**



**The first community warning light system of the nation has been constructed in Baoshan district, Shanghai. The system will be extended to the tallest buildings in each district.**

# PWS in EXPO 2010

- **Time:** May 1 to Oct 31, 2010 World Expo (high impact period in a year)
- **Theme:** Better City, Better Life
- **Objective:** To attract more than **200** official participants and **70** million visitors

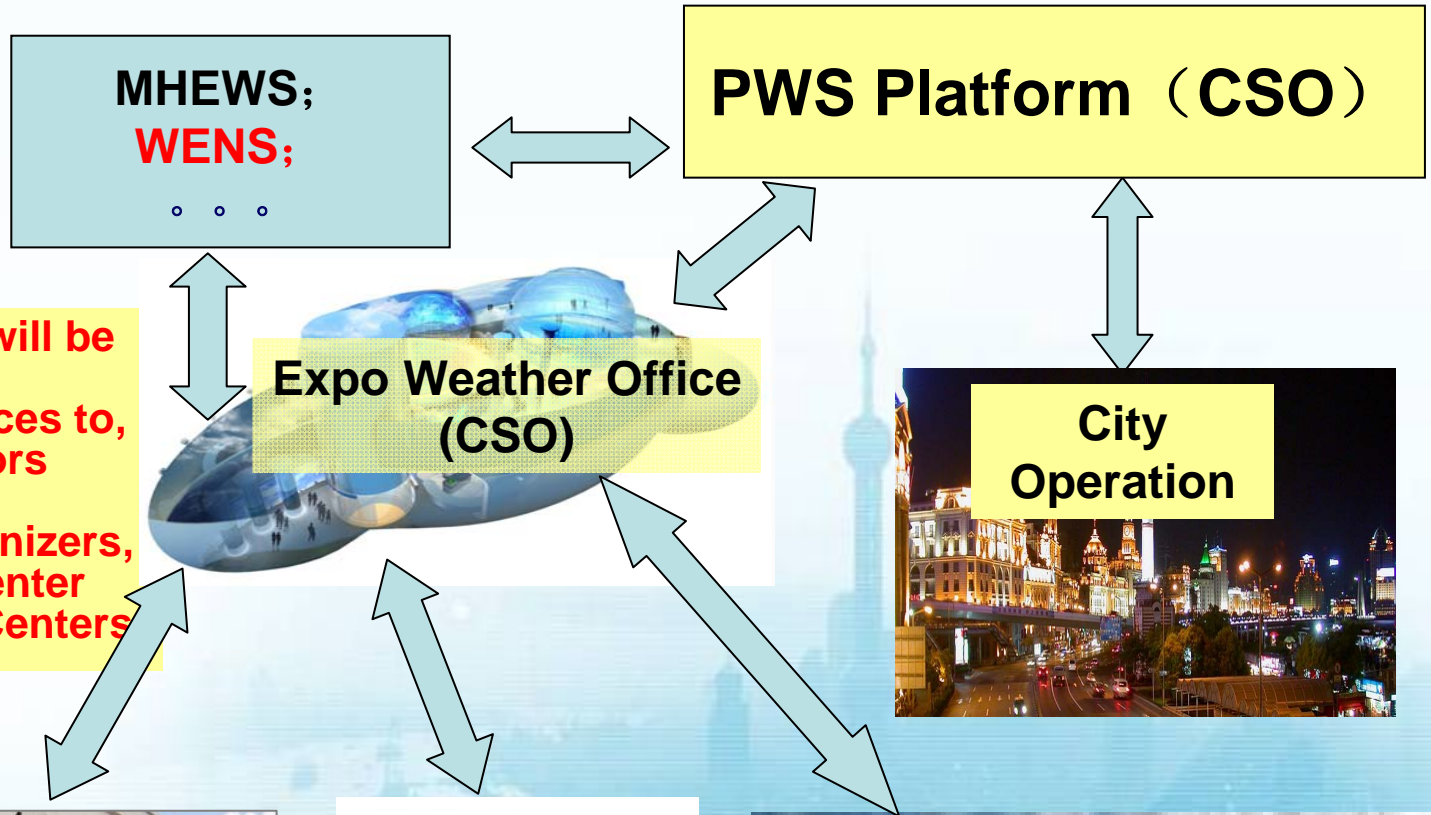


In order to illustrate the EXPO theme, "Better city, Better Life", more detailed, interactive and people-oriented weather service are required for EXPO organizers, participants and visitors.

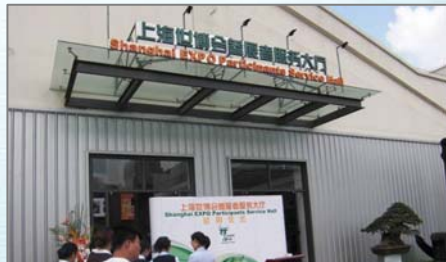
EXPO weather service is not only a task, but also an opportunity to demonstrate meteorological science and technology through the platform of World Expo.



# PWS for EXPO



Expo Weather Office will be established to ensure providing better services to, participants and visitors through enhancing partnership with Organizers, Participant Service Center and Visitors Service Centers

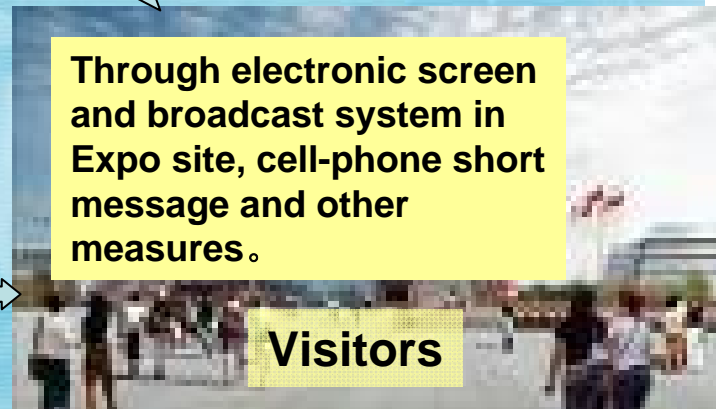


Participants Service Center

More than 230 participants



Organization Department

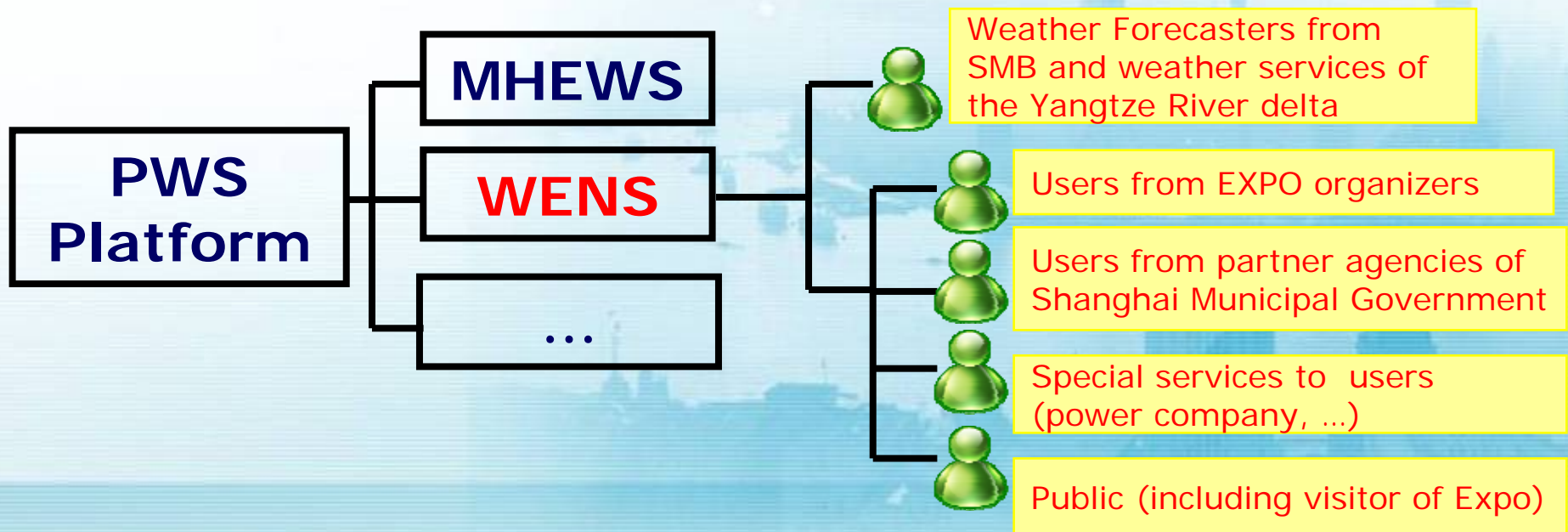


Through electronic screen and broadcast system in Expo site, cell-phone short message and other measures.

Visitors

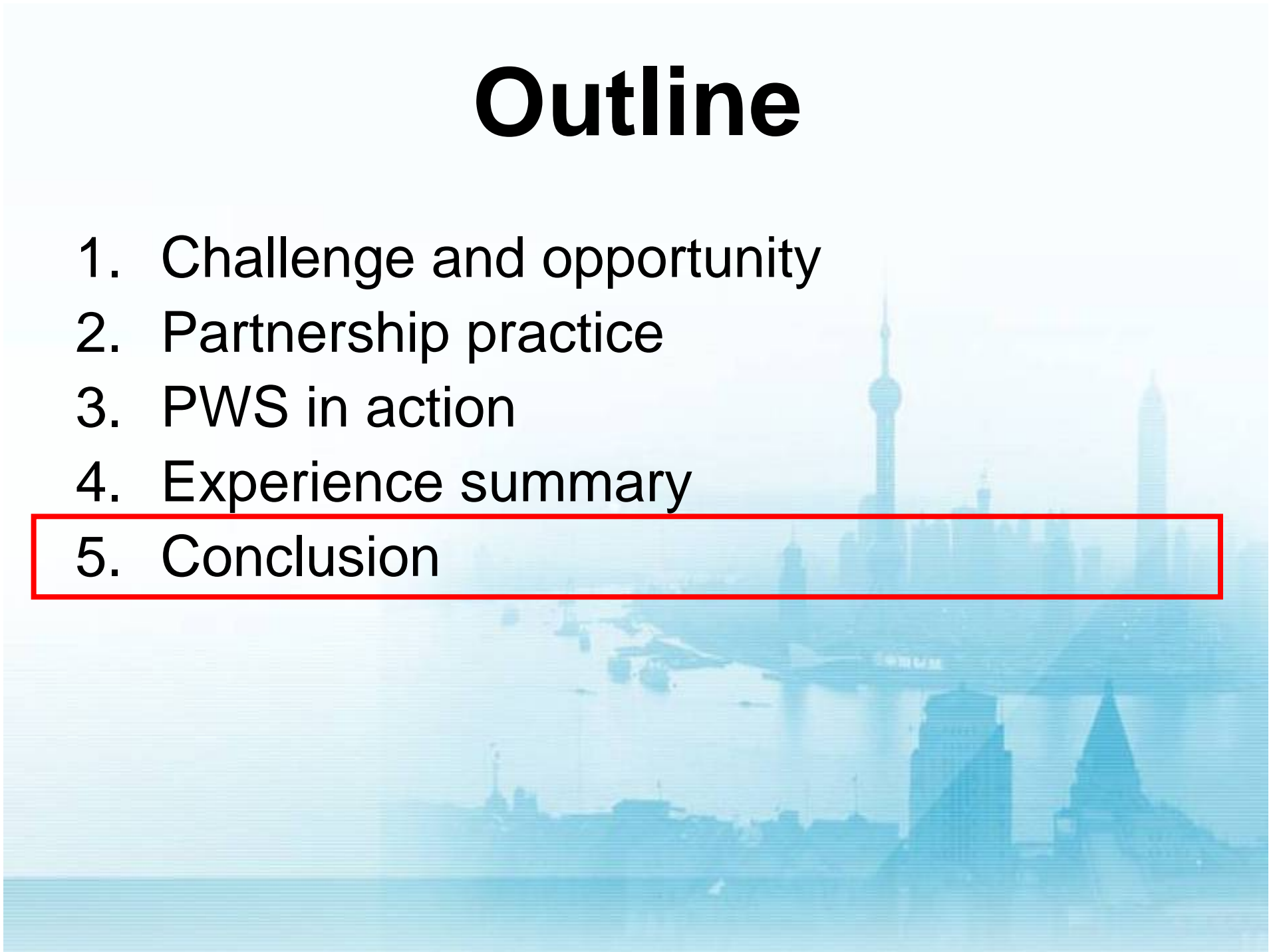
# WENS's role in PWS for EXPO

- WMO Demonstration project, World Expo Nowcasting Services (WENS);
- Joint supported by Public Weather Service Program (**PWSP**) and World Weather Research Program (**WWRP**).
- Based on the success of the B08FDP, the WENS will focus on the "services" rather than the "systems", in particular, the translation of nowcasting system outputs to timely and user-friendly products for decision makers and users.
- One of the most important tools of PWS platform



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# Conclusion

- To bridge the gap between the providers and users for better PWS, partnership should be enhanced, which can be achieved by establishing standard operating procedures (SOP's) for Multi-agency response.
- A key component for enhanced PWS service delivery and DPM is the establishment of the CSO (Chief Service Officer) Position who is supported by the PWS operational platform to deal with a wide range of users and stakeholders.
- The CLAP approach and SMART mechanism have been successfully tested and proven actionable and useful in the practice of weather service, and can be used as reference for improving weather service and enhancing the capacity of disaster prevention and mitigation.

*The right information*

*to*

*The right people*

*at*

*The right place and time*



A faded, light blue-tinted background image of a city skyline, likely Shanghai, featuring the Oriental Pearl Tower and other skyscrapers reflected in water.

Thanks for Your Attention

**Comments and Questions?**