IWRM for Huai River Basin

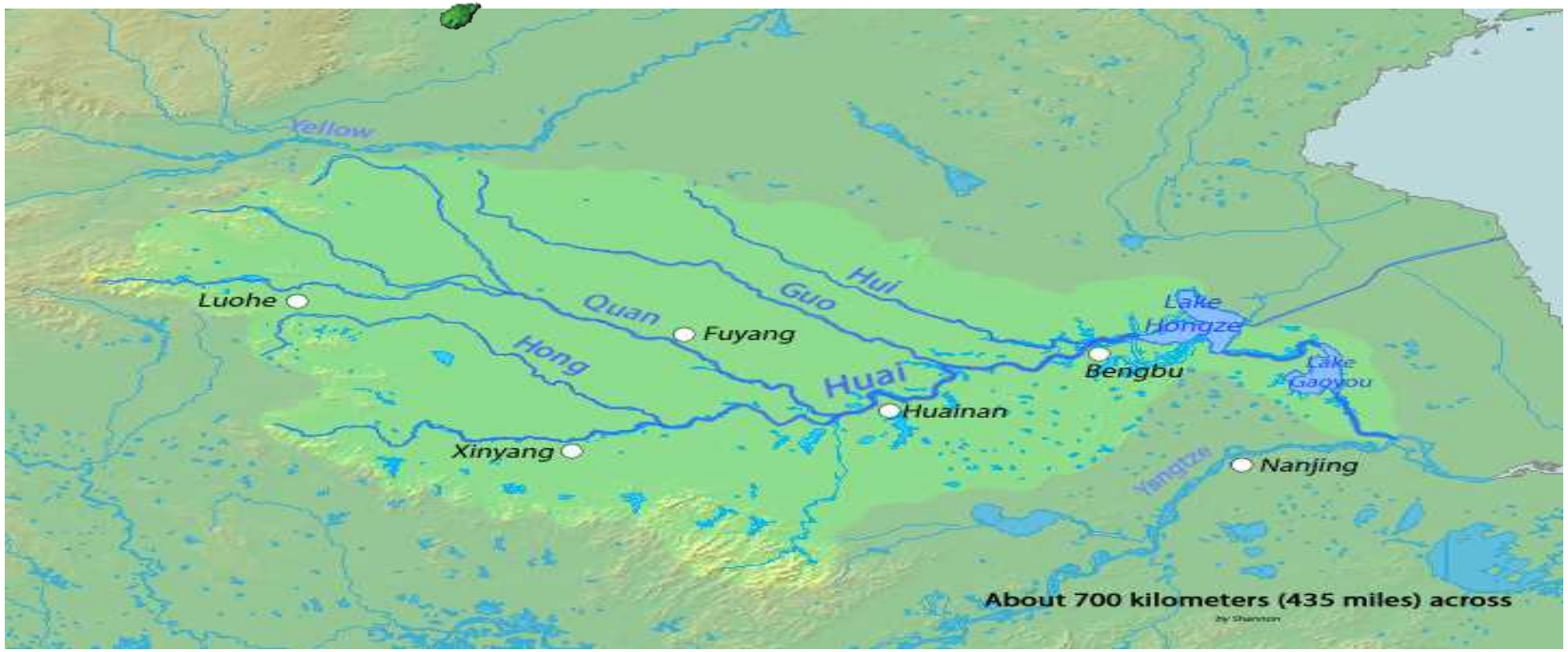
Dr. Yiqing Guan

Hohai University

Nanjing, China

Objectives

- To ensure the sustainable development
- To ensure the water security



Background

1. The uneven distribution of water doesn't accord with the economy, society and environment
2. Flood, drought and pollution worsen the utilization of water resources
3. Conflicts between water supply and demand

L=1110 km

A=174000 km^2

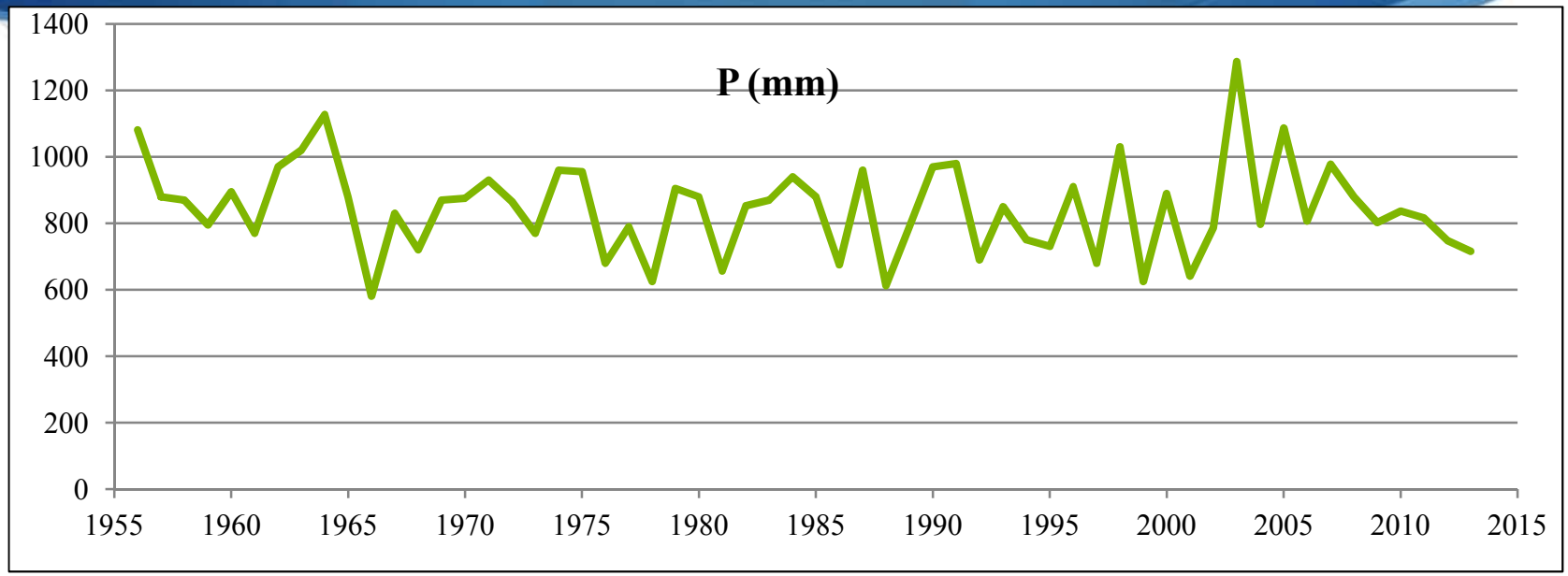
Water Issues

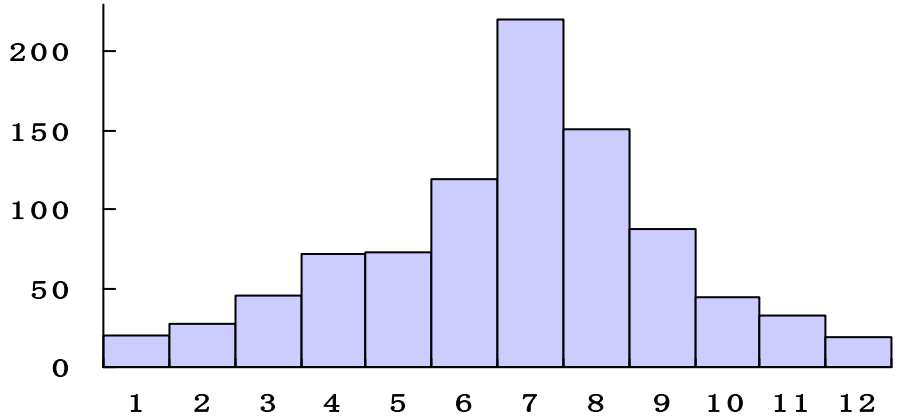
climate change

urbanization

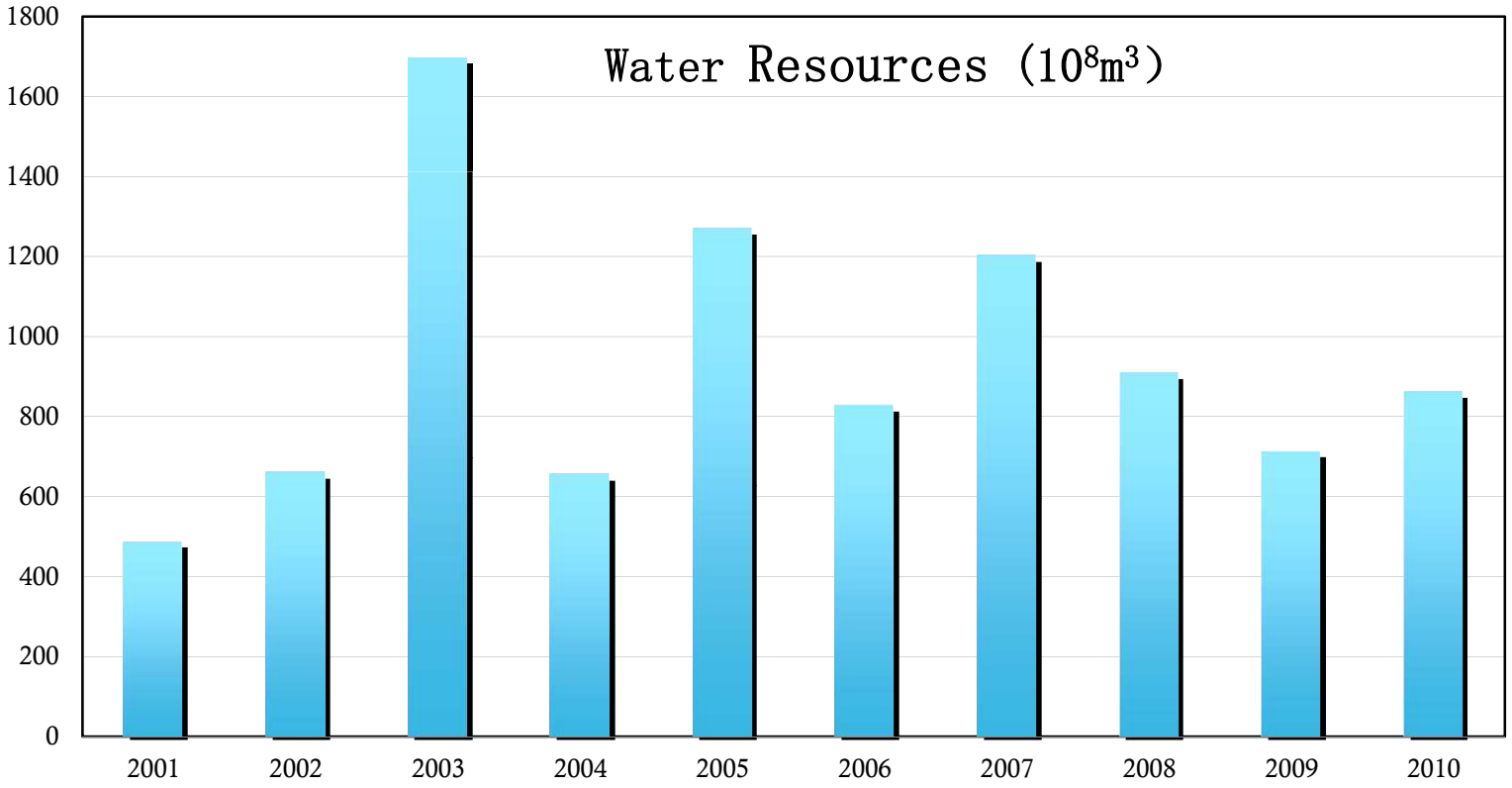
Emerging Challenges

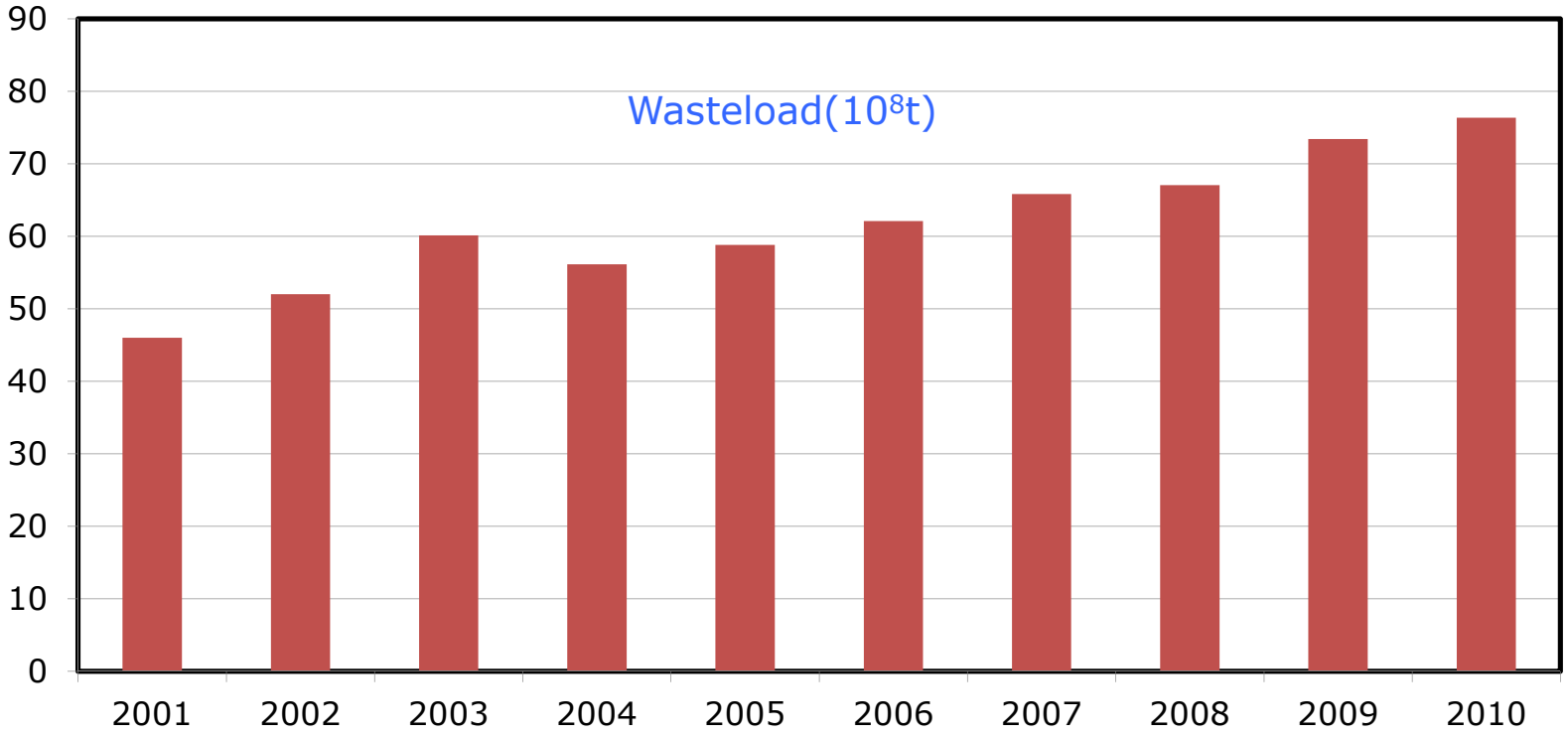
Precipitation

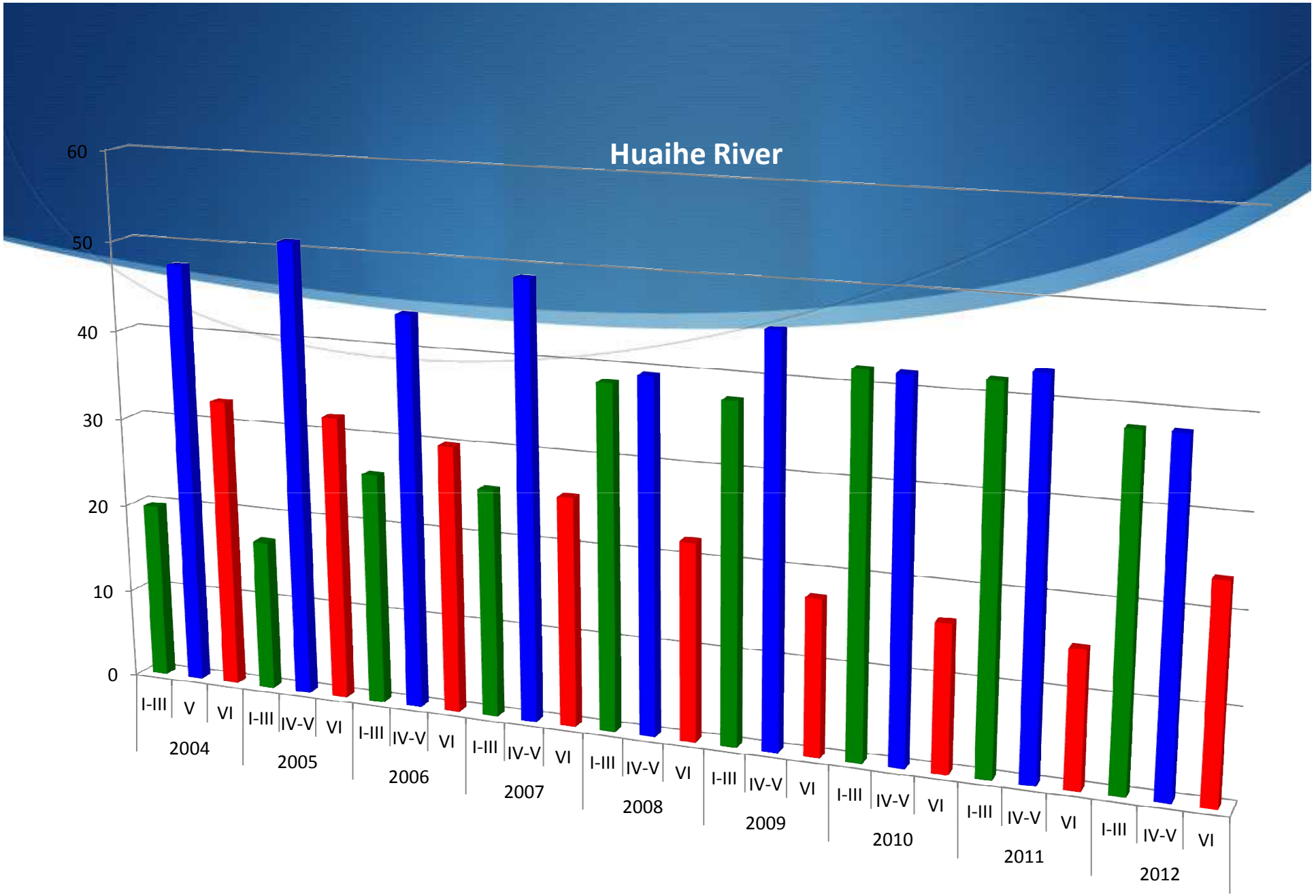


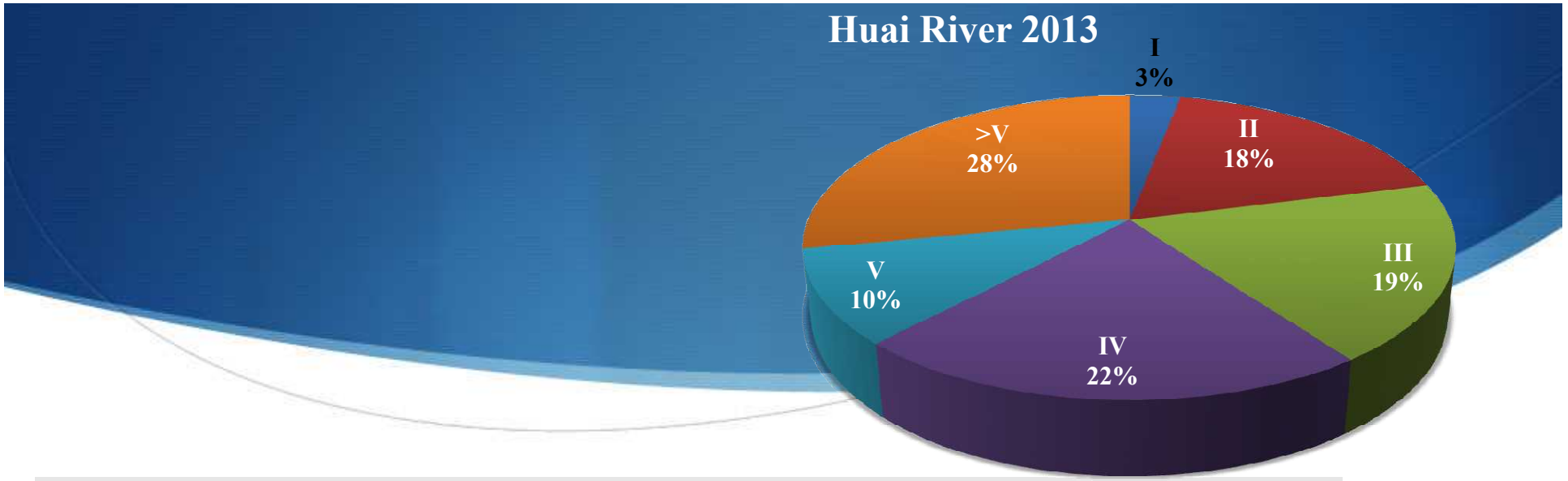


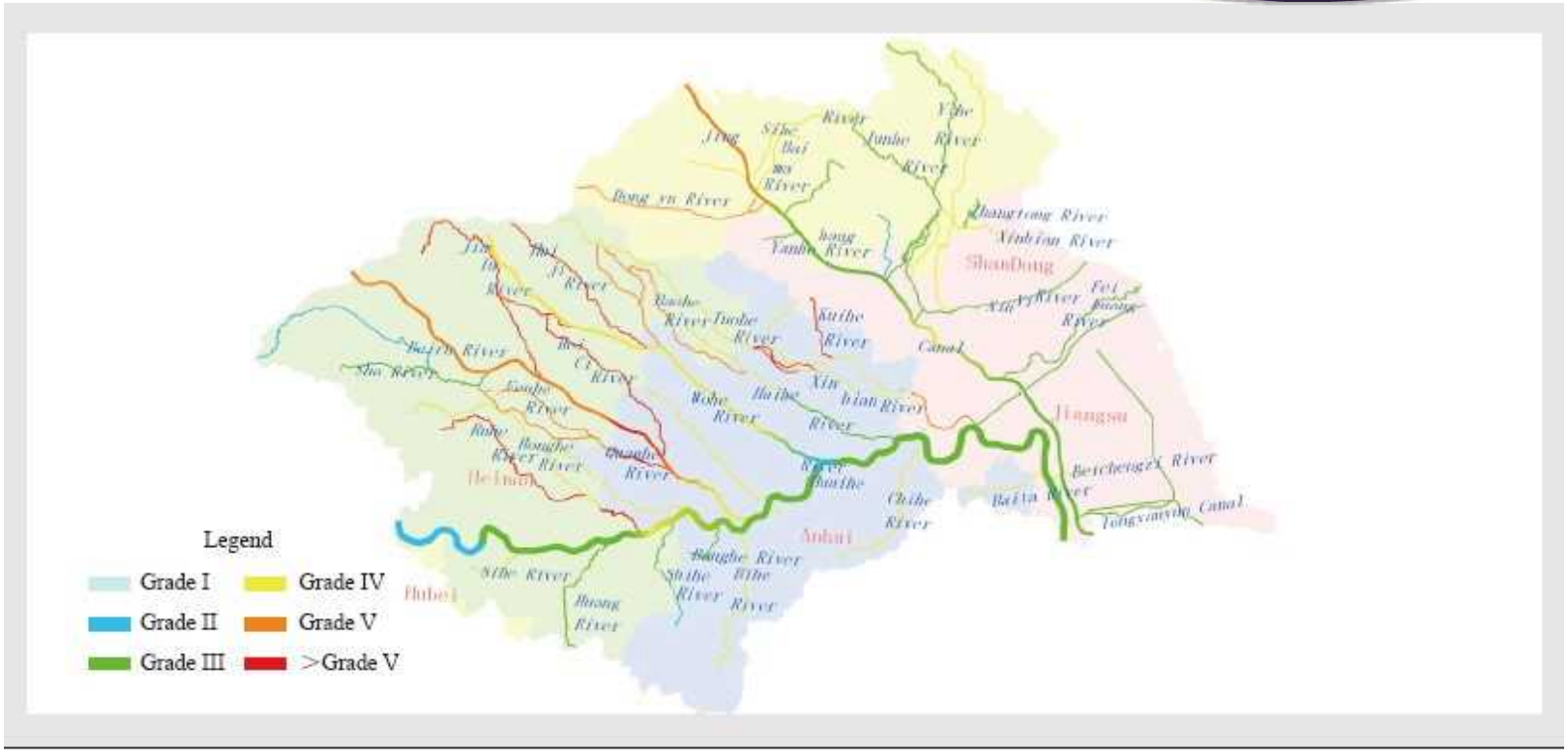
Water Resources




Wasteload(10^8t)
90
80
70
60
50
40
30
20
10
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010

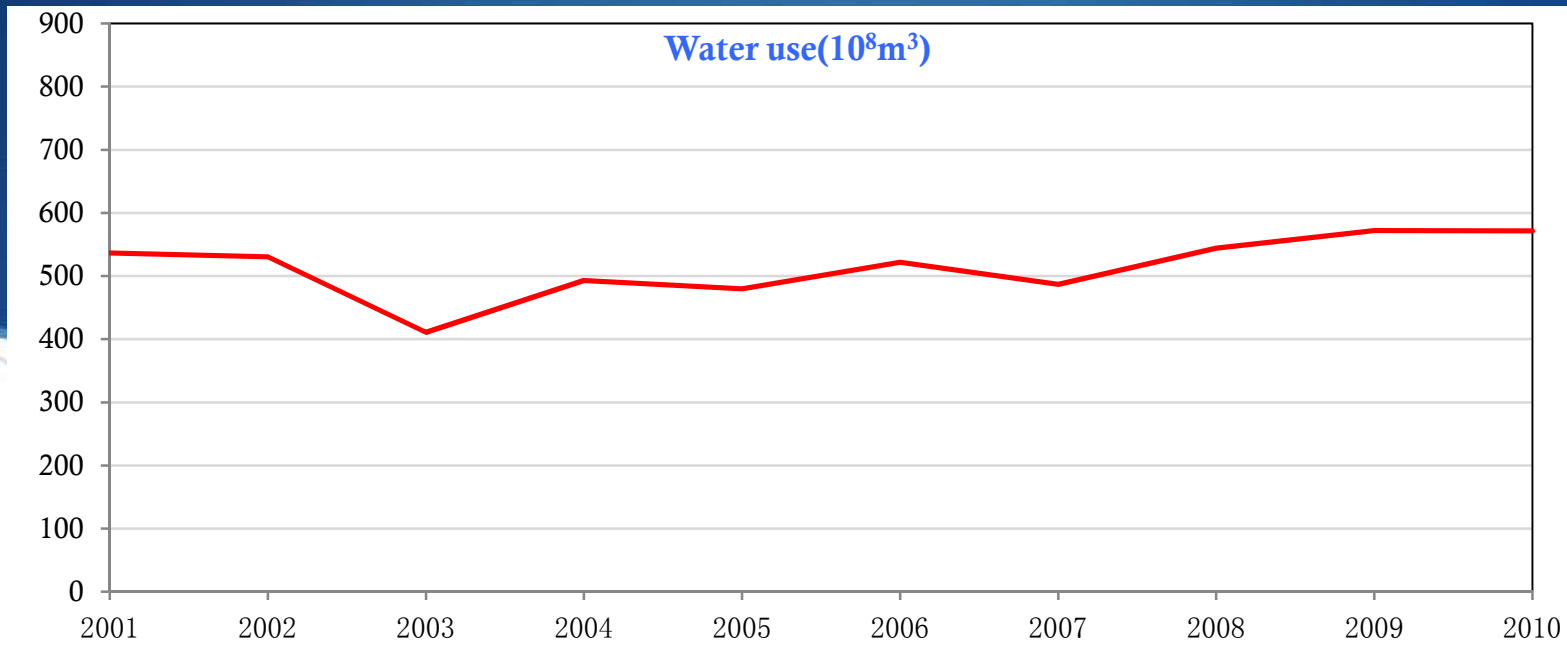

Huaihe River
60
50
40
30
20
10
0
I-III
V
VI
I-III
IV-V
VI
I-III
IV-V
VI
I-III
IV-V
VI
I-III
IV-V
VI
I-III
IV-V
VI
I-III
IV-V
VI
I-III
IV-V
VI
I-III
IV-V
VI
I-III
IV-V
VI
2004
2005
2006
2007
2008
2009
2010
2011
2012

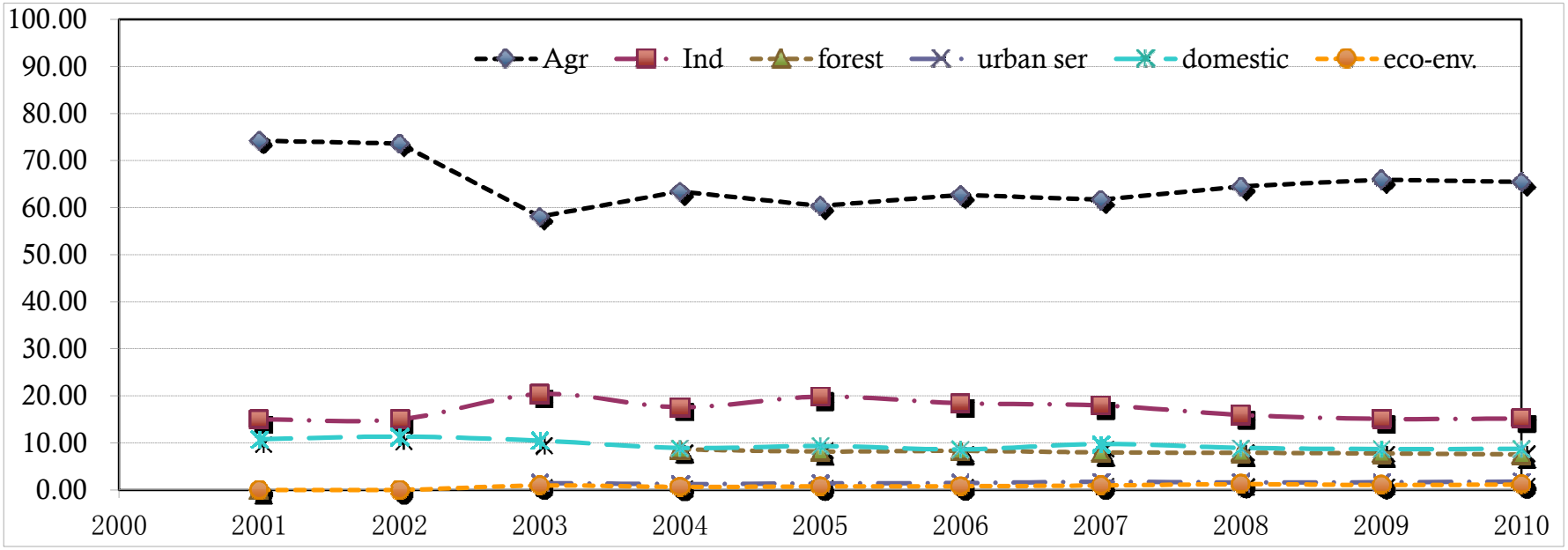




Water quality of the Huaihe River waters in 2011


新华网
WWW.NEWS.CN

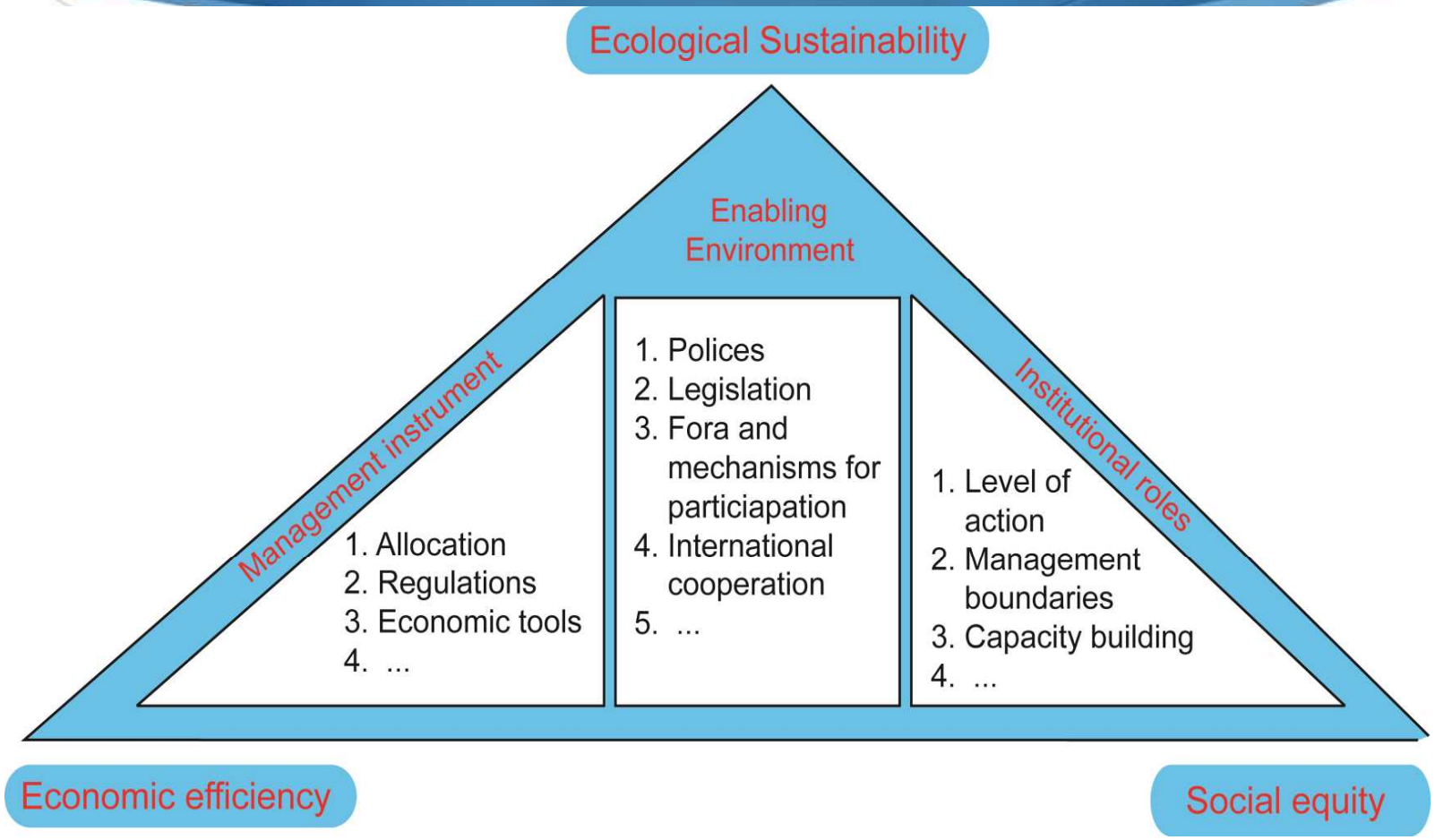

Water use(10^8m^3)
900
800
700
600
500
400
300
200
100
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010


100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Agr
Ind
forest
urban ser
domestic
eco-env.
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010

Water Resources Assessment

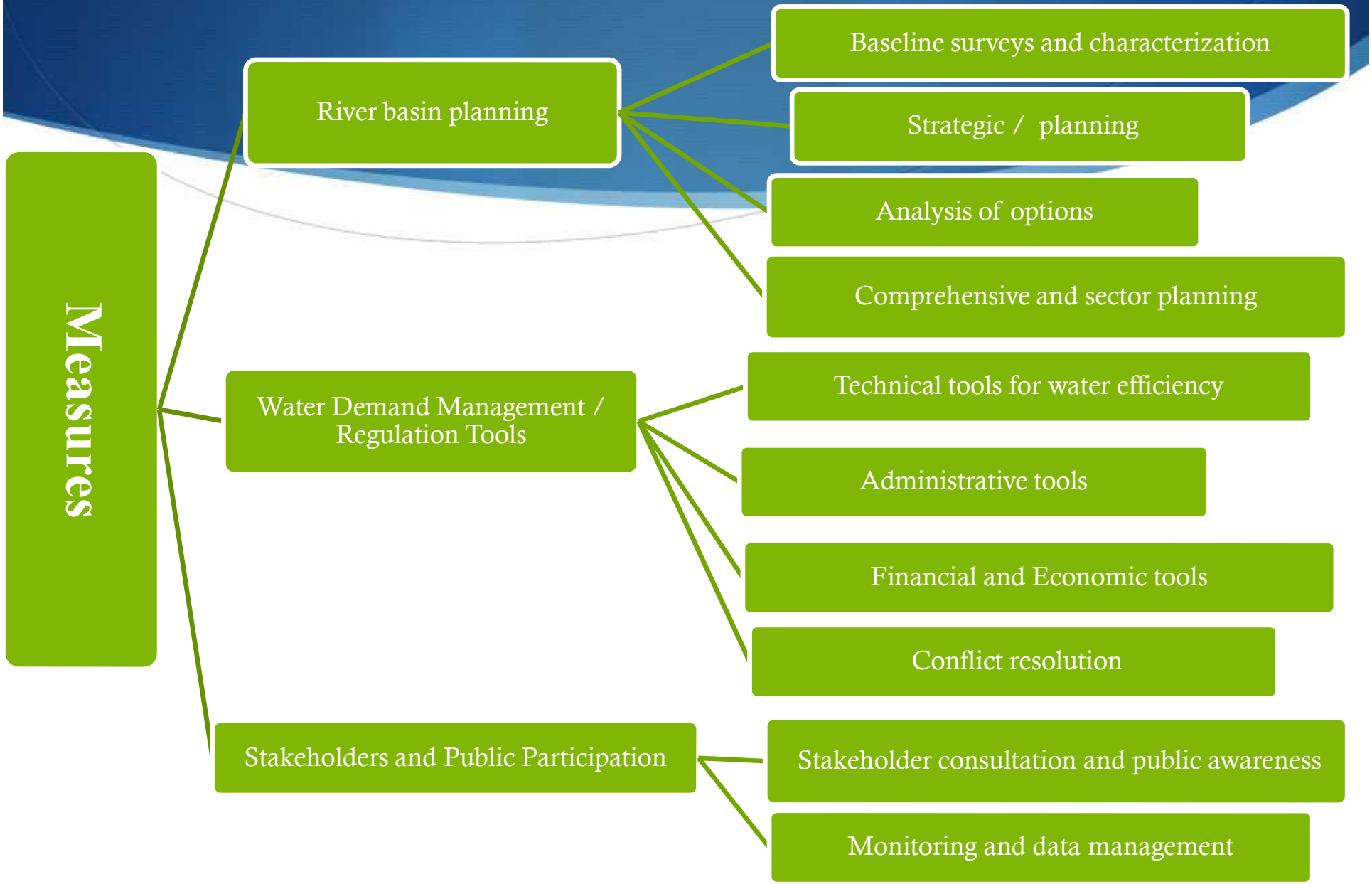
- The water resources per capita is low
- The water resources is over exploited
- Water use efficiency is low
- Increasing stress of population and urbanization on water
- Water quality degraded
- Eco-environment system is deteriorated
- Big gap between water supply and water demand

IWRM

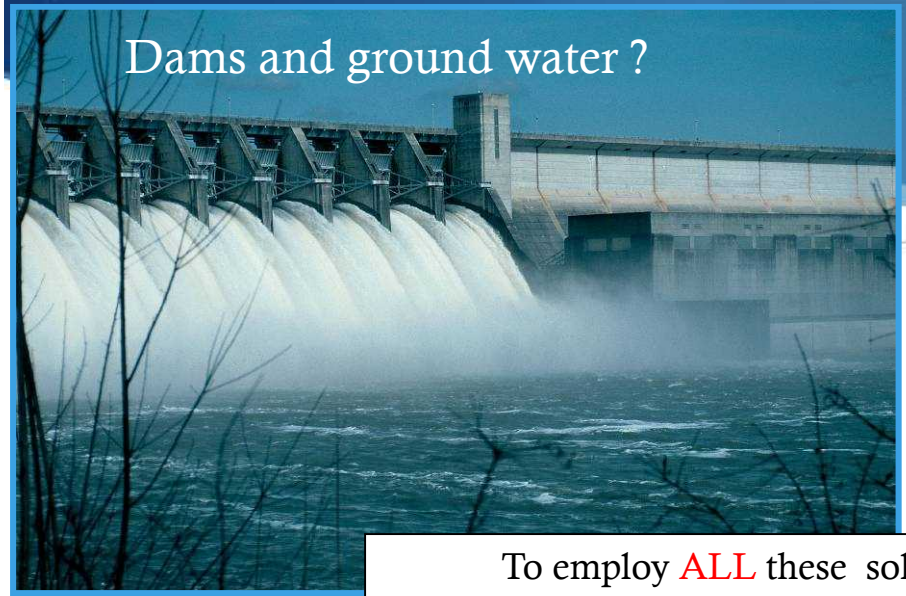


General framework for IWRM(GWP, 2000)

IWRM measures for Huai River

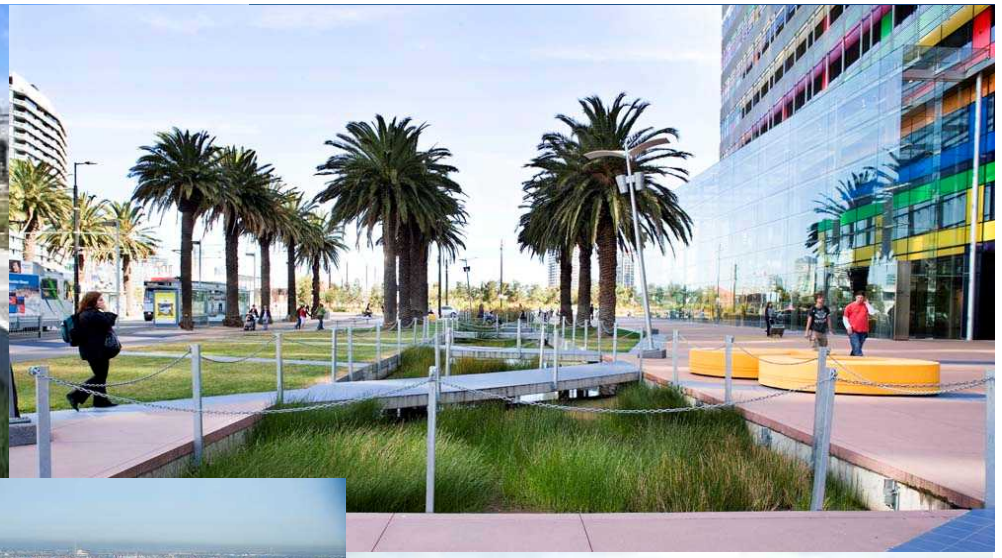


Water diversity is key to resilience



To employ ALL these solutions if river basin is to become resilient to climate and social pressures.









- management of water resource
- water quality improvement
- buffering aquatic ecosystems from the effects of catchment urbanisation and climate change

Ecosystem Services

Conclusions and recommendations

- Water demand management
- Wastewater management
- Improving water efficiency
- Rational water allocation
- Water diversity
- Capacity building
- Stakeholders and public participation

Thanks for your attention!