New study on quantifying
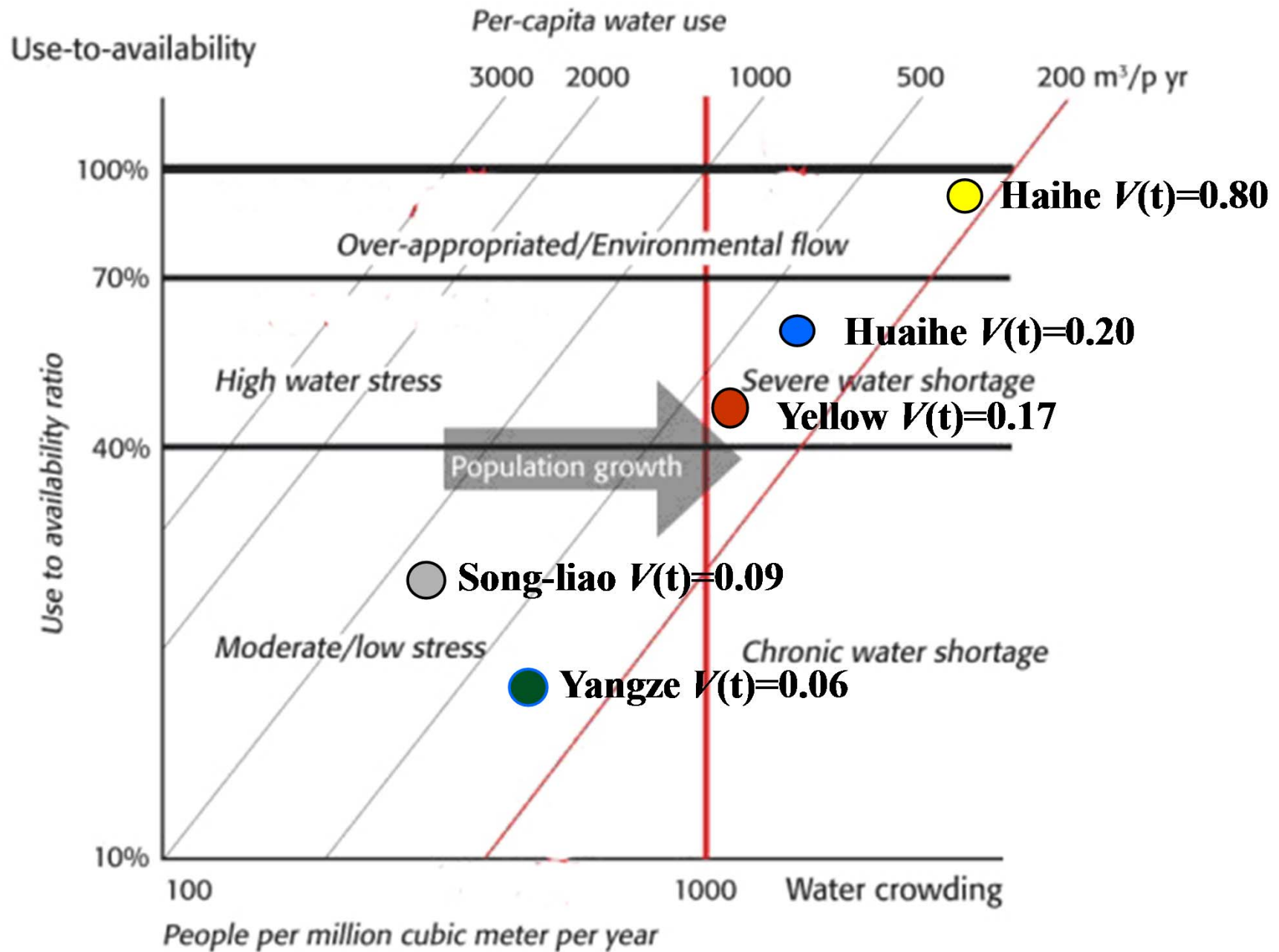# **Water Resource Vulnerability**

$$C(t) = C\{r \cdot \frac{Q}{W_D}\} = \exp_1(-r \cdot k)\exp(-\frac{P}{Q} \cdot \frac{W_D}{P})$$

r — Use to availability ratio (%)
P/Q - water crowding (p / Million m3/ yr)
W_D/P - per capita water use (m3/p yr)
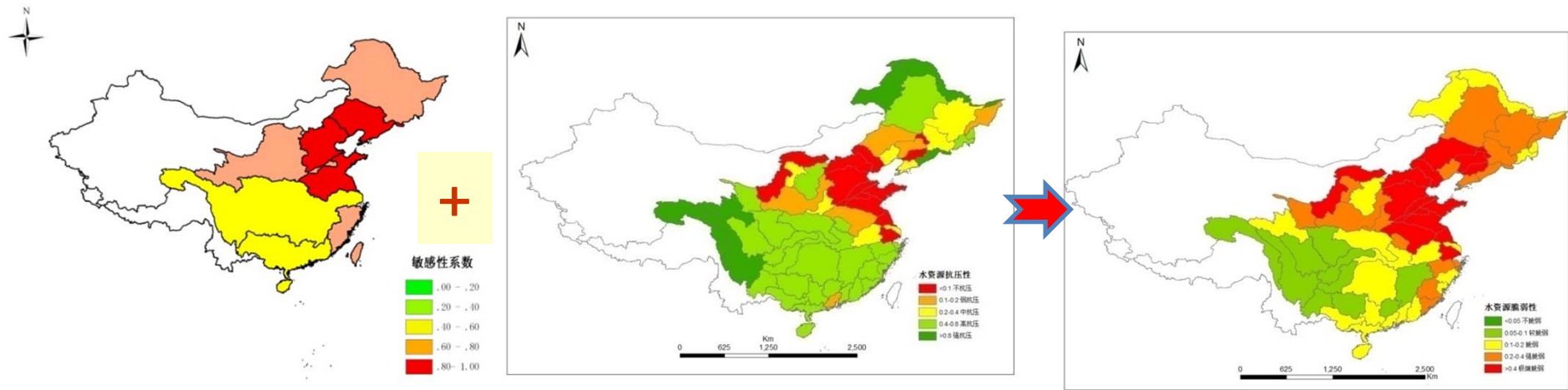
Categories of water resource vulnerability

no vulnerability	low vulnerability	moderate vulnerability	high vulnerability	Serious vulnerability
<0.05	0.05-0.1	0.1-0.2	0.2-0.4	>0.4

Water Resource Vulnerability in Hai River

Water resource vulnerability

	No vulnerability: <0.05
	Low vulnerability: 0.05-0.1
	Moderate Vulnerability: 0.1-0.2
	High vulnerability: 0.2-0.4
	Serious vulnerability: >0.4

0   100   200 Kilometers
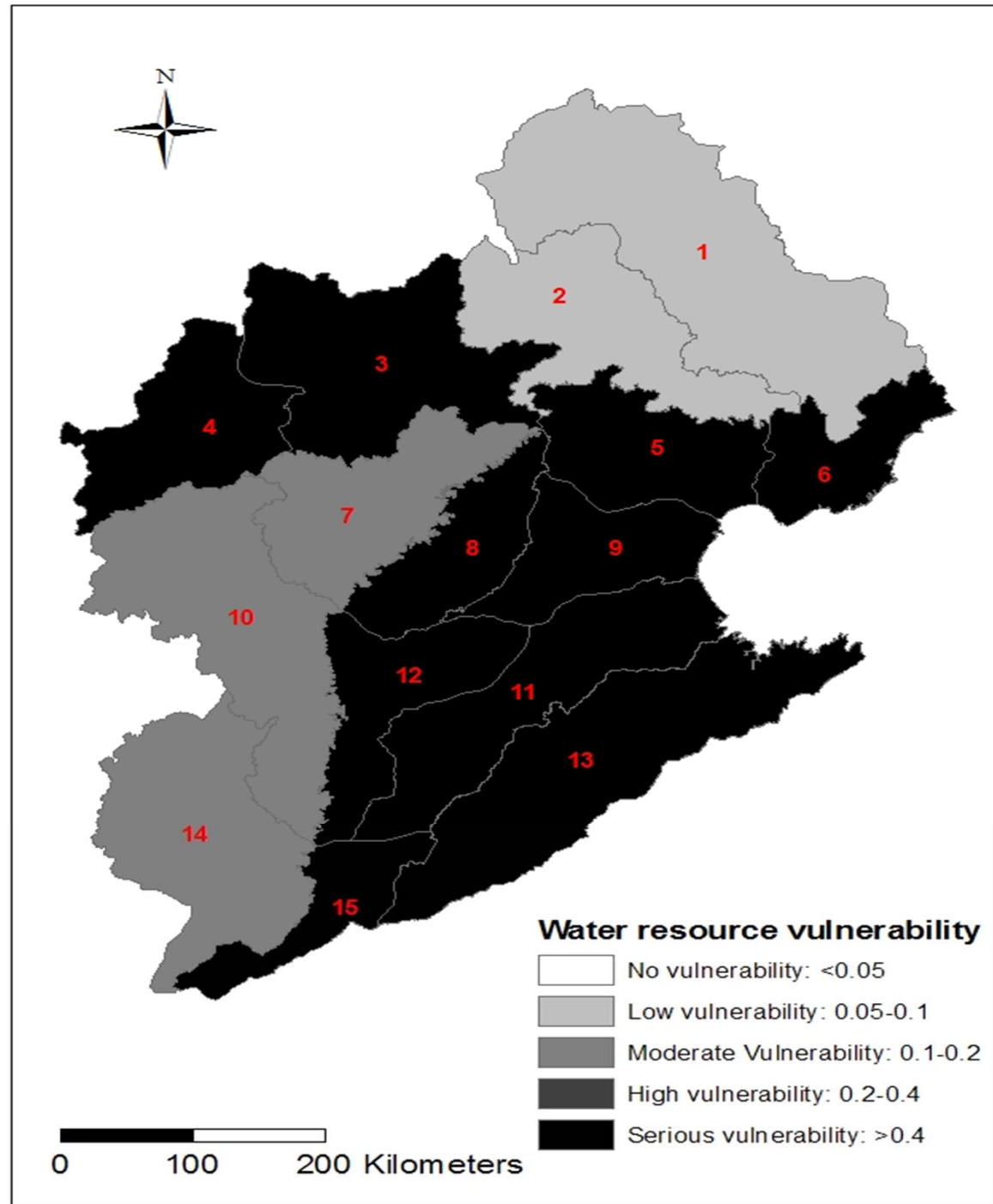
New Study on mapping vulnerability

Sensibility S + **water stress(resilience) C** → **Integrated Vulnerability S/C**

2000年代表年（1980-2000年序列）