

# ACCC Subproject: Climate Change and Health in Guangdong Province

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- Background
- Capacity Building
- Risk Perception to Heat Waves
- Healthy Impact Assessment
- Vulnerability Assessment
- Adaptation Planning

- China has experienced noticeable changes in climate.
- China is very vulnerable to climate change,
- Although climate change research in China has been supported by the government since 1990s and has focused on areas such as agriculture and water, research on healthy has only recently begun.

- Regular academic meetings every two weeks
- Workshop on Vulnerability Assessment and Scoping Methods
- Training for survey on risk perception of heat waves among the publics
- Workshop on advanced statistical methods – Generalized Additive Model (GAM)

- Workshop on the methods of adaptation and qualitative research.
- Take part in the ARCGIS program training.
- Invite Professor Yin to Guangzhou to train us in the new methods of risk assessment, vulnerability assessment, impact assessment and adaptation planning.





**Workshop on the project system and regulation**



**Professor Scott visited GDCDC and communicated with us**



**Ma attended the international conference of "Climate change adaptation and health" in Brisbane**



**Workshop on the translation of "Climate change and human health: risk and responses" from WHO**



**Ma attended the international conference of "Climate change and health" in Lanzhou**



**Ma etc. attended the workshop of "Scenario data combination" in Guangzhou of China**

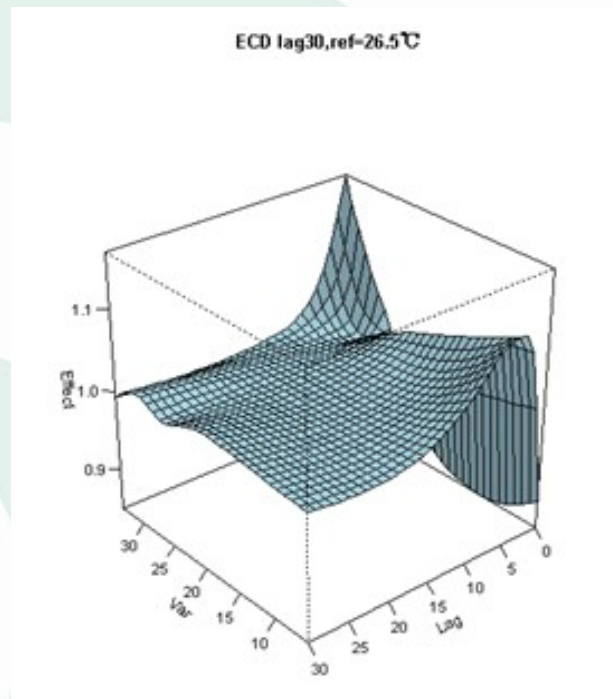
- Investigated more than 2000 adults about their health risk perception of heat wave and adaptation behaviours in Guangdong province
- Investigated 200 builders about their health risk perception of heat wave and adaptation behaviours in Guangzhou



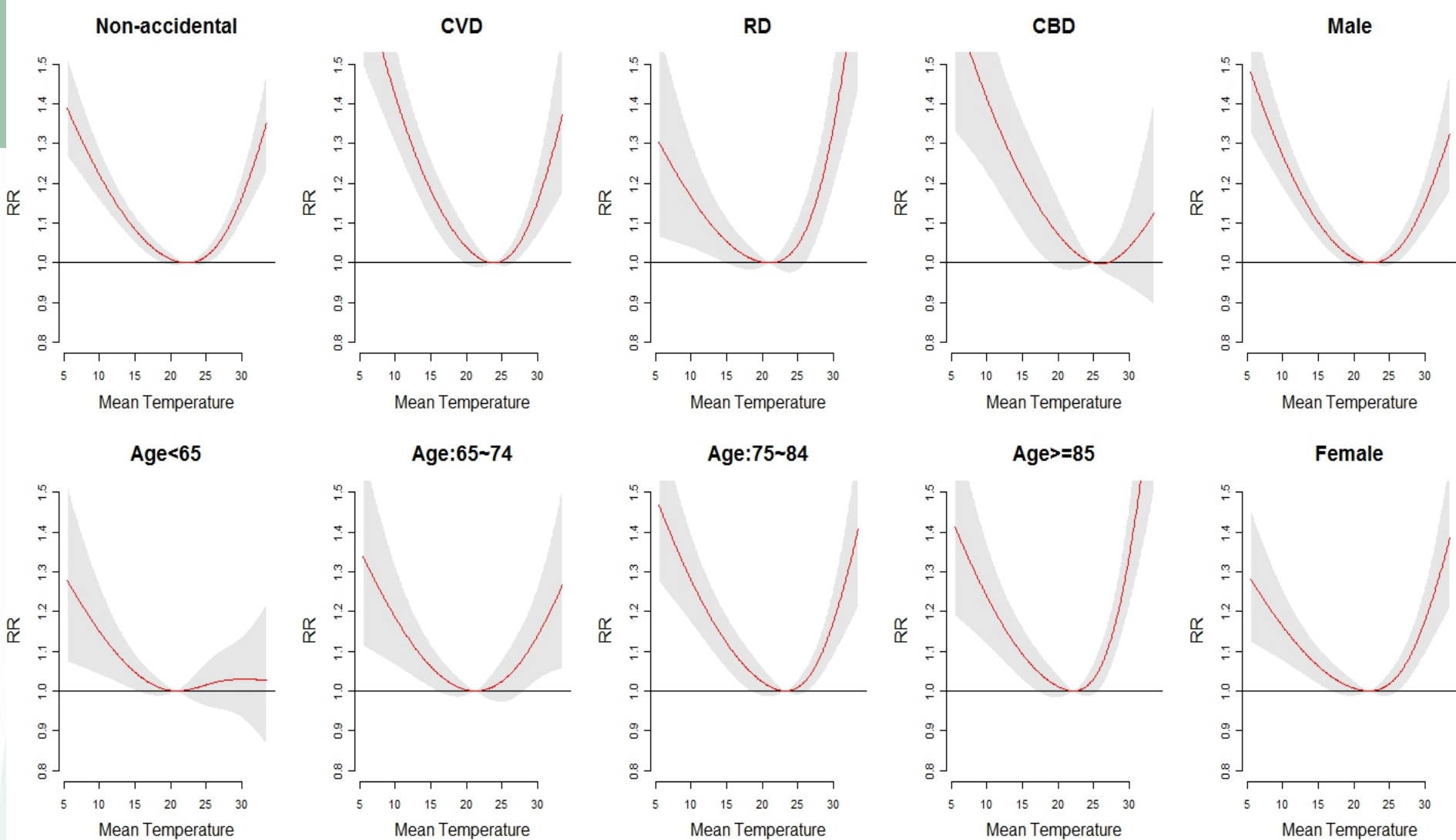


## 1. Temperature and Health in Guangdong

- Both high temperature and low temperature was negatively associated with mortality in Guangzhou.
- DTR (diurnal temperature range) was another important indicator related to mortality.
- Temperature had an interactive effect with the ozone on mortality on colder days







**Fig: The relationships between mean temperature and different categorized mortality at lag 0 day in Guangzhou, 2006-2010**

# Table: Predicted changes in annual-cold related non-accidental mortality per 100,000 populations from the 1981-2000 base periods under three different Scenarios in Guangzhou

Emission Scenarios	Base line	2031-2050		2051-2070		2071-2090	
		Mortality predicted	$\Delta^a$	Mortality predicted	$\Delta^a$	Mortality predicted	$\Delta^a$
High (A2)	23.07	14.83(7.29-22.58)	-8.24	11.56(5.24-18.04)	-11.51	1.88(0.74-3.04)	-21.19
Mid (A1B)	14.44	5.97(2.73-9.30)	-8.47	3.39(1.48-5.34)	-11.05	1.98(0.75-3.24)	-12.46
Low (B2)	15.41	9.55(4.00-15.25)	-5.86	8.48(3.55-13.54)	-6.93	5.78(2.18-9.47)	-9.63

Note: <sup>a</sup> Change in mortality rate from base periods.

**Table: Predicted changes in annual-hot related non-accidental mortality per 100,000 populations from the 1981-2000 base periods under three different Scenarios in Guangzhou**

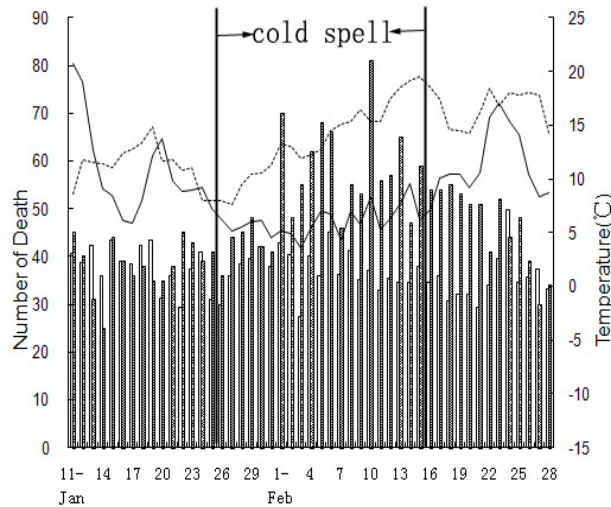
Emission Scenarios	Base line	2031-2050		2051-2070		2071-2090	
		Mortality predicted	$\Delta^a$	Mortality predicted	$\Delta^a$	Mortality predicted	$\Delta^a$
High (A2)	39.94	60.65(36.91-85.42)	20.71	72.05(44.94-100.42)	32.11	111.87(71.26-154.80)	<b>71.93</b>
Mid (A1B)	37.26	73.89(45.11-103.99)	36.63	85.67(53.20-119.72)	48.41	107.95(68.54-149.54)	70.69
Low (B2)	50.68	71.87(44.93-100.06)	21.19	80.57(50.92-111.70)	29.89	88.82(56.46-122.86)	38.14

Note: <sup>a</sup> Change in mortality rate from base periods.

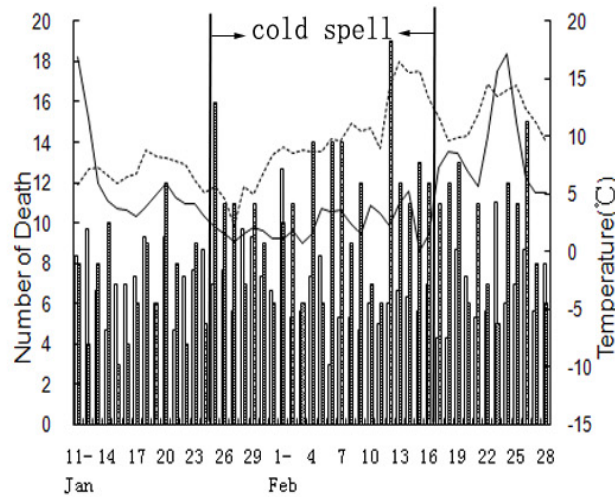
## 2. The health impact assessment of the 2008 cold wave on mortality in three subtropical cities in Guangdong



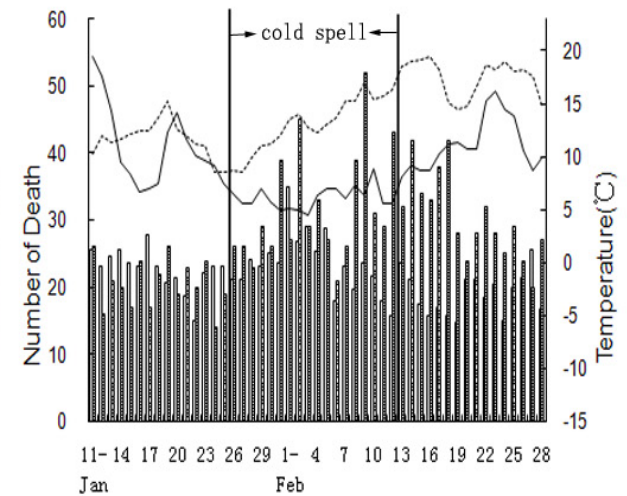
Guangzhou



Nanxiong



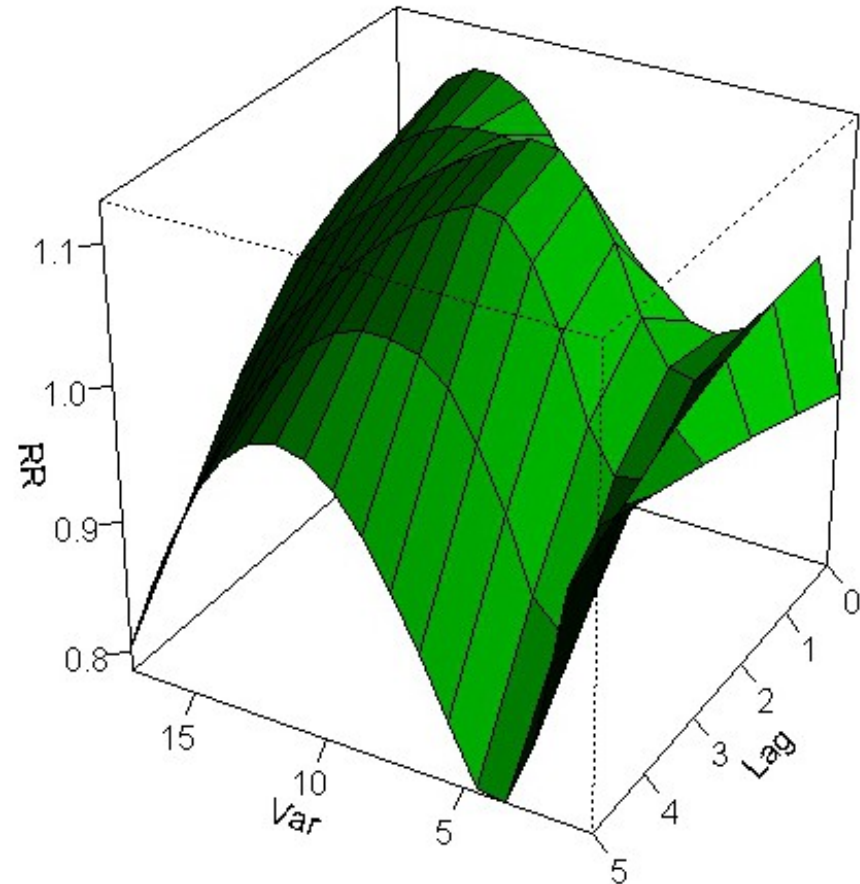
Taishan





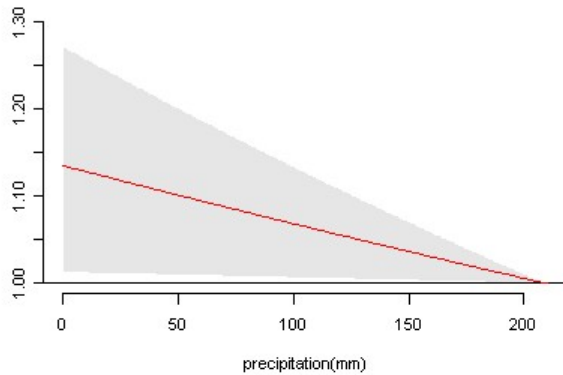
## Malaria

Effects of 1 increase in relative humidity along lags

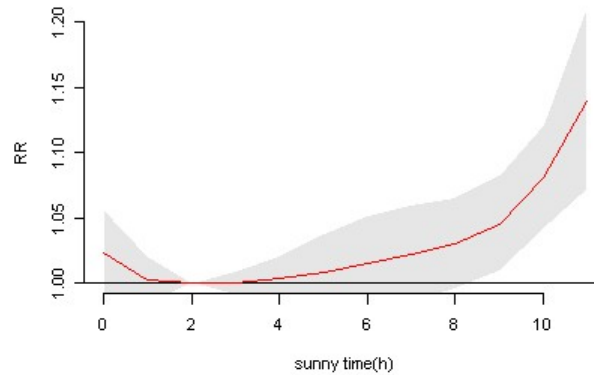


# Intestinal Diseases

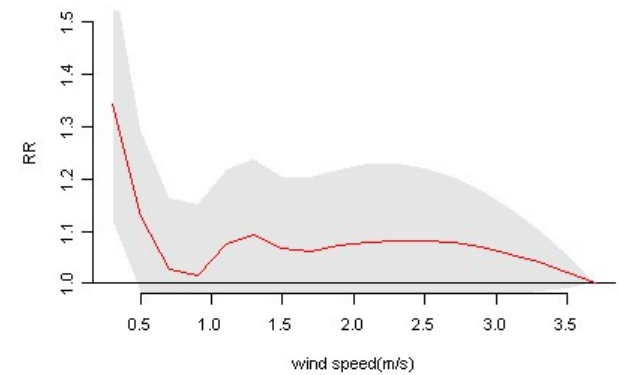
precipitation, MIT=210mm



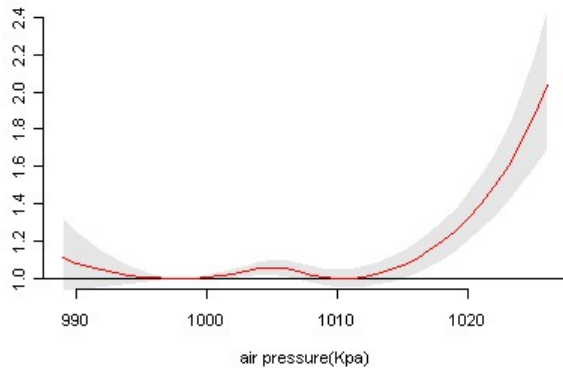
sunny time, MIT=2h



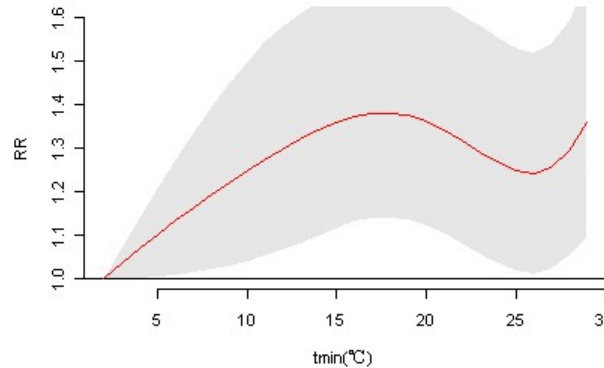
wind speed, MIT=3.7m/s



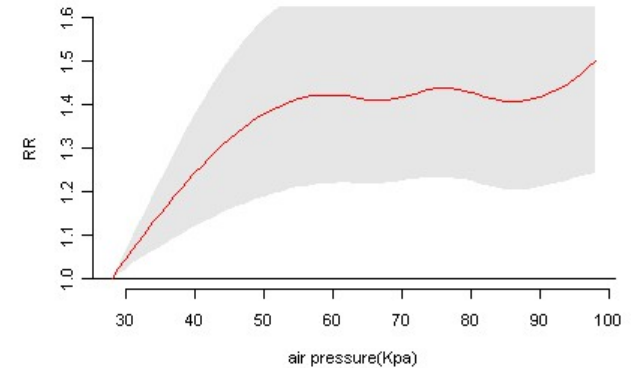
air pressure, MIT=998Kpa



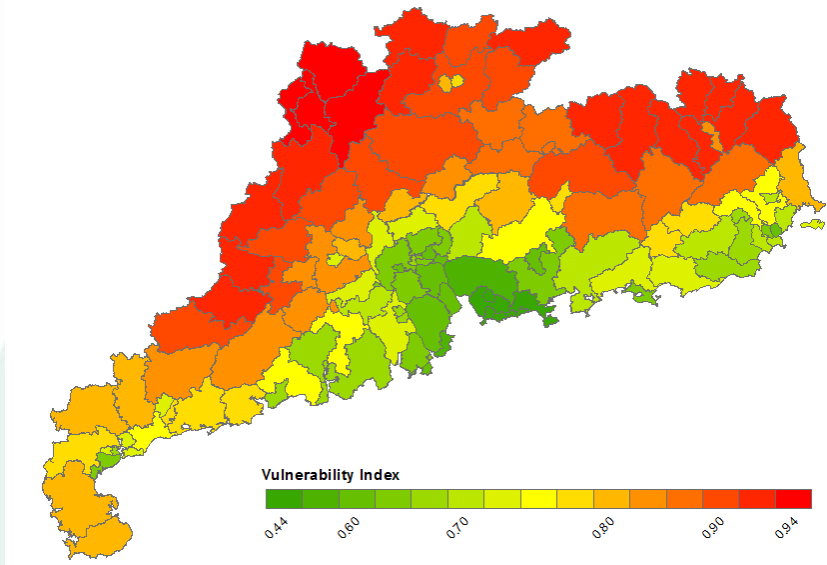
minimum temperature, MIT=2°C



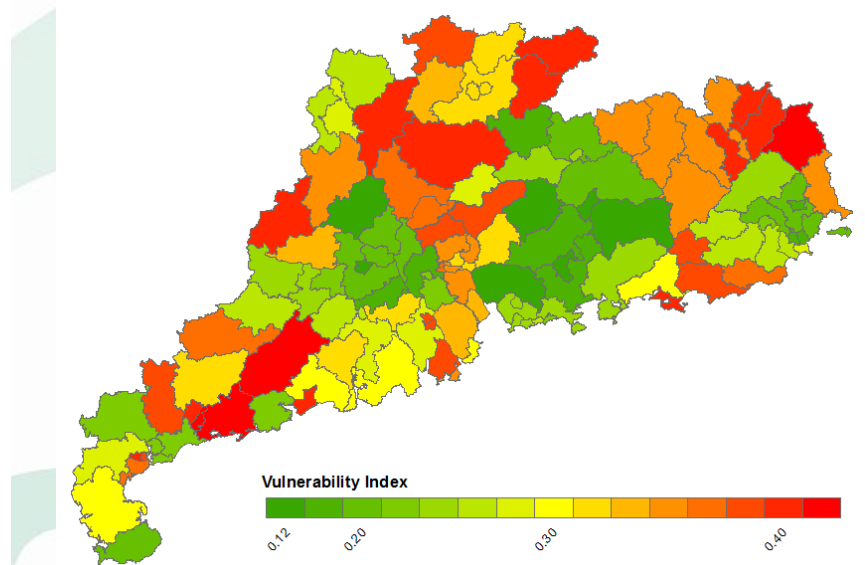
relative humidity, MIT=28%



# 4. The Vulnerability to heat waves and floods in Guangdong Province



**Distribution of Vulnerability to heat waves among 124 counties/districts in Guangdong**



**Distribution of Vulnerability to flood among 124 counties/districts in Guangdong**

- Systematic Literature Review
- Secondary Data Analysis
- Risk Assessment
- Stakeholder Participation
- Adaptation Options Prioritization



# Thanks