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Climate Change, Health Risk and Economic Analysis in China

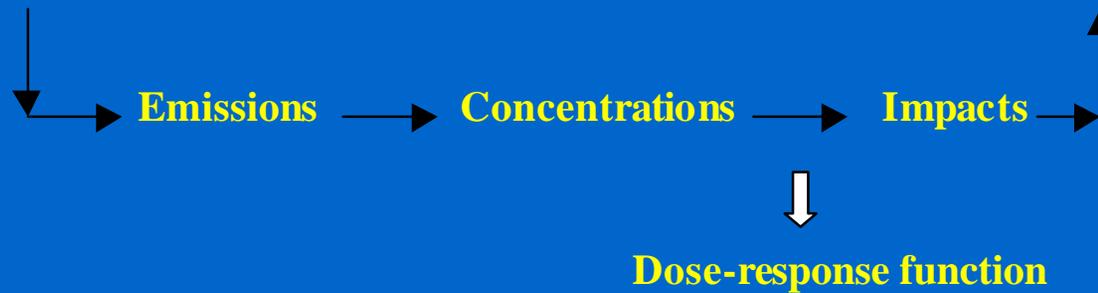
- **Introduction and Overview**
- **Review: Climate Change Affects human health in physical or psychological impacts**
- **Economic Valuation for those physical impacts and Methodological Issues Discussion**
- **Valuing Mortality Risk Reduction in Beijing and Some Results**

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Bottom-Up Valuation of Environmental Damages

Pollution source

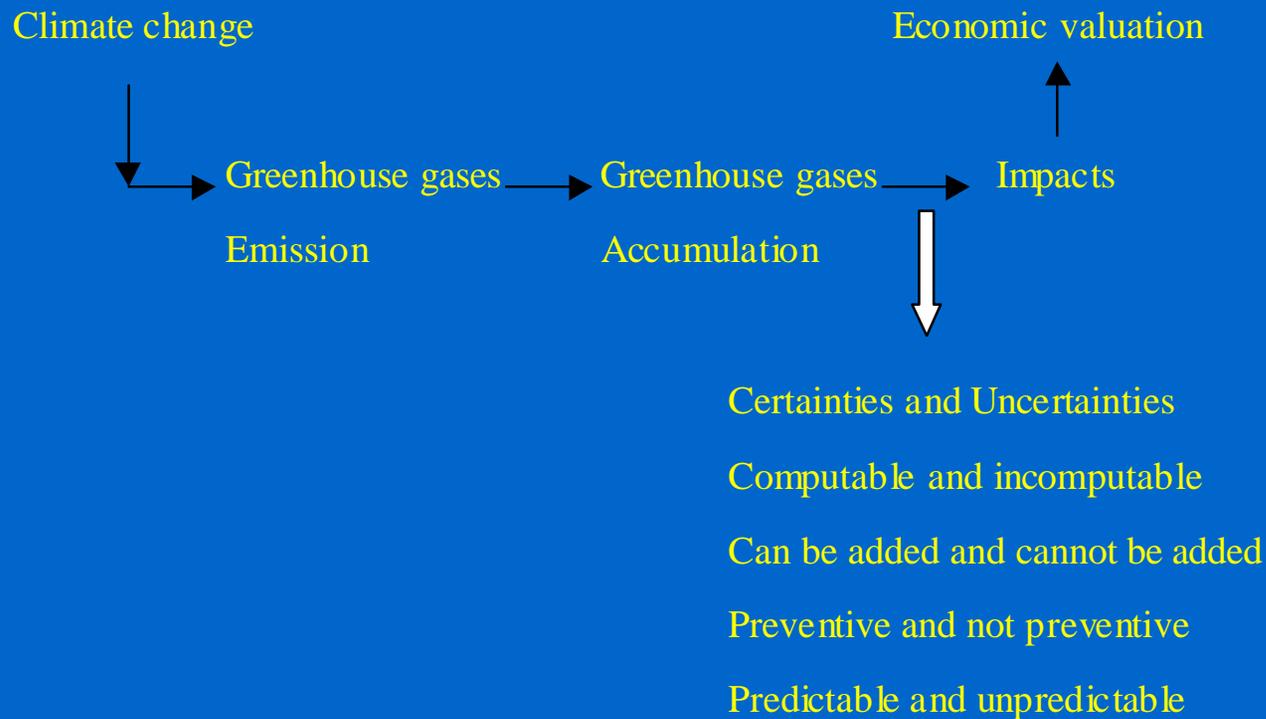
Economic valuation



Percentage increase Pm10 or TSP in mortality rate.

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Bottom-Up Valuation of Climate Change Damage (Scenario-based Risk Assessment)



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Review: Climate Change Affects human health in physical or psychological impacts

Climate changes could affect human health through increases in heat-stress mortality, tropical vector-borne diseases, urban air pollution problems, and decrease in cold-related illnesses.

The effects of climate change on human health can be through direct or indirect pathways (McMicheal et al., 1996 and WHO, 1996). Direct effects would occur predominantly through changes in frequency and severity of weather events (e.g. temperature, wind, and precipitation) that directly affect human physiology or psychology. Indirect effects of climate change on health would occur when climate change affects other biological systems that influence human health. For instance, climate change could influence the range and activity of disease vectors, the ecology of water-borne and food-borne infectious agents, the levels of air pollutants, and the productivity of food systems.

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Direct pathway

- Heat waves: temperature-related morbidity and mortality
- Disaster: extreme weather events-related health effects

Indirect pathway

- Disaster: extreme weather events-related health effects
- Air pollution-related health effects
- Sea level rise: the health of vulnerable population impacts

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Table Summary of the health impacts

Climate change factors	Health impacts (mortality and morbidity)	
	Direct	Indirect
Heat waves		
Disasters (Floods, storms, and other extreme weather events)		
Air pollution		
Sea level rise		
Water-borne and food-borne diseases		

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Brief comments

- **Uncertainties**
- The key word in above discussions and predictions is “may” that is very important. Uncertainties exist at every step in the chain from greenhouse gas emissions to outbreaks of disease. More research also is needed to address the links between heat wave and increased mortality. Some observation showed that increasing precipitation could drop malaria rates in certain regions.

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Brief comments

- **Unpredictable**
- What is a correlation that has been found and proved by meteorologists and other researchers concerned between climate change and extreme weather events, such as floods?

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Brief comments

- **Preventable**
- Sometimes it may be far more effective to invest in technologies and measures that improve the protection of public health through traditional means, such as improved sanitation, protecting against mosquitoes, more vaccination programs, and so on. Greater attention to protecting people from heat may be far more effective than reducing the chance of temperature spikes by a small amount. Changing lifestyles and behaviors, i.e. adaptation, may be the key approach.

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Economic Valuation for those physical impacts and Methodological Issues

Discussion

- **The gross production/consumption loss approaches (also called HCM)**
- **WTP and value of statistical life (VOSL or VSL)**
- **Transfer WTP approach**

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Valuing Mortality Risk Reduction in Beijing and Some Results

- In 1999 using Contingent Valuation Method we did a survey to value mortality risk reduction in Beijing. Through processing the results of the survey that asked several hundred people live and work in Beijing city zone or suburb. We estimated value of statistical life in China's city level, which is approximately 0.5 million yuan to 1.7 million yuan (1999 RMB yuan), equal to range from US\$ 60 thousand to US\$ 0.2 million.