

# Study on the Harmonious Mechanism of Disaster Risk Governance System

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# Outlines

- Introduction
- Conceptual models for harmonious mechanisms
- Case study in Shenzhen City
- Conclusion and Discussion

# Introduction

# Introduction

- Disaster risk management has entered a new era of IDRIIM
  - Stakeholders involved
    - Governments
    - Enterprises
    - Communities
    - Central government, administrations, local governments
  - Multi-soft-measures employed
    - Land use planning
    - Insurance
    - Relief
    - ...

# Introduction

- Although more countermeasures and stakeholders are involved, it is still believed that Disaster Risk Governance is the essential part of IDRIIM.
- Governments
  - The core and leader of disaster risk reduction activities
  - Can play the unique role when solving with catastrophes that exceeds capacity

# Introduction

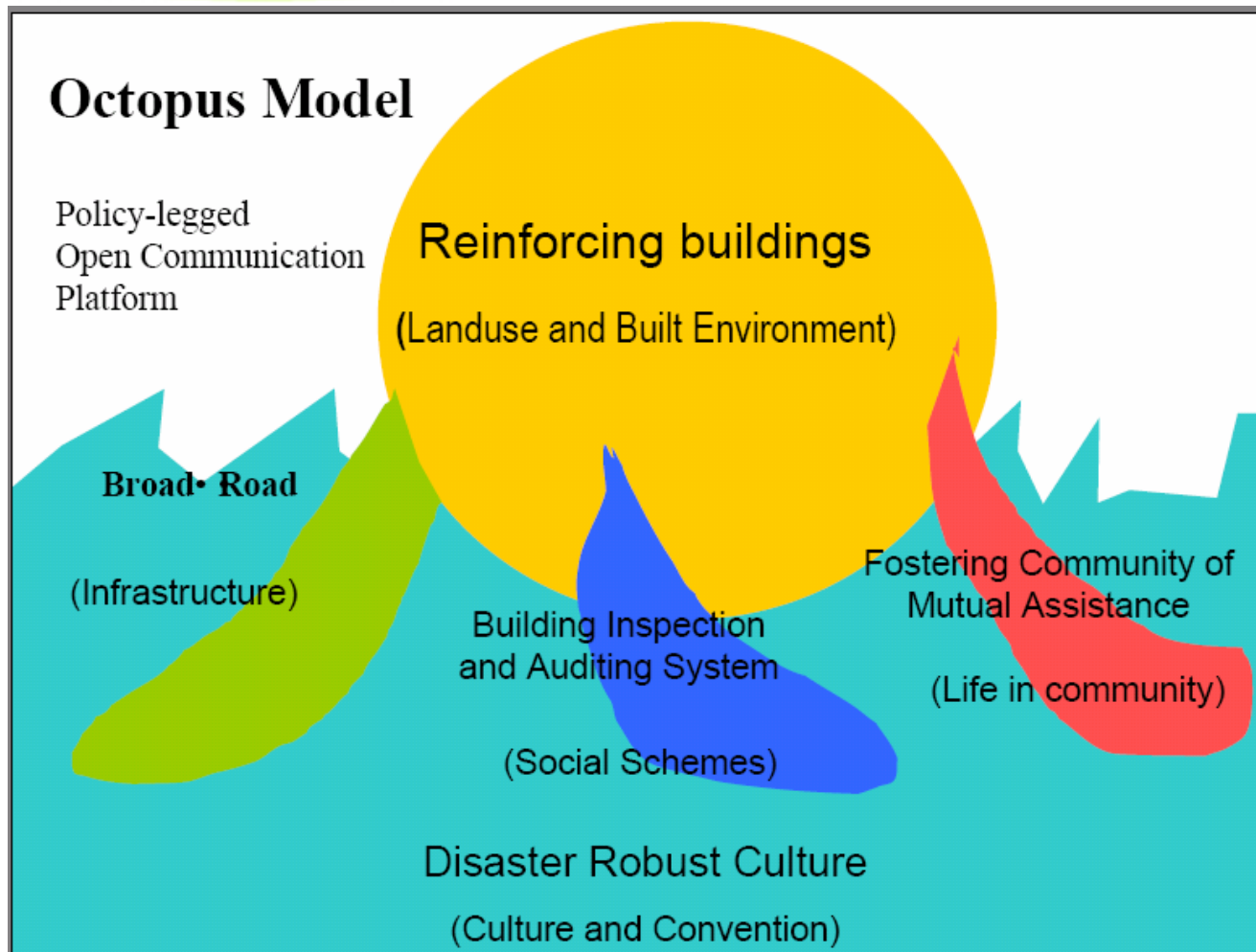
- However, the situation of disaster risk governance is still far from satisfaction, especially in developing countries
  - Lacking scientific management theory and mode
  - Responsibility of administrations in disasters are still not clearly defined
  - Coordination between disaster related administrations is very hard
  - Disaster risk governance system needs more legal support

# Focus of this presentation

- Q: How can we make disaster risk governance system run more smoothly?
- A: some lubricator that reduce friction within the system --harmonious mechanism

# Conceptual models for harmonious mechanism in disaster risk governance system

# Octopus Model

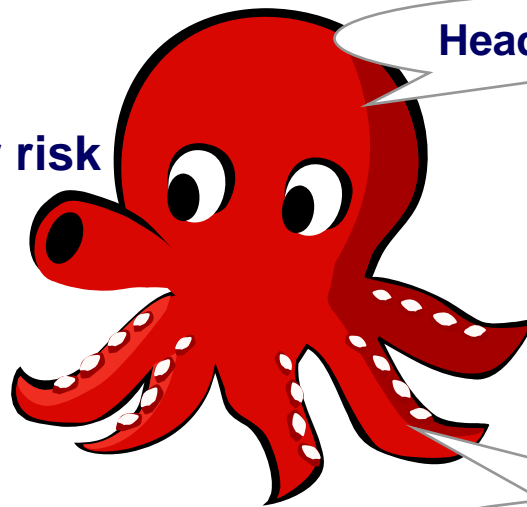


Source: Norio Okada (2003)

# Octopus Model

**Octopus Model**  
Multi-departmental coordination

**Move: reduce disaster risk**



**Head: headquarters**

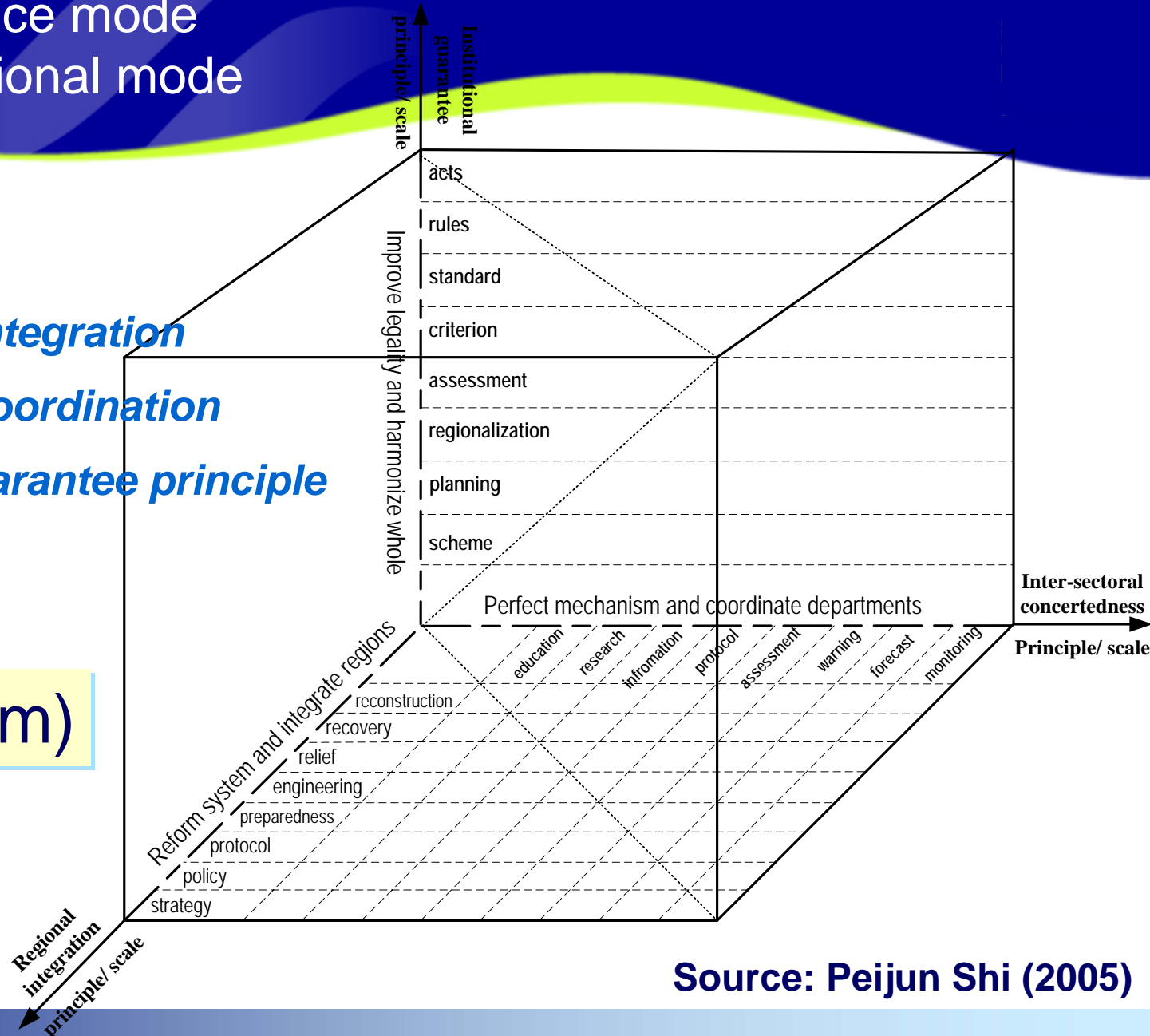
**Leg: administrations**

We need make the legs cooperate perfectly .

# Risk Governance mode --three dimensional mode

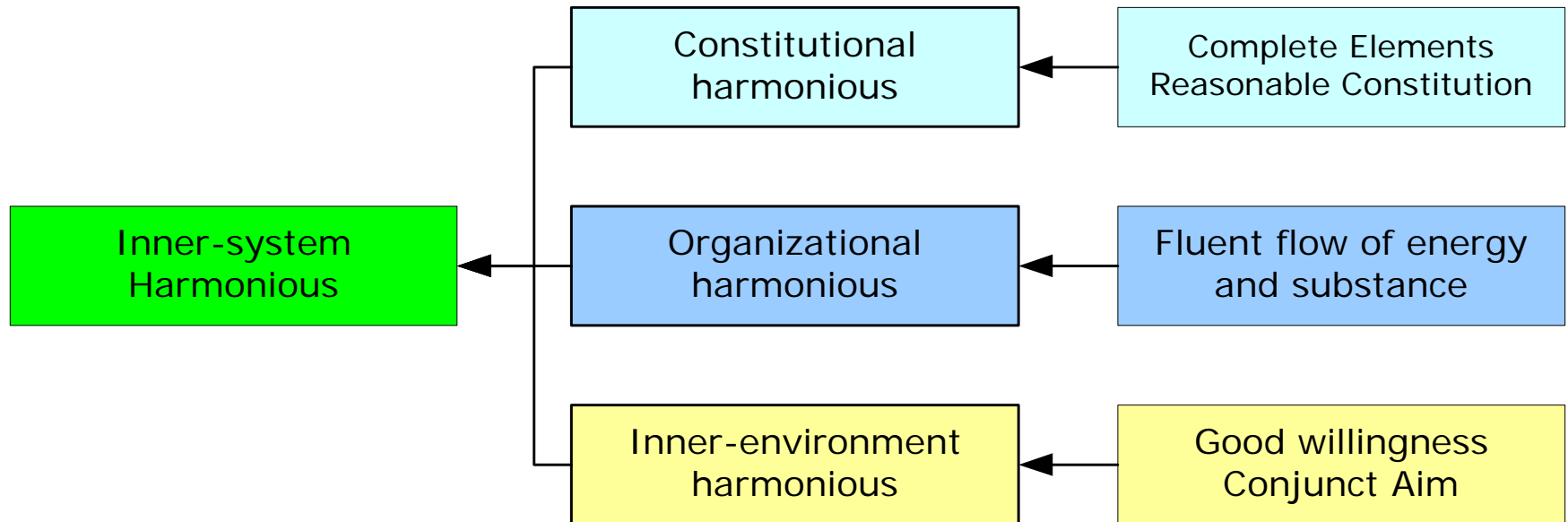
*Inter-regional integration*  
*Inter-sectoral coordination*  
*Institutional guarantee principle*

$$RGM=f(i,r,m)$$



**Source: Peijun Shi (2005)**

# Harmonious Management



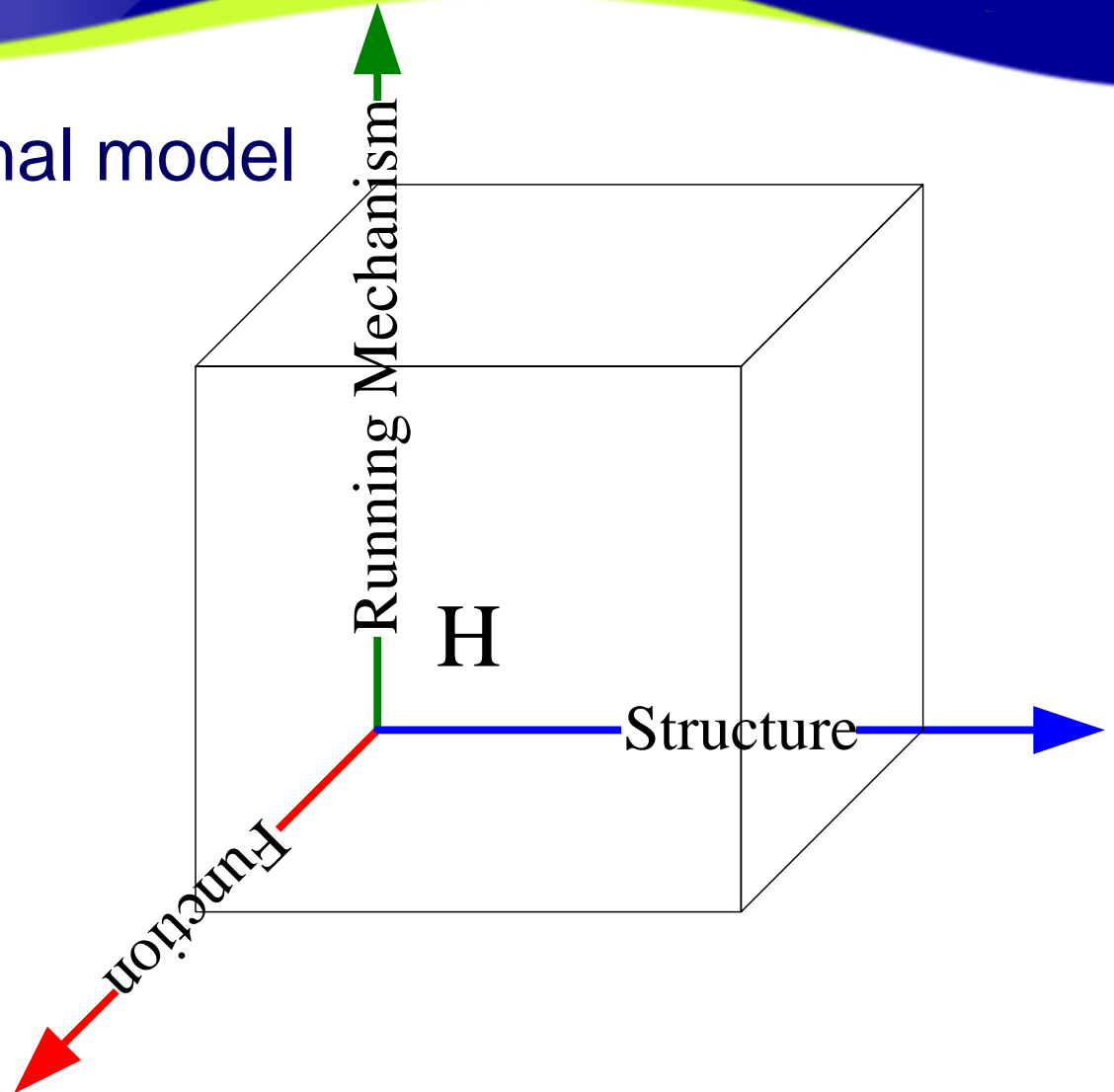
Source: Youmin Xi (2004)

# Harmonious Mechanism

- **Function -- complete**
  - Complete function setup, from disaster monitoring to disaster relief
  - Can handle with complex disaster chains (multi-hazards)
  - Clear definition of responsibility of each components
- **Structure -- reasonable**
  - Good topological structure – less friction between components
  - Powerful headquarters – better coordination by orders
  - -- like a tree?
- **Running Mechanism –efficient**
  - Fast response
  - High speed of information flow
  - Automatic startup

# Harmonious Mechanism

- A three dimensional model



# Case Study

## Disaster risk governance system of Shenzhen City

# Location of Shenzhen City



1979 —

**Population:** 314,100 persons

**GDP:**  $19,638 \times 10^4$  RMB yuan

2000 —

**Population:** 4,329,400 persons

**GDP:**  $16,654,652 \times 10^4$  RMB yuan

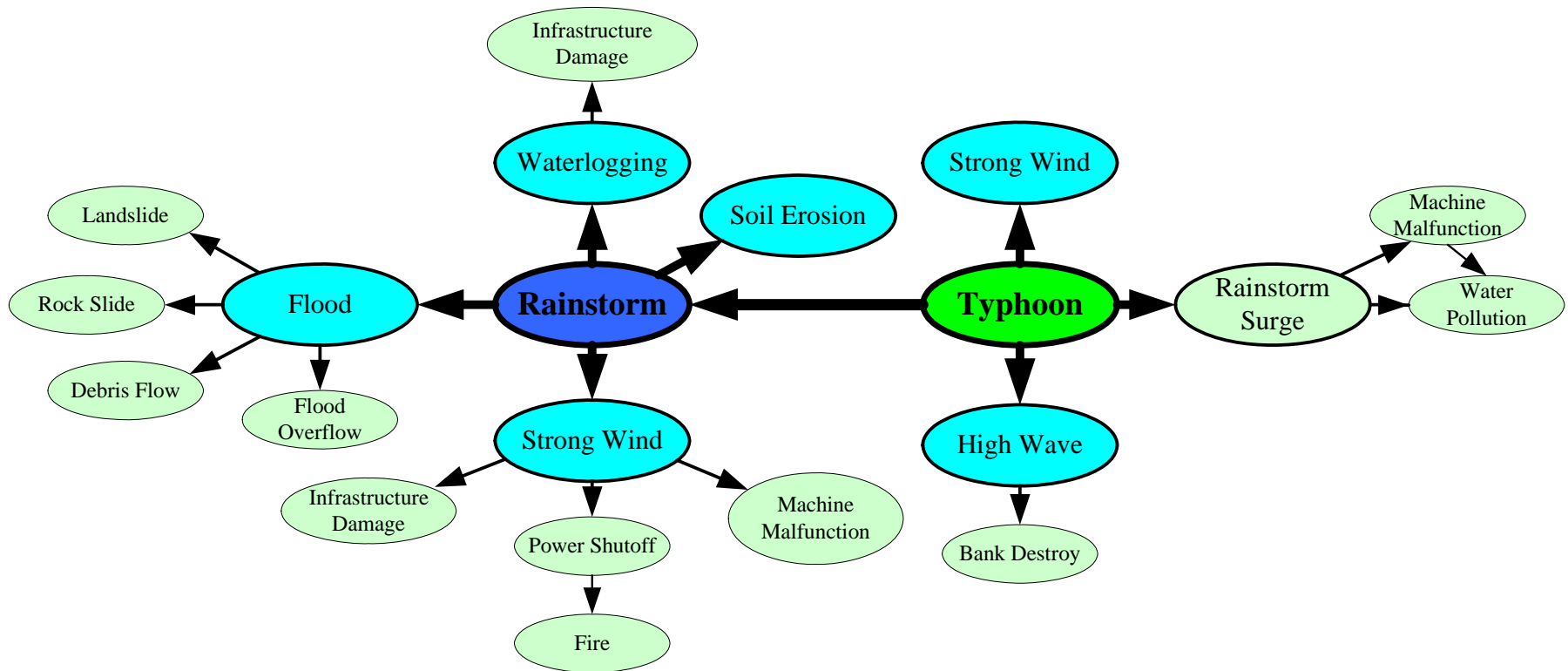
## Background of Shenzhen City

- ✎ A rapid urbanized area from 1980s
- ✎ Fast economic development
- ✎ One of the most developed cities in China



# Hazards in Shenzhen City

- Main primary hazards: flood and wind
- Main secondary hazards: landslide

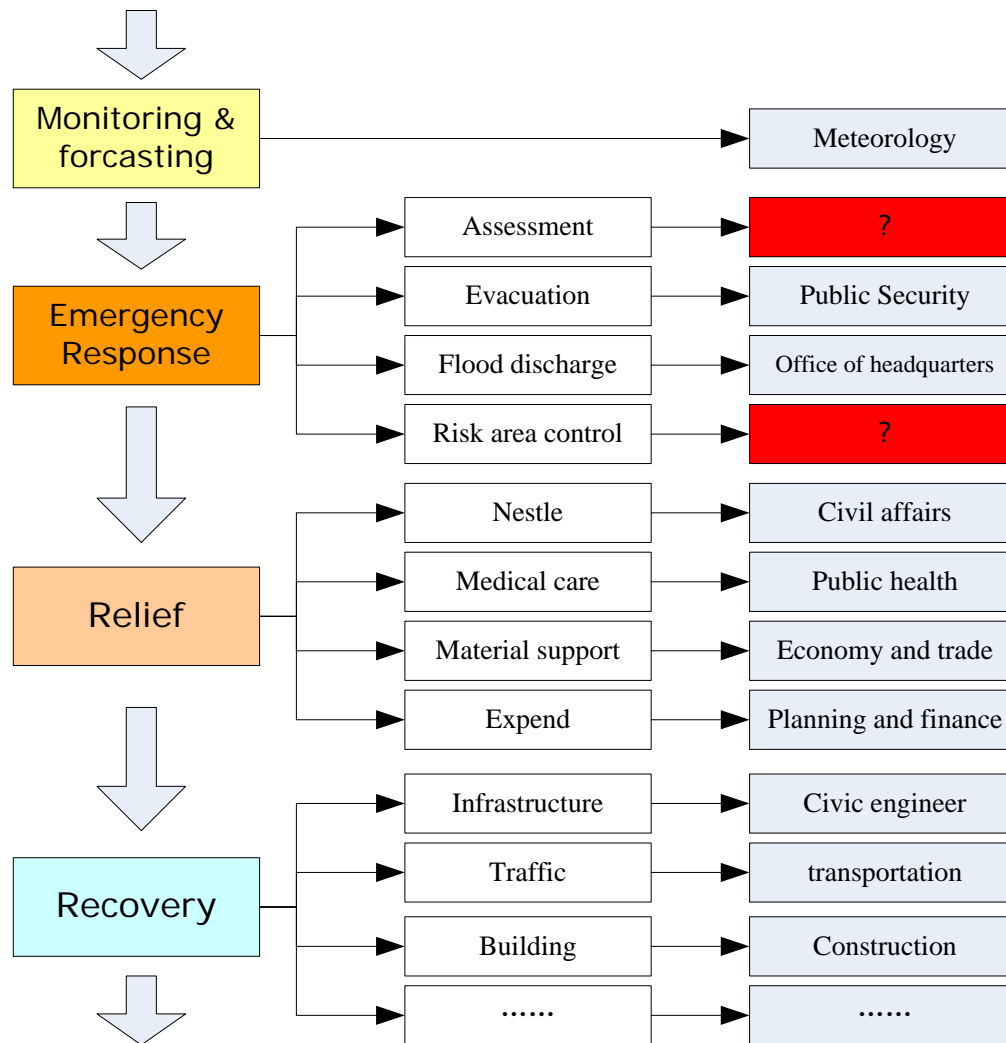


According to: Peijun Shi (2003)

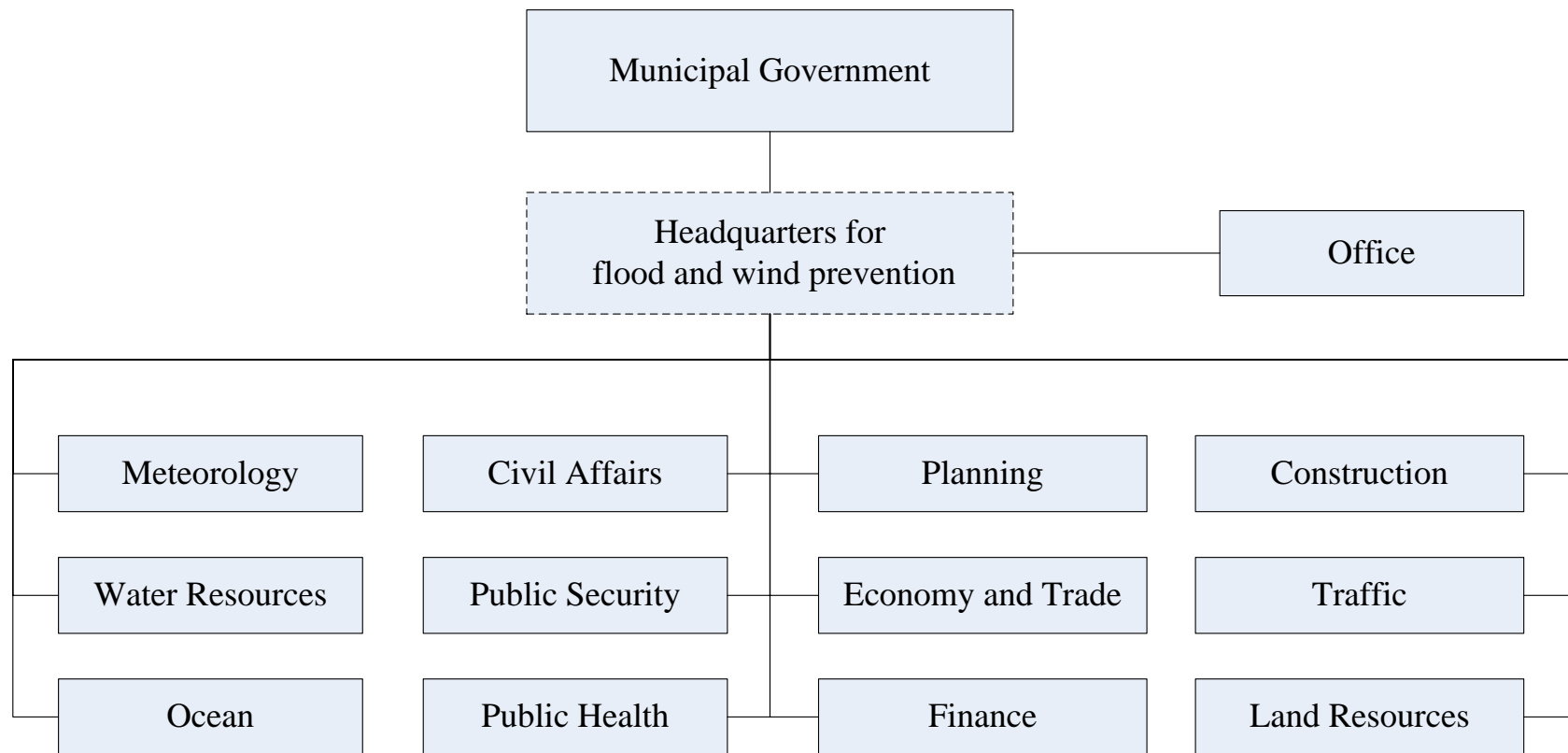


# Function and responsibility of administrations

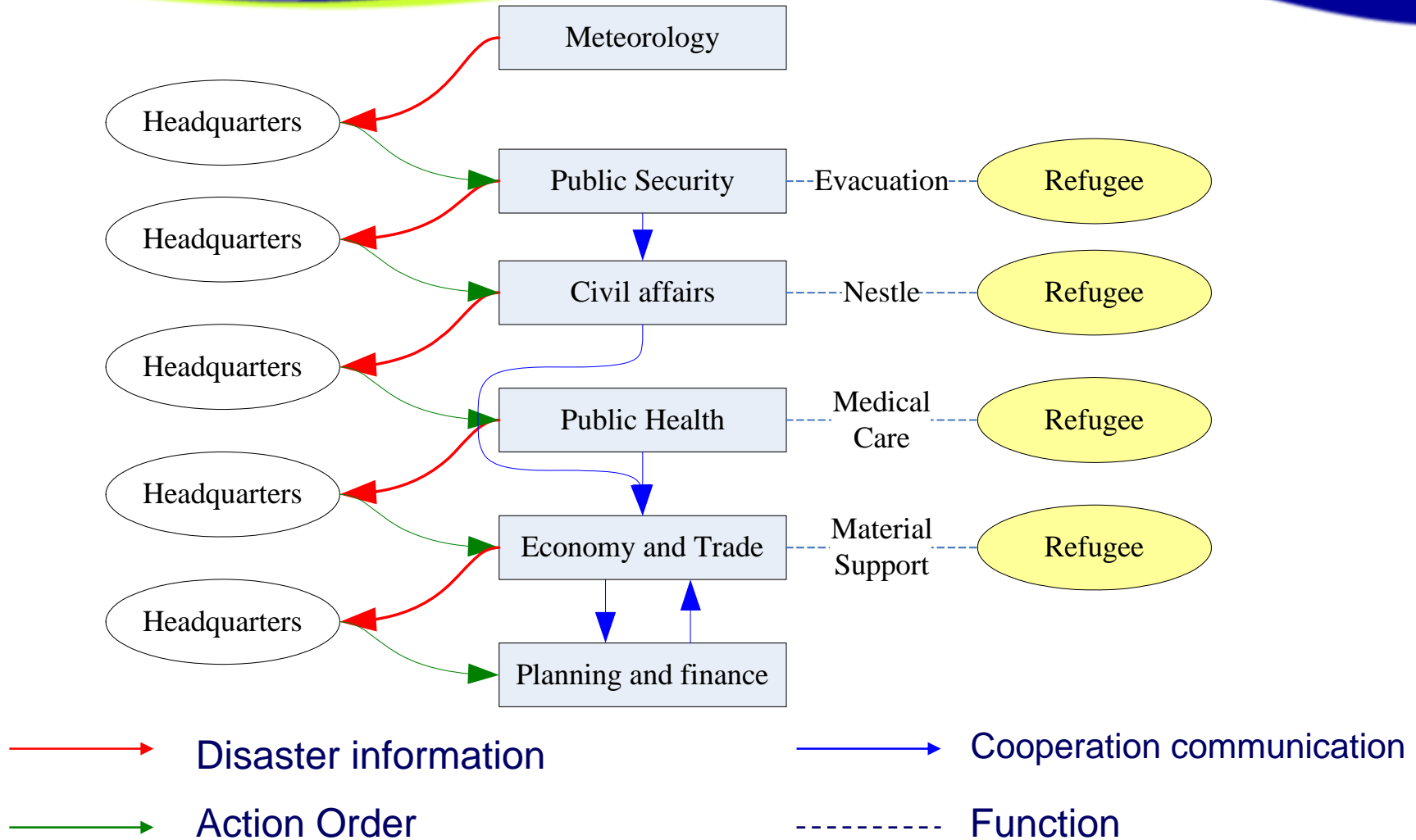
## In-disaster Risk Management



# Structure of disaster risk governance system



# Running mechanism within the system (partial)

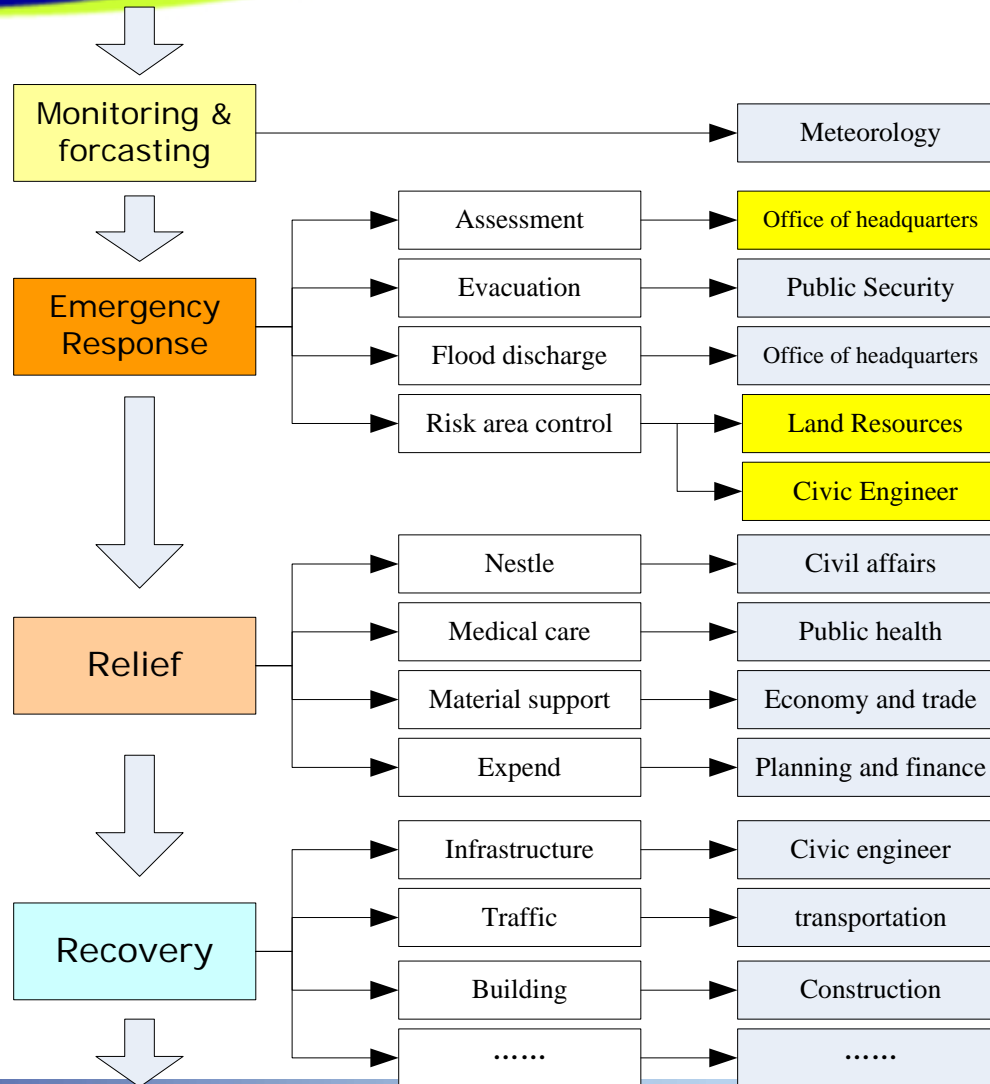


# Problems

- **Function**
  - Some of the functions are not clearly defined: who will take the responsibility?
- **Structure**
  - Has a very strong and centralized headquarters, but it is a temporary institution
  - Member of the headquarters are from different administrations, standing for different interest
- **Running Mechanism**
  - Trade-offs: by order, communication or protocol?

# Suggestions to the function

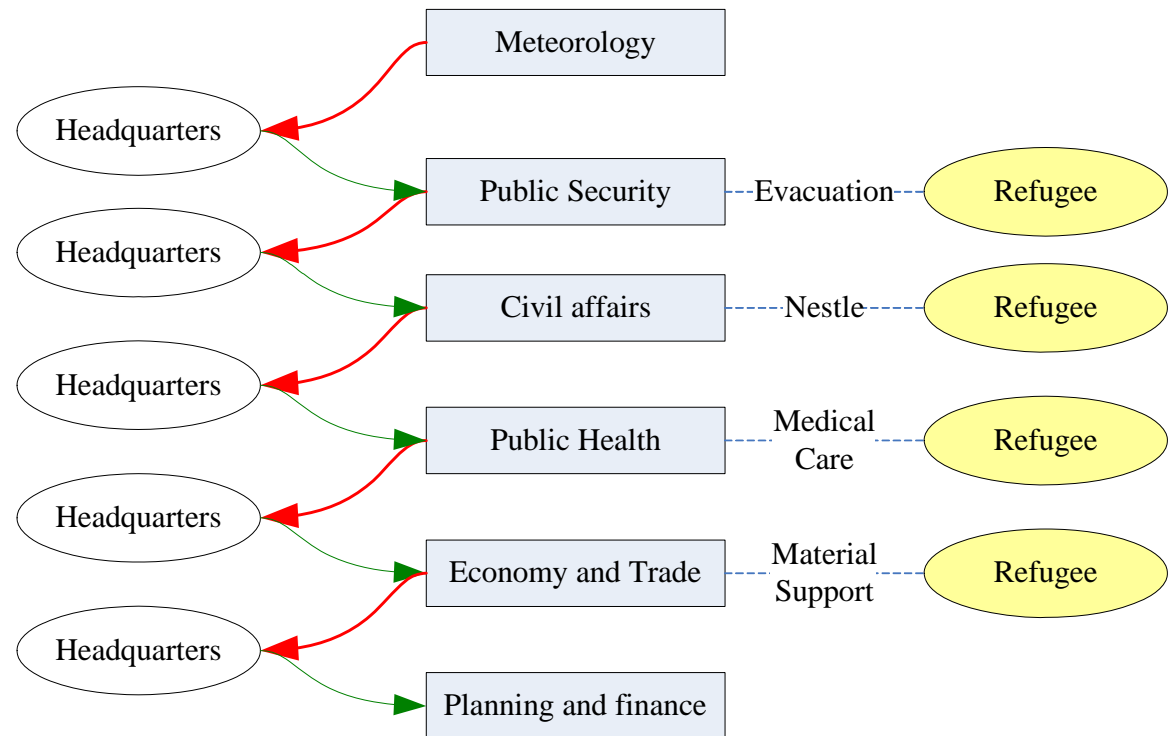
## In-disaster Risk Management



# Optimization choice of running mechanism

Choice A: coordination completely by orders from headquarters

- Advantages:
  - Powerful
- Disadvantages:
  - Less efficient
  - Leader's words



→ Disaster information

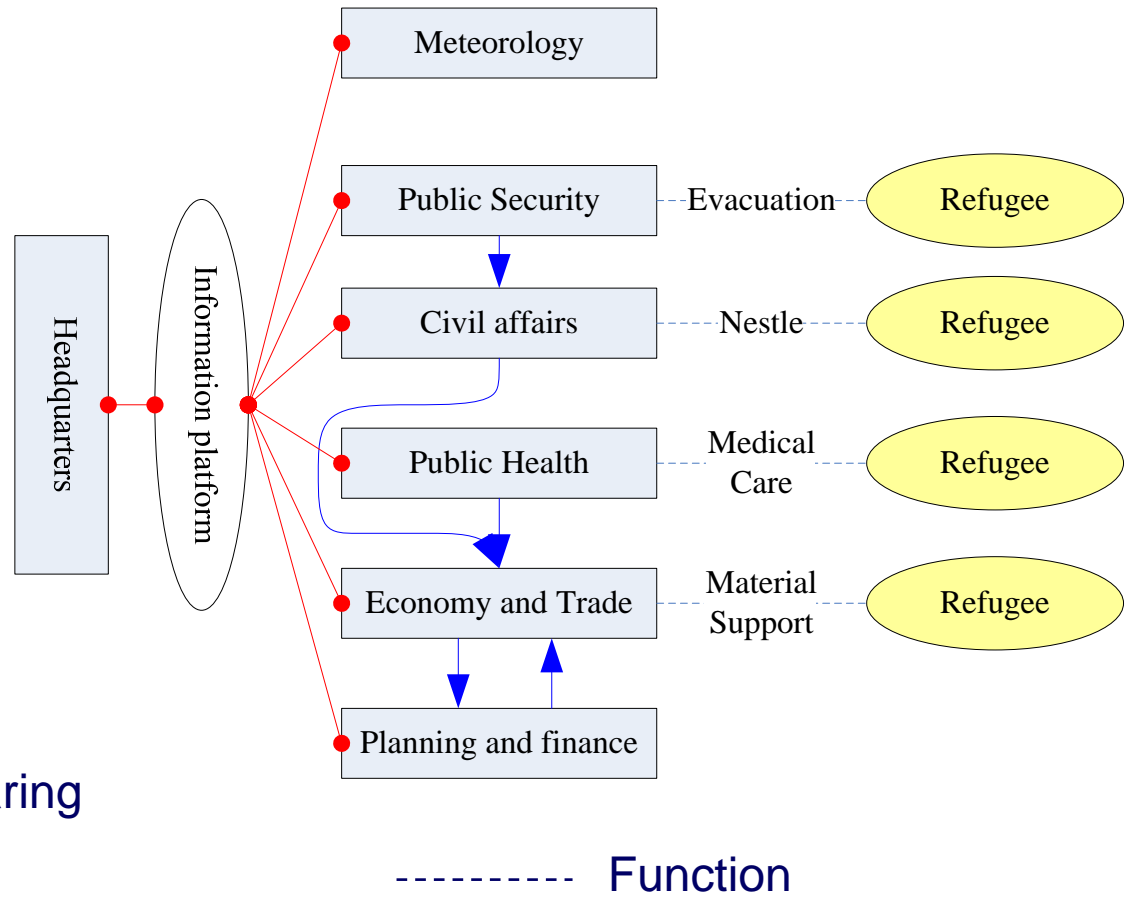
→ Action Order

- - - - - Function

# Optimization choice of running mechanism

## Choice B: coordination based on regulation and protocol

- Advantages:
  - Efficient
  - protocol based
  - Automatic response
- Disadvantages:
  - Possible coordination failure



# Conclusion and Discussion

# Conclusion

- Harmonious mechanism can make disaster risk governance system run smoothly and efficiently
- Harmonious mechanism can be described with three components: function, structure and running mechanism
- Case study in Shenzhen shows that, its needs improvement in definition of responsibility and running efficient.

# Discussion

- Cooperation and coordination automatically started according to protocol could be more efficient than by administrative orders.
- Harmonious mechanism could be quantitatively assessed by evaluating its three components.
- Comparative studies based on assessment would be helpful for optimization.

**Thanks for your attention!**

