

Disaster Reduction Hyperbase--Asia Application: Beijing Workshop  
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International Human Dimensions Programme (IHDP) —  
**Preliminary Progress for Core Scientific Project of  
Integrated Risk Governance (CSP-IRGP)**

Ning Li

Representative of Drafting Group of CSP-IRGP for IHDP  
Beijing Normal University, CHINA  
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- ✓ **Contents of IRGP-IHDP (Preliminary)**
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# Background on IRGP-IHDP

## 1.1 New Challenge from Global Environmental Change Risk

- ✓ ESSP-IHDP IGBP WCRP DIVERSITAS
- ✓ The sixth Open Science Conference held at Bonn, 2005, Focus on global security, global environmental change and globalization.
- ✓ In 2005, CNC-IHDP established CNC-IHDP-RG (Risk Group), then developed the CNC-IHDP-RG Core Science-IRG.

## 1.2 Proposal of IRGP-IHDP

Time	Situation	Leaders	content
Nov. 5 to 7, 2006	IHDP China regional Workshop Beijing, China	Prof. Quansheng Ge, China, secretariat of CNC-IHDP	submitted officially to Prof. Oran R Young Chairman of IHDP Science Committee the proposal for establishing IHDP-IRG Core Science Project
Nov. 5 to 7, 2006	At IHDP China Regional Workshop, Beijing, China	Prof. Peijun Shi, team leader of CNC-IHDP-RG	introduced about the assumption for Establishment of the Core Science Project
Oct. 9-12, 2006	ESSP Open Science Conference, Beijing	Prof. Peijun Shi team leader of CNC-IHDP-RG	held further discussion with <a href="#">Oran R. Young</a> . He required to submit a proposal for establishment of the Core Science Project at the conference of IHDP Science Committee to be held in Brazil from Mar. 15 to 18, 2007.
Nov. 2006 to Jan.2007	ESSP Beijing Meeting, China	Prof. Roger Kasperson, USA	integrated governance of environmental risks

## 1.2 Proposal of IRGP-IHDP

Time	Situation	Leaders	Focus on
Feb. 13 to 14, 2007	International Seminar on Risk & Sustainable Development Education, Osaka (Japan)	Prof. Shoji Tsuchida, Japan; Prof David M. Hassenzahl & Prof. Rosalyn Mckeown, USA; Prof. John Watt, British; Prof. Dongchun Shin, South Korean	global environmental change and IRG is beneficial to promote the realization of UN Millennium Development Goals
Feb.15-Mar.15,2007	CNC-IHDP-RG	Prof. Yanhua Liu and Peijun Shi et al.	Preparing the Proposal for Establishment of IHDP-IRGP
Mar. 15-18,2007	Science Committee Meeting, Brazil	Prof. Qian Ye Representation	Presenting the Proposal for Establishment of IHDP-IRGP
Aug. 23-25,2007	IDRC, Harbin, China	Prof. Peijun Shi and N. Okada Representation	Session Review on Establishment of IHDP-IRGP
Sep. 19-21,2007	7th IIASA_DPRI Forum for Integrated Risk Management, Stresa, Italy	Prof. Peijun Shi and N. Okada Representation	Session Review on Establishment of IHDP-IRGP
Sep. 23-24,2007	1st International Scientific Planning Committee Meeting of IHDP	Prof. Peijun Shi Representation	Submit the IHDP-IRGP (Draft)
Feb. 10-12, 2008	Chair's workshop	Prof. Shi and Prof. C. Jaeger	Discussion of IHDP-IRGP (Draft)

# Contents of IRGP-IHDP (Preliminary)

## 2.1 Undergoing IHDP Projects

Traditionally, IHDP research focus on causes, impacts, as well as responses to GEC.

**GECHS:** Global Environmental Change and Human Security

**IDGEC:** Institutional Dimensions of Global Environmental Change

**IT:** Industrial Transformation

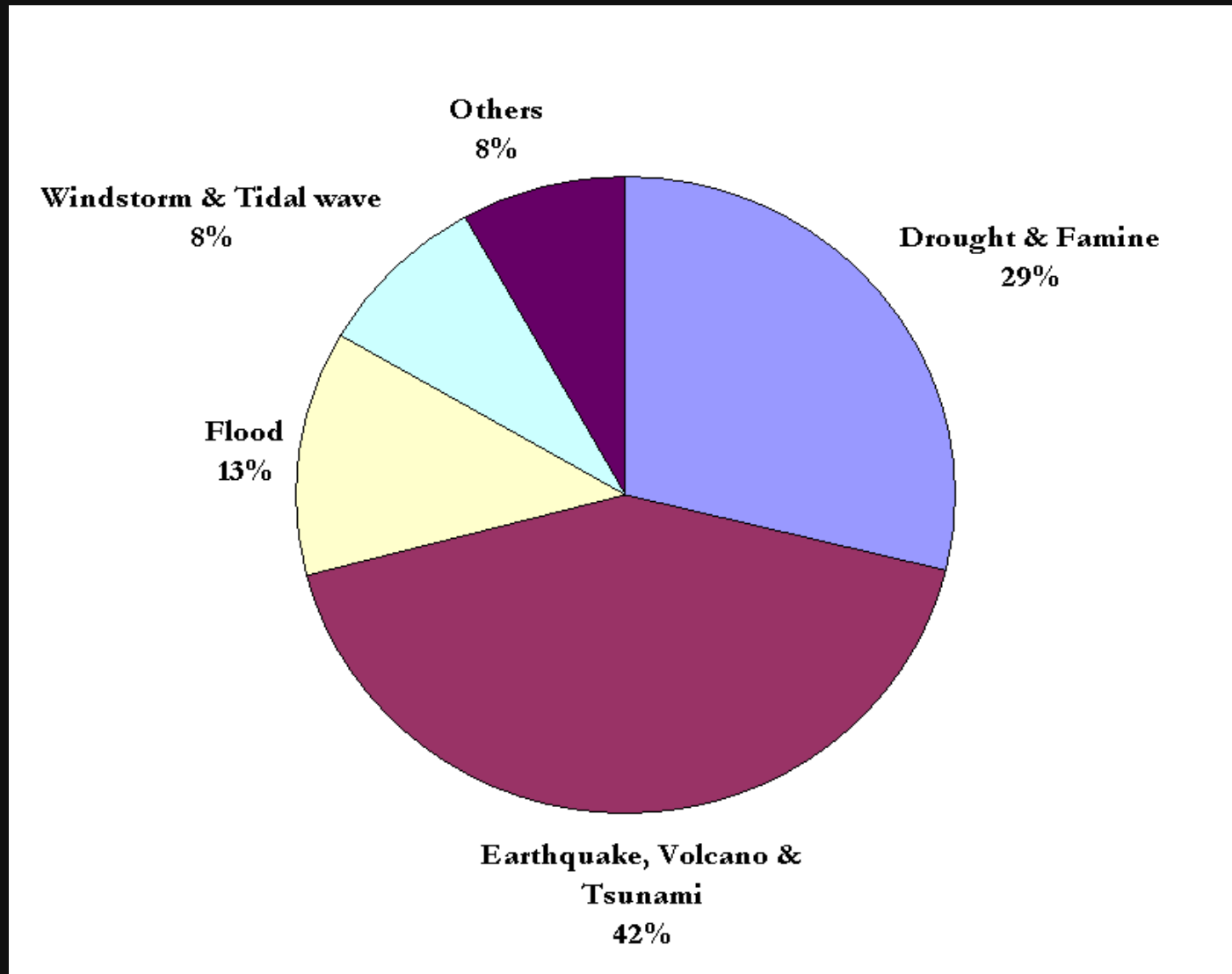
**LUCC:** Land Use and Cover Change (Co-sponsored with IGBP)

**LOICZ:** Land-Ocean Interaction in the Coastal Zone (Co-sponsored with IGBP)

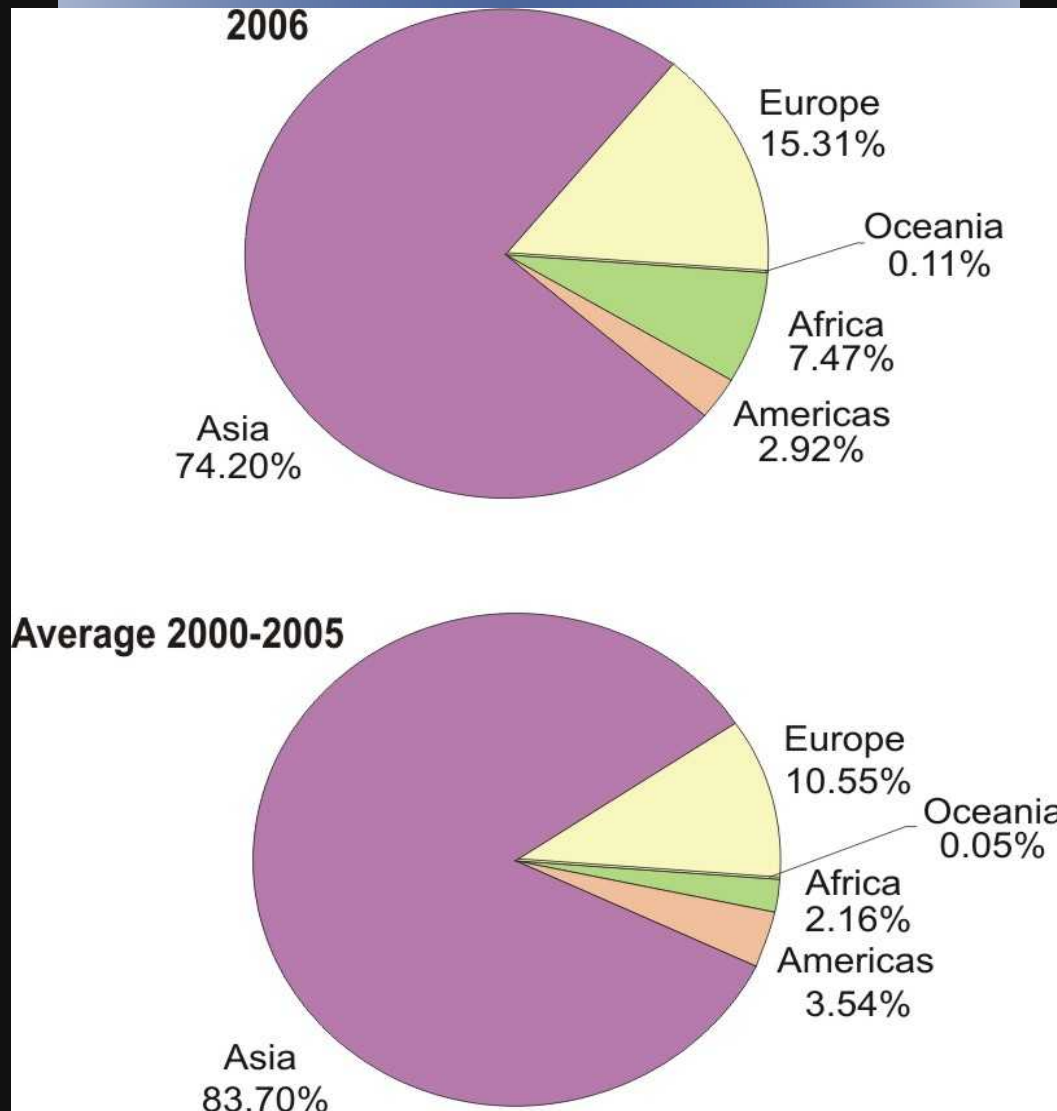
**UGEC:** Urbanization and Global Environmental Change

**GLP:** Global Land Project (Co-sponsored with IGBP)

# Geophysical incidents claim greatest nos. of lives



# Percent distribution of mortality due to disasters by continent



## **2.2 Main Contents of IHDP-IRGP**

### **Significance of IHDP—IRGP**

Increasing Global Risks due to Global Environmental Change

Diffusing Risks due to Globalization

IRGP's Contribution for the Global Sustainable Development

# IRGP's Contribution for the Global Sustainable Development

Yokohama Declaration(1994) and Hyogo Declaration(2005)

raise the capacity of responding to different disaster risks

International Strategy for Disaster Reduction (UN-ISDR)

establish the social system living with risks and global disaster risk reduction platform

The Sixth IHDP Open Science Conference (Bonn, 2005 ) and The International Disaster Reduction Conference (Davos, 2006;Harbin,2007)

sustainable development and disaster risks reduction

IIASA-DPRI Forum (2001-2007)

implementation science and integrated disaster risk management

# Progress and Development Trend of IRG Research

Establish the **system** and **mechanism** for global and regional harmonious development with integrated disaster risk management

Establish the **integrated supporting system** among disaster risk science, technology and management

Establish the global and regional **integrated risk governance system** (Paradigm)

## Scheme of the IRGP

Challenge of IRG

Focuses of IRGP

Key Issues (Causes, impacts, response, inter-linkages) for IRGP

# Basic Definition of IRG

## Integrated Risk Governance ( IRG )

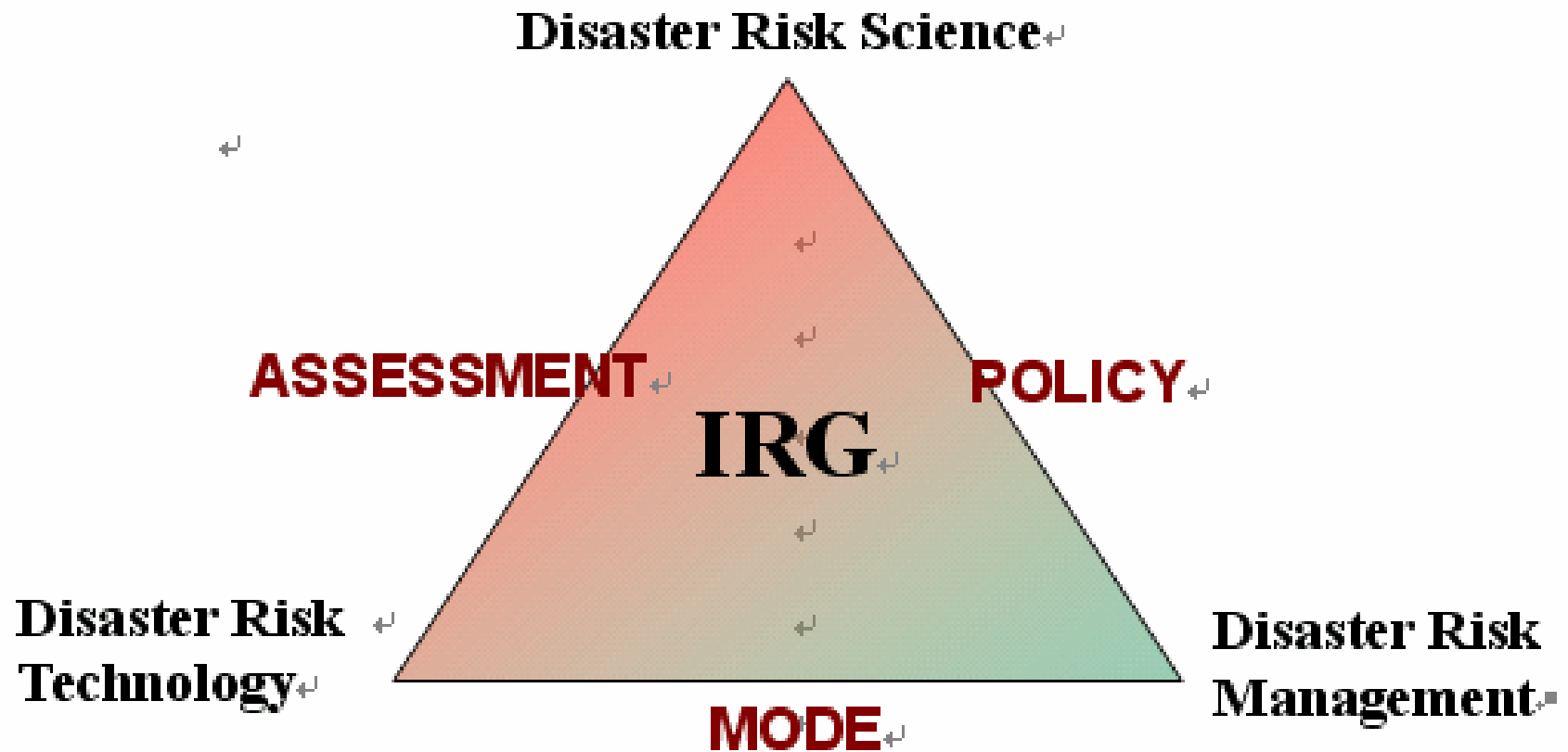
- ✓ is an inter-disciplinary science with the aim to deepen the **cause** understanding of risk formation mechanism and diffusion behavior
- ✓ is an inter-disciplinary science with the aim to deepen the **impacts** of the multi-disaster risk on global and regional sustainable development
- ✓ **improve** global and regional integrated disaster risk assessment model, **understand** the dynamic and non-dynamic mechanism for formation and change of global and regional disaster risks under the motivation of global environmental change and globalization
- ✓ **Improve** global and regional society **response** strategy and policy to catastrophe risk, **provide** operational assessment tools

# CHALLENGES

1. **Tracing the trends in human impact**
2. **Building up evidence base of scientific associations between event and impact**
3. **Finding financially realistic solutions within competing priorities**
4. **Getting rid of myths**

**From Debarati Guha-Sapir  
University of Louvain, Brussels**

# Major Focus of IRGP



# Focus

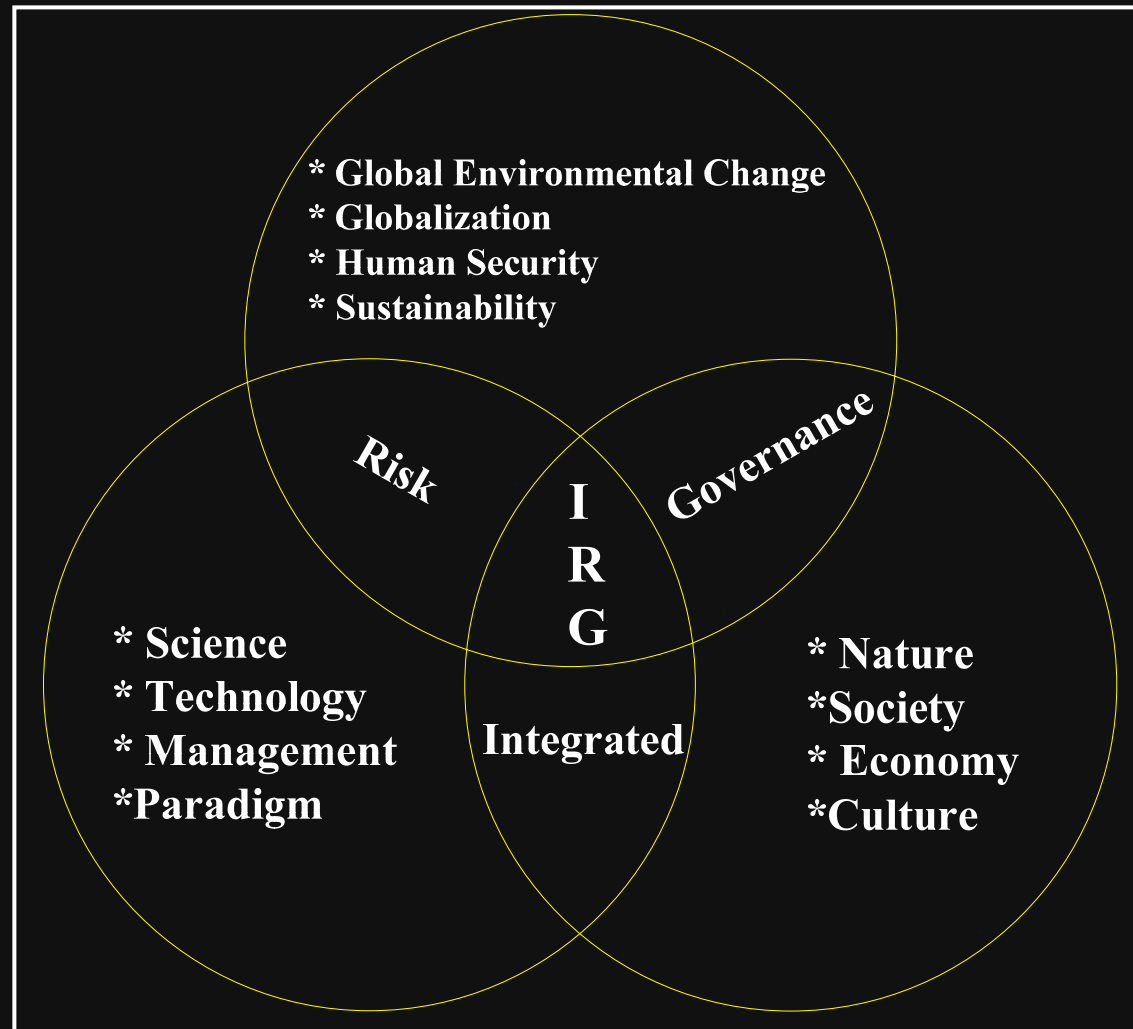
1. In view of the multi-discipline integration analysis, deepen the **cause** understanding of risk formation and change of disaster risk under the background of global environmental change.

2. According to the completeness of samples ( large samples, small samples and incomplete samples ), select and develop a new generation **impact** assessment model for integrated disaster risk and establish the regional and global disaster risk simulation system under the different environmental change scenarios.

3. In view of research to practice, integrate the regional disaster risk management and sustainable development. Improve global and regional society **response** strategy and policy to catastrophe risk, provide operational assessment tools.

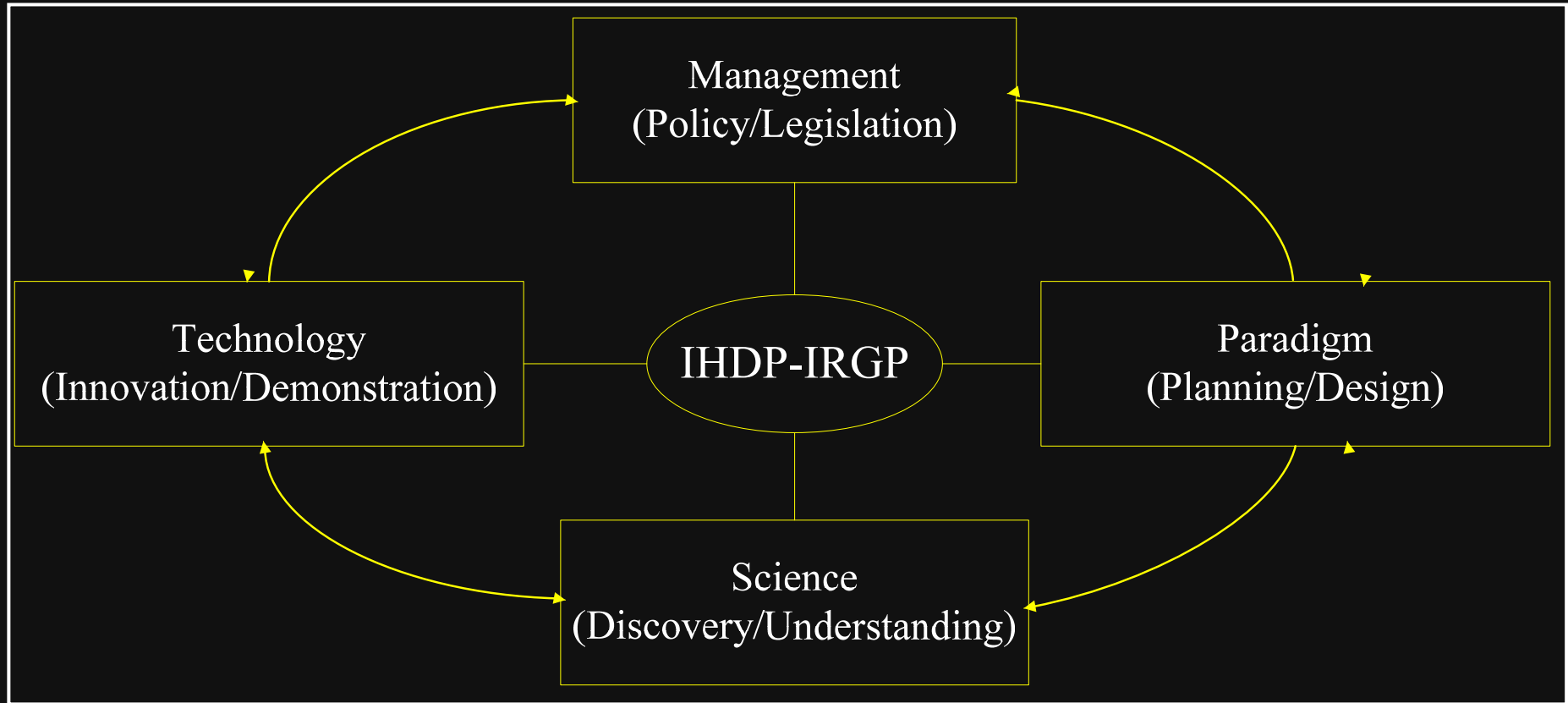
4. In view of the inter-disciplinary (natural sciences, social sciences and human sciences, technology and engineering, management), go deep in exploring approaches for **transfer of catastrophe risks**.

# Key Issues (Causes, impacts, response, inter-linkages) for IRGP



Framework of IRGP-IHDP

# Key Issues (Causes, impacts, response, inter-linkages) for IRGP



Core Research Issues of IHDP-IRGP ( STMP Model )

# Critical Issues for IRGP

IHDP-IRGP May should focus on critical Issues as follows,

Improve the theory and methodology for measuring integrated disaster risk

Build up the system, mechanism and legal system of integrated disaster risk response

Reveal the cause of formation mechanism (dynamics) of integrated disaster risks

resolve the scientific and technological problems for their modelling and simulation.

Develop, promote and apply IRG modes for the response assessment at high-risk regions

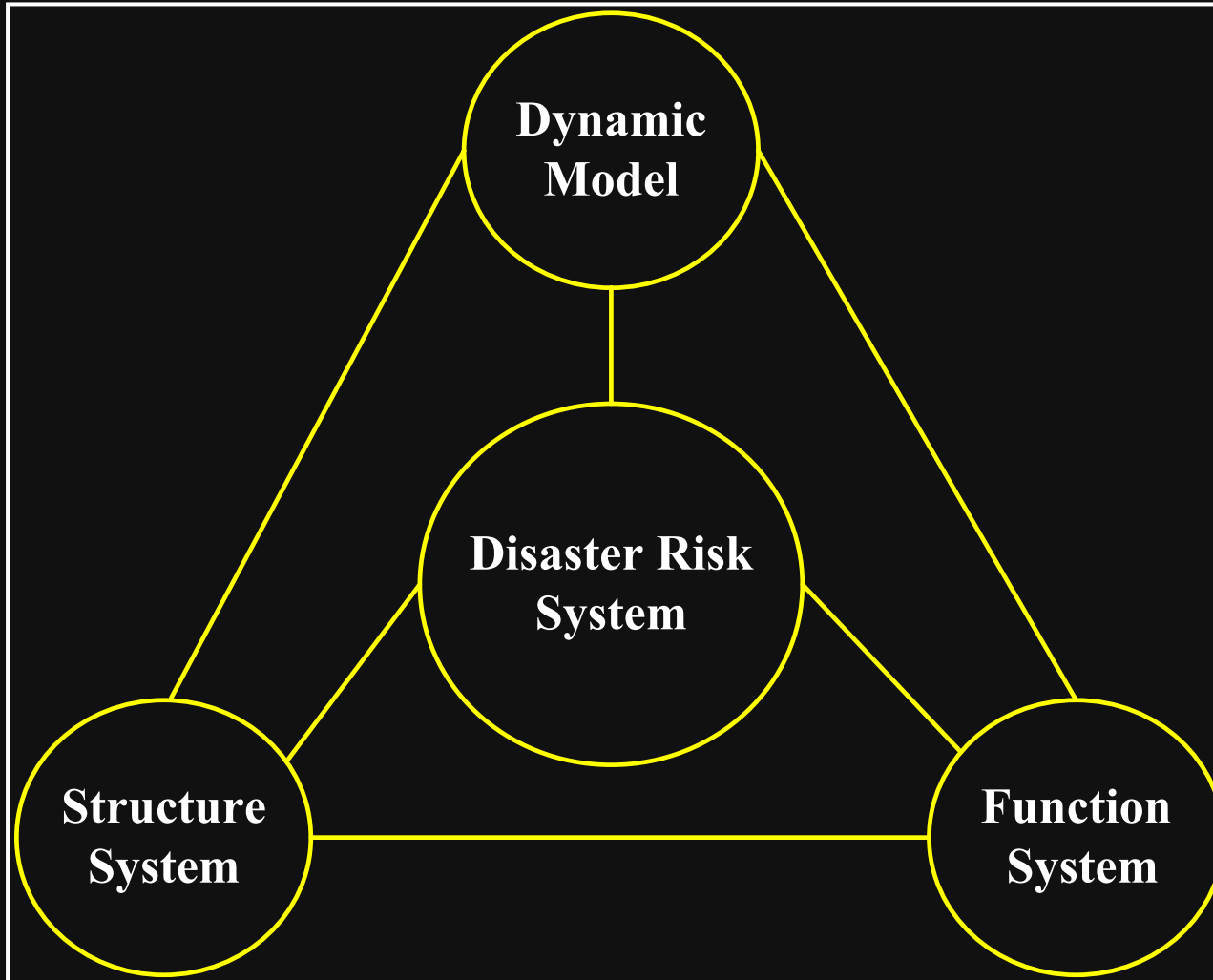
Construct an integrated risk information-sharing platform on global, regional, national and local scales

build an effective information and technical supporting system for integrated risk governance

Develop IRG inter-linkage mode with projects drove by different risk problems, or by governance options

Promote and build a mode for sustainable development and integrated risk governance on a global scale

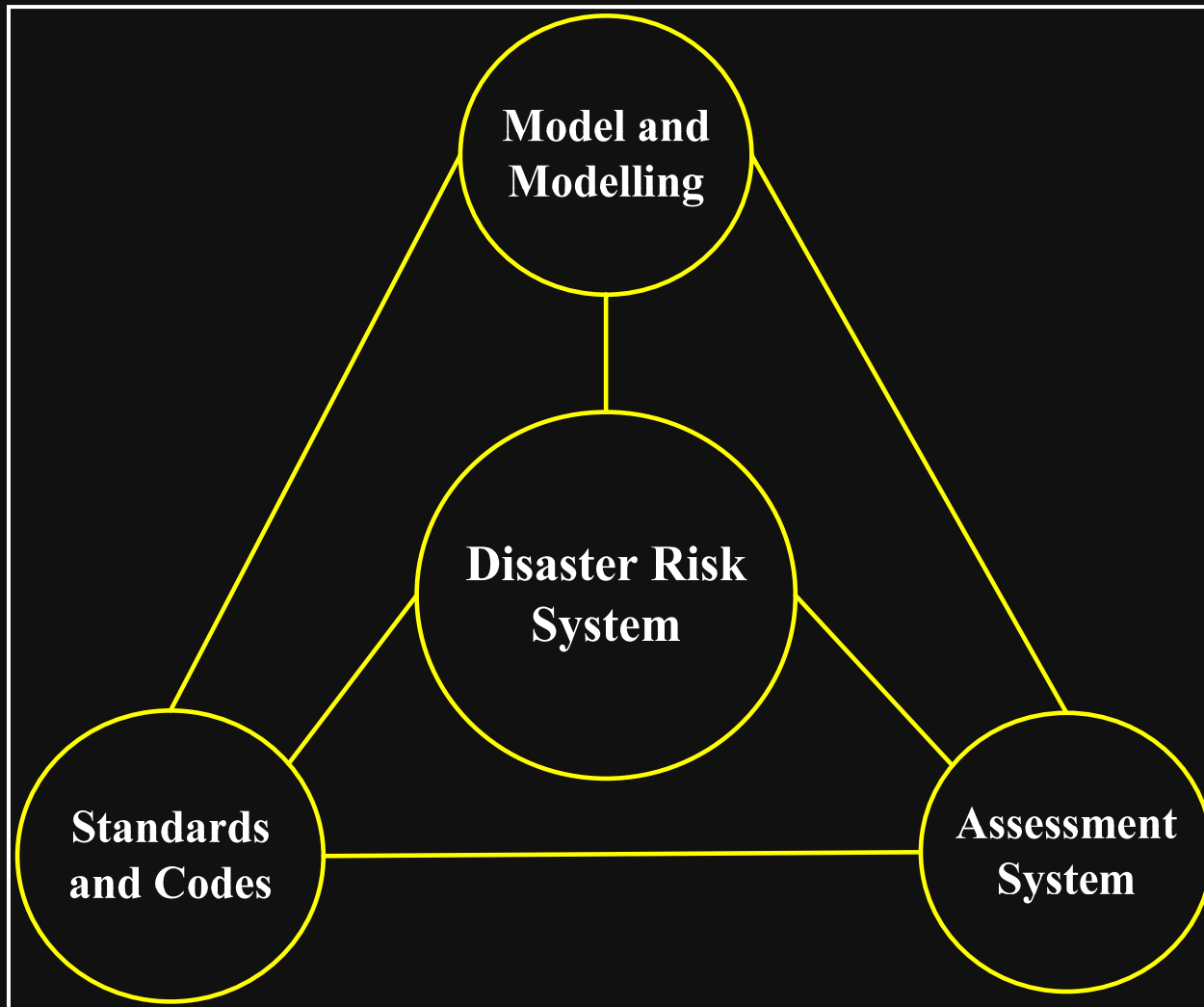
# Scientific Issues of IRGP



## Science

- Complexity
- Uncertainty
- Vulnerability
- Vitality
- Contingency

# Scientific Issues of IRGP



## Technology

Feasibility

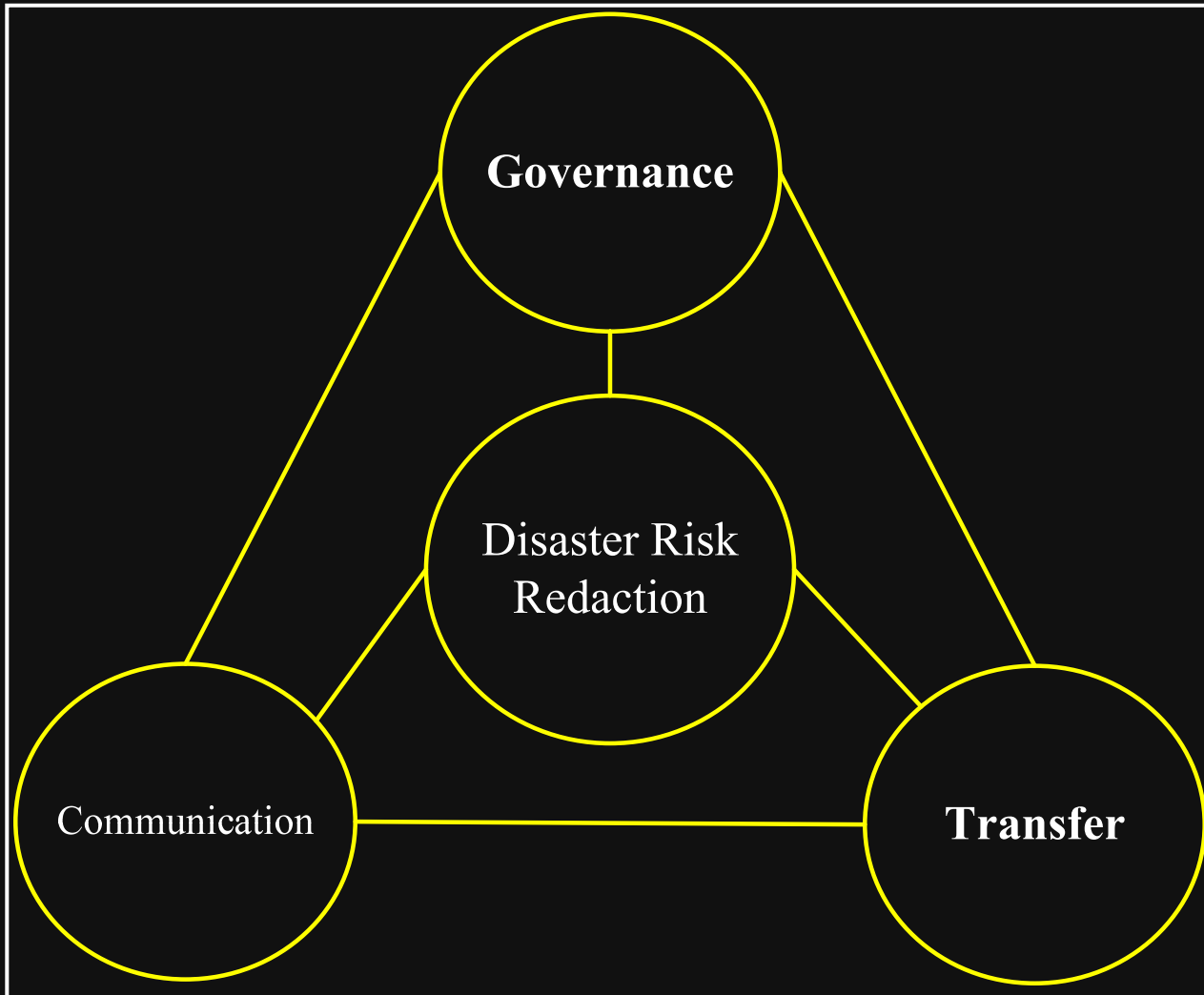
Viability

Urban Diagnosis

Sustainability

Case Study Station

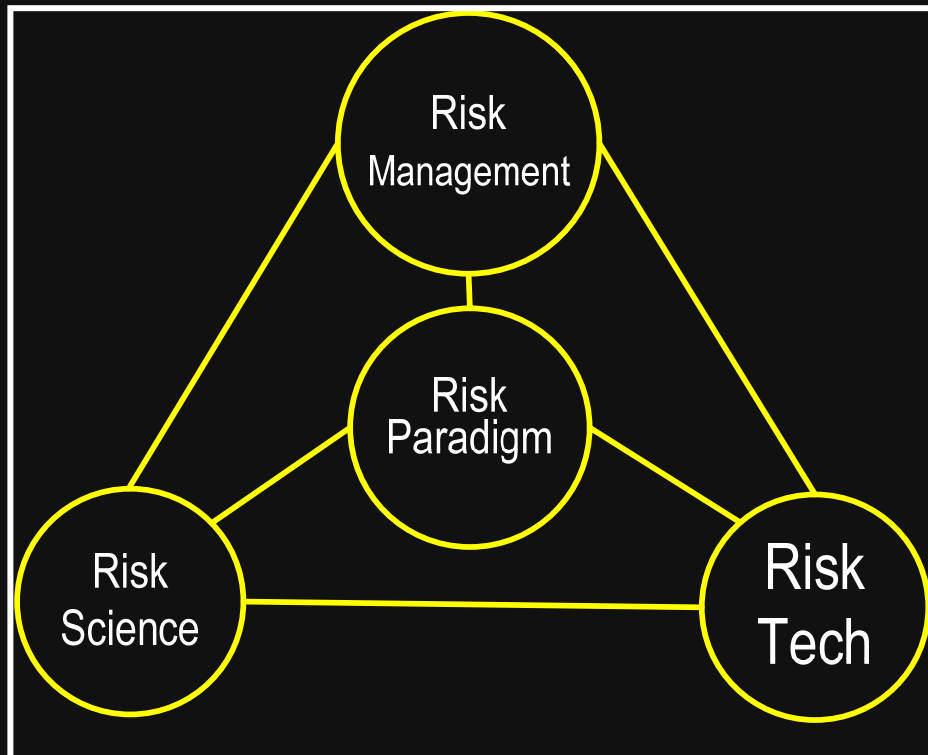
# Scientific Issues of IRGP



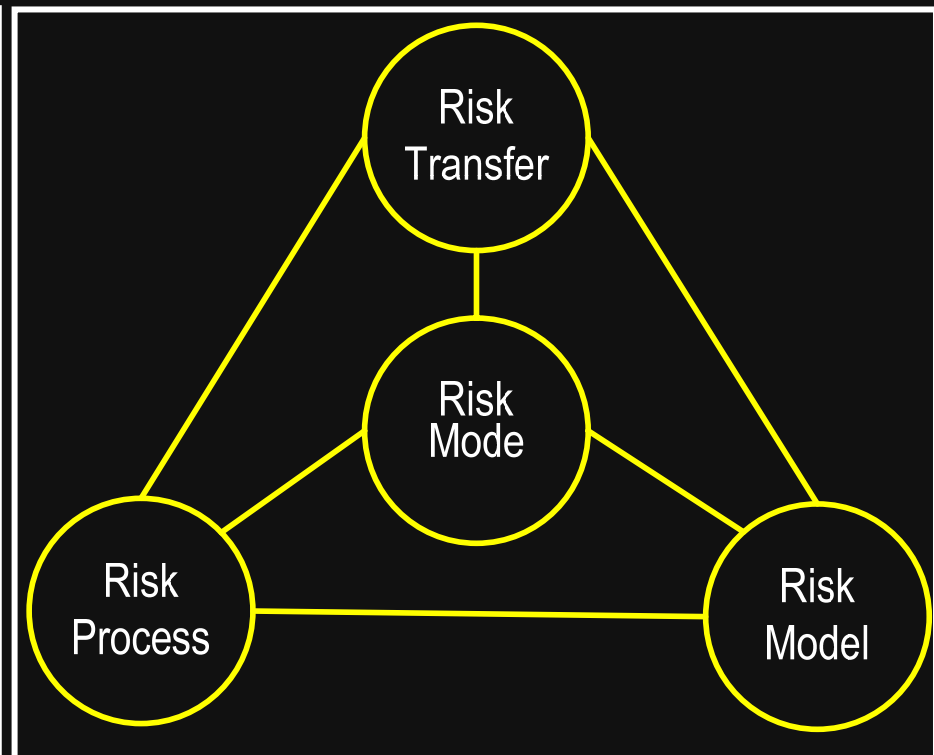
## Management

- Governance
- Open System
- Mutual Acceptance
- Cultural Calibration

## Core Scientific Issues of IRGP



## Extensive Research Subjects of IRGP



## Section3 **Understanding on IRGP-IHDP**

## 3.1 Schools of Integrated Disaster Risk Reduction Science

### **Disaster Reduction Implementation Science**

(N. Okada et al. ,KU, Japan/Pagoda-Octopus-Vital System-Cycle System- CASiFiCA )

### **Integrated Risk Governance Science**

(O. Remm et al. ,IRGC, Swizland/Risk Science-Risk Policy-Risk Communication)

### **Disaster Risk Reduction Science**

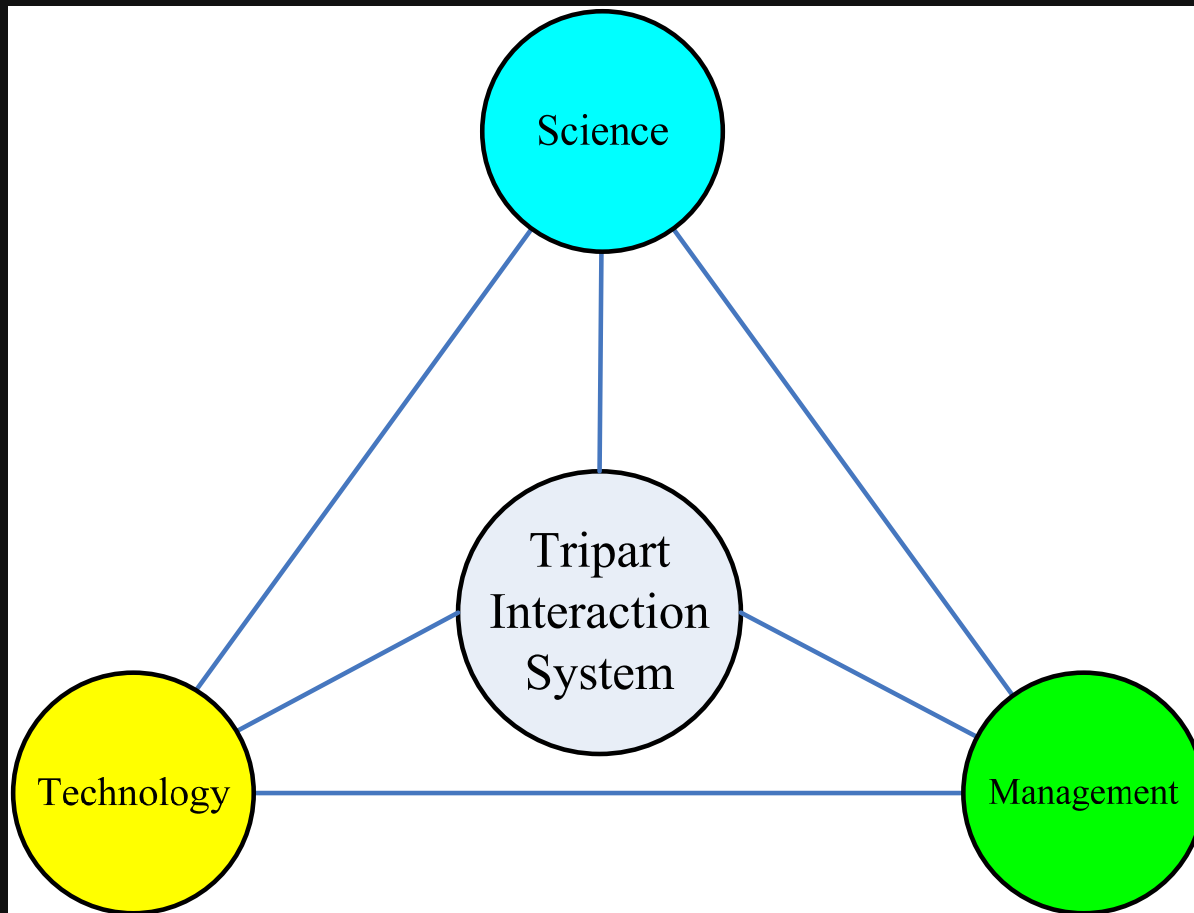
(S. Brinceno et al. ,ISDR, UN./To build the resilience society living with risks)

### **Disaster Reduction and Sustainability Science**

(R. Kasperson and R. Kates et al. ,IHDP/ESSP/Vulnerability-Resilience-Adaptation)

### **Disaster System Science**

(P. Shi et al, BNU, China/Structure-Function-Process-Dynamics-IDRG)



Macro-Mode of Disaster Reduction  
Implementation Science  
(From C. Gopalakrishnan)

## Science

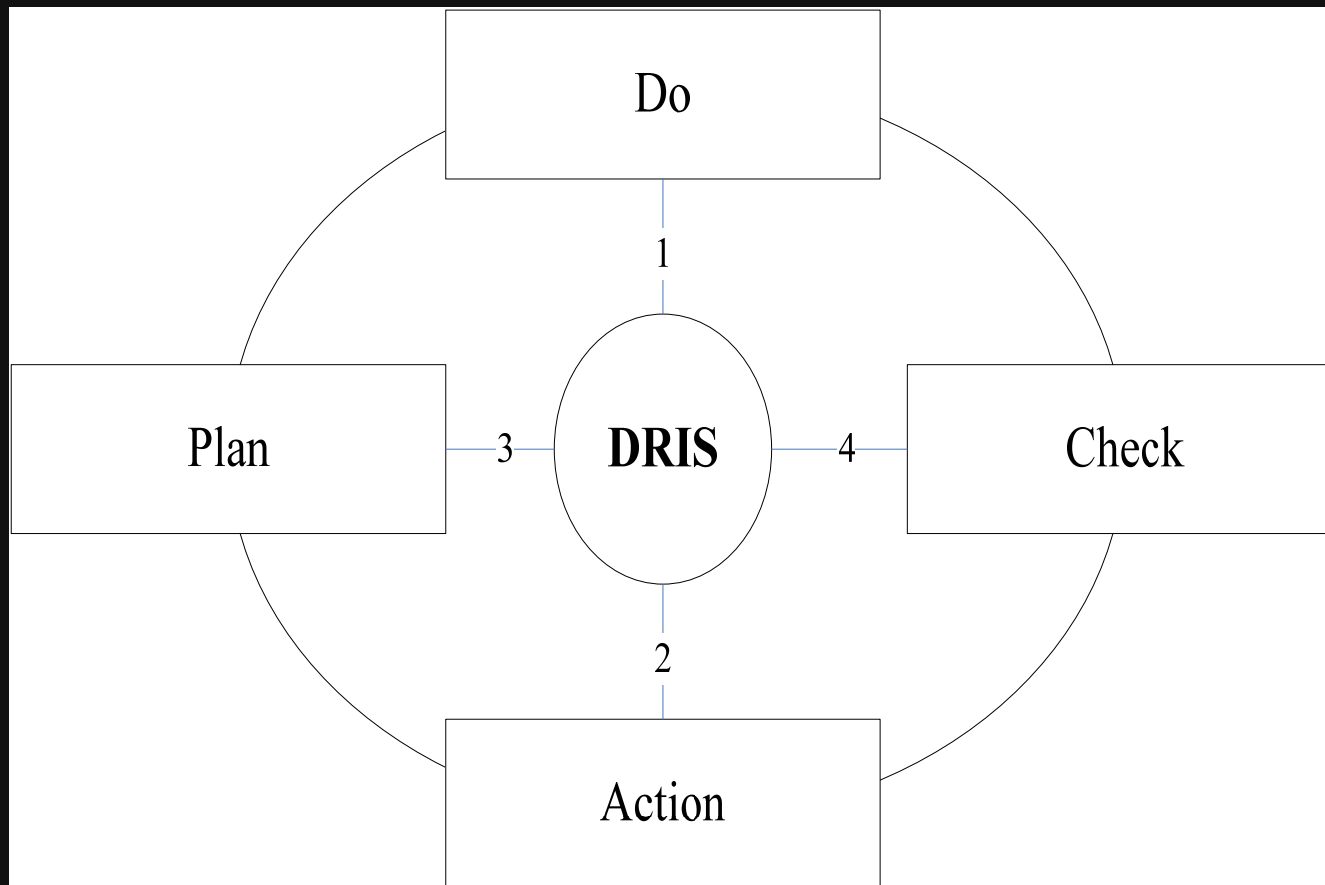
Complexity  
Uncertainty  
Vulnerability  
Vitality  
Contingency

## Technology

Feasibility and Viability  
Urban Diagnosis  
Sustainability  
Case Study Station

## Management

Governance  
Open System  
Mutual Acceptance  
Cultural Calibration



Cycle Mode of Integrated Disaster  
Implementation Science  
(From N. Okada)

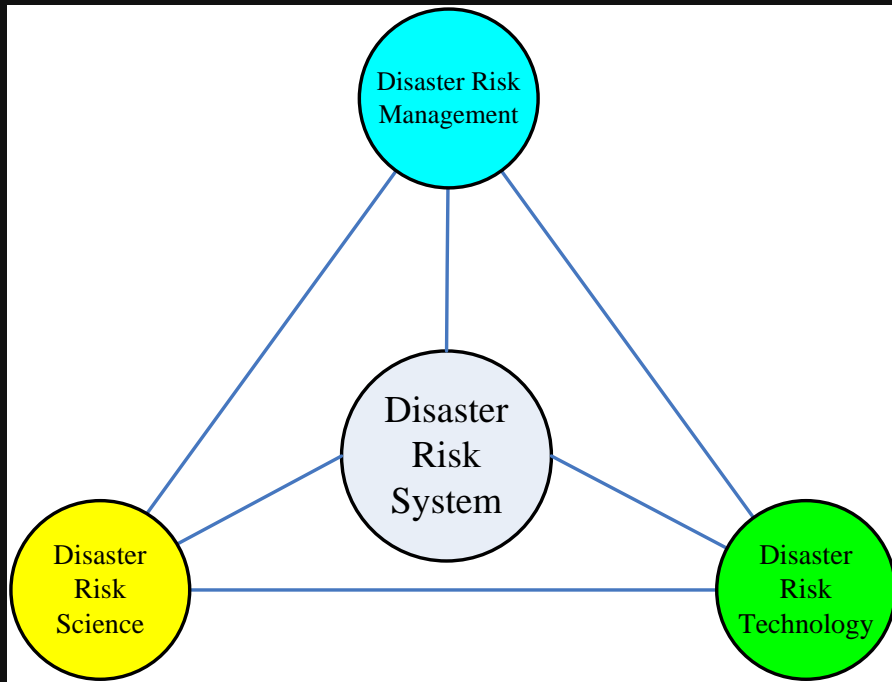
Notes:

- |                   |               |
|-------------------|---------------|
| 1: Implementation | 2: Monitoring |
| 3: Analysis       | 4: Planning   |

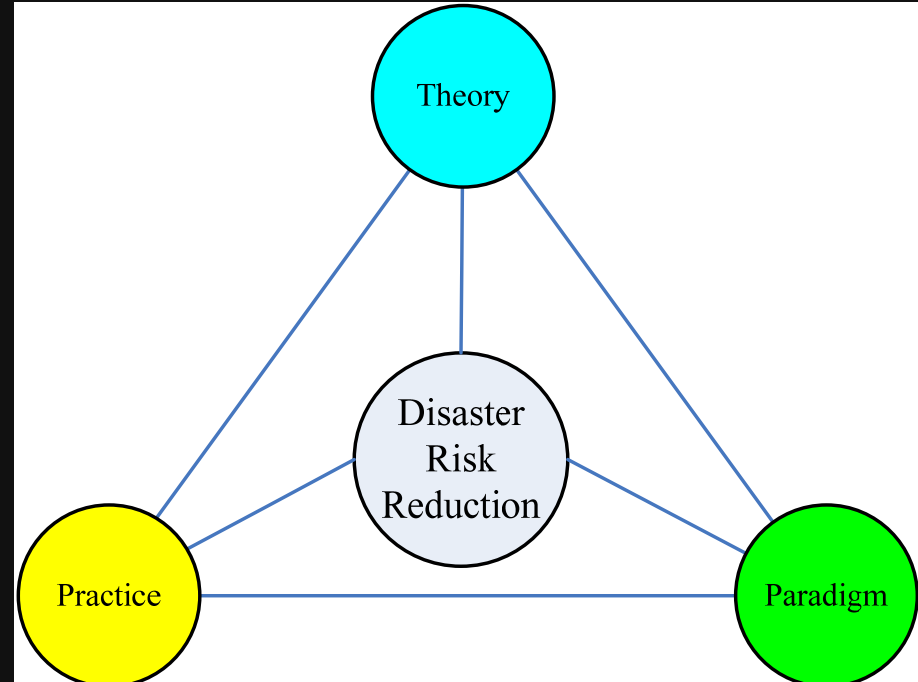
**Diagram 2: Risk Analysis Framework**



(Source: WHO website at <http://www.who.int/foodsafety/micro/riskanalysis/en/index.html>)

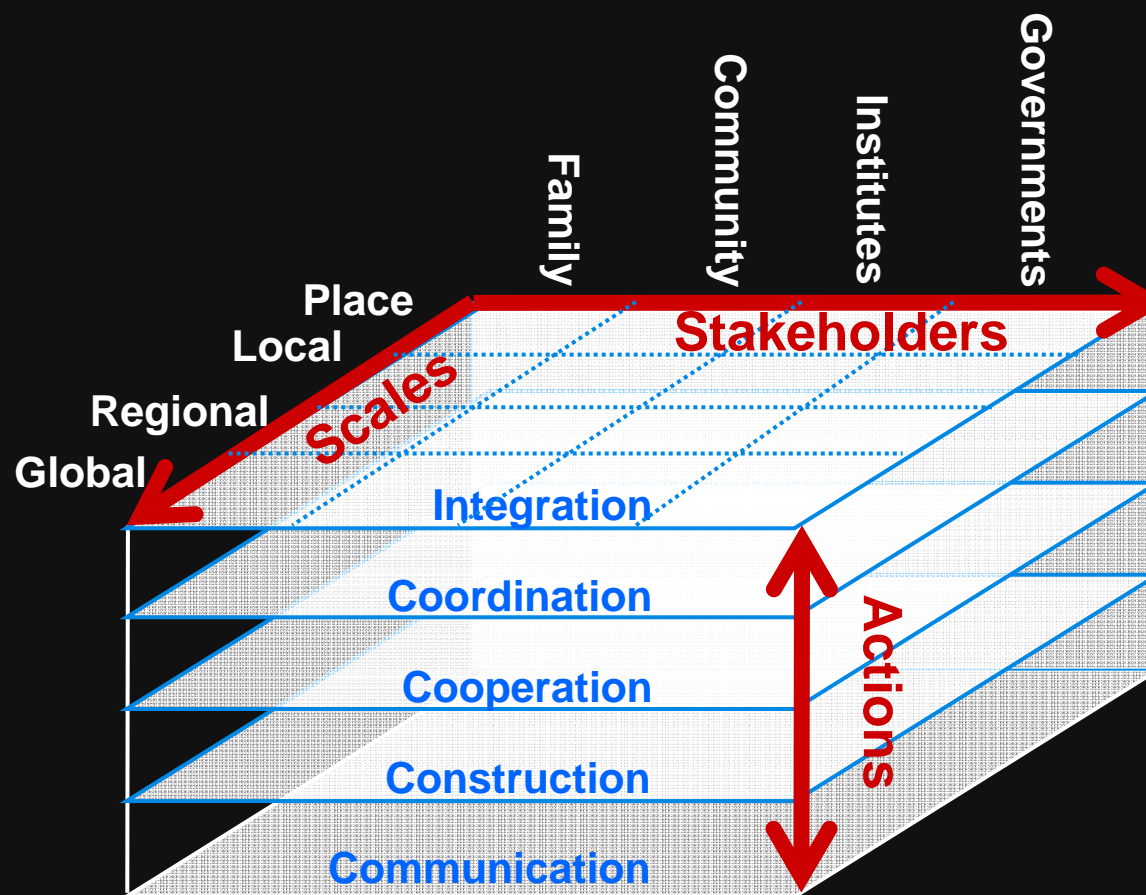


Medium-Mode of Disaster Reduction  
Implementation Science  
(From Peijun Shi)



Integrated-Mode of Disaster Reduction  
Implementation Science  
(From Peijun Shi)

# Stakeholders Mode of Disaster Risk Reduction



**Government:** Development and Disaster Reduction (**Governance**)  
**Community:** Safety Construction (**Legislation**)  
**Institute:** Risk Transformation (**Mechanism**)  
**Family:** Risk Awareness (**Education**)

## 3.2 Understanding Integrated Disaster Risk Reduction Science

Why do we integrate ?

Contingency, Uncertainty, Complexity, Diversity, Globality

What do we integrate ?

Multi-knowledge (Science, Technology, Management)

Multi-Scales (Macro, Medium, Micro)

Multi-Components (Governments, Communities, Institutes, Families)

Multi-Processes (Before, During, After)

Multi-Actions (Engineering/ Structure/, Un-engineering/Non-structure)

System of System ( Disciplinaries, Scales, Components, Processes, Actions)

# Integrated Disaster Risk Reduction Science

## ✓ How Do we Integrate

### Seminar/Workshop/Forum/Meeting/Conference

- WDRC
- IIASA-DPRI Forum
- IRGC, IDRC

### Risk Net Information Platform

- GP/DRR (Global Platform for Disaster Risk Reduction) (S. Brinceno et al. , ISDR-UN)
- DRH (Disaster Reduction Hyperbase ) (H. Kemada et al, KU, Japan)
- I Risk Net (Integrated Risk Governance Net) (P. Shi et al, BNU, China)

### Risk Mapping and Zoning/Regionalization

- GRIP (Global Risk Identification Program) (Dally et al, UC/UNDP, USA/UN)
- ANDSC( Atlas of Natural Disasters System of CHINA ) (P.Shi.,BNU, China)

### Risk Modeling and Simulation

- Agora (Alliance for Global Open Risk Analysis) (C. Scrawthon et al., KU, Japan)
- SOS (System of System) (A.V. Gheorghe, ODU, USA)
- SAND (Systematic Analysis Tool for Disasters) (D. Fundter) (UAR, Netherland)
- IRGS (Integrated Risk Governance Simulation) (P. Shi et al. ,BNU, China) Disaster

### Risk Reduction Paradigm

- CASiFiCA (N. Okada et al. ,KU, Japan)
- Critical Zone ( R. Kasperson, CU, USA)
- IRGP (Integrated Risk Governance Paradigm) (IRG Program, China)

# The Further Work

- ✓ Improve Draft of the **IRGP**
- ✓ In Oct. 2008, submit the **IRGP** to 2008 Conference of IHDP Science Committee for review and approval and expect to **announce the launch** of the Core Science Project

# Drafting committee of IHDP—IRG

Chairmen:

✓ **Peijun Shi**

Administrative commissioner of CNC-IHDP, leader of the CNC-IHDP/IRG Workgroup;

Vice dean of Academy of Disaster Reduction and Emergency Management, China;

Vice President, Prof. of Beijing Normal University, China

*Thank you for  
your attention!*

ningli@ires.cn

- ✓ IHDP-International Human Dimensions Programme  
WCRP-World Climate Research Programme
- ✓ DIVERSITAS-Integrated Programme of Biodiversity Science
- ✓ ESSP-Earth System Science Partnership