

A New Perspective and Methodology Adaptively Tested for Integrated Governance of Disaster Risks and Conflicts: A Japanese Case Study

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IDRC Davos 29-08-2006





Plan of my talk

- Key messages
- The Nagara River Estuary Barrage Conflict
- **Retrospective Analysis**: What-if Analysis of the conflict
 - What would it would have been better governed in the Nagara River Estuary Barrage Conflict if they could have used the IRGC Risk Governance framework?
- From Retrospective to Prospective?
- Discussions: How could the framework be better implemented?



Key messages (1)

- The Risk Governance Framework (RGF) is found useful to review and formalize lessons learnt from the already occurred actual social conflict of which disaster management is a part.
- How to implement the RGF as a proactive/prospective scheme may need further follow-up study (such as applying to preliminary or ongoing conflicts of similar structures.)
- RSF may work for two different purposes:
 1. Top-down approach for institutional design of risk/conflict governance scheme
 2. Bottom-up approach for adaptive management of multi-stakeholder-involved regional risks/conflicts of which disaster management is a part.

Key messages (2)

- Room for more elaborated applications and guidelines
- Risk Characterization may need more multi-dimensional considerations if conflicts are critical issues.
 - Multi-stakeholder-involved risk governance tends to entail accompanying conflicts.
 - In this sense conflicts may be treated as a part of risk characterization.
 - However characterizations of risks and conflicts may sometimes be better differentiated in characterization.
 - Communication is found difficult among stakeholders with very different standpoints and backgrounds.
 - Even if they use the same words, they mean different things.

Key messages (3)

- Taxonomy helps but ...
- In actuality internal observation and knowledge development have vital limitations- we need another external knowledge that tells us about the current status of the positioning in the framework. And...
- It evolves dynamically over time and thus the communication platform should not be closed.



			<i>Risk Trade-off Analysis & Deliberation necessary</i> + Risk Balancing + Probabilistic Risk Modelling
			Remedy
	<i>Probabilistic Risk Modelling</i>	<i>Risk Balancing Necessary</i> + Probabilistic Risk Modelling	
	Remedy	Remedy	
	Cognitive	• Cognitive • Evaluative	• Cognitive • Evaluative • Normative
	Type of Conflict	Type of Conflict	Type of Conflict
<i>Statistical Risk Analysis</i>		• Agency Staff • External Experts • Stakeholders	• Agency Staff • External Experts • Stakeholders
Remedy		• Industry • Directly affected groups	• Industry • Directly affected groups • General public
Agency Staff	• Agency Staff • External Experts		
Actors	Actors	Actors	Actors
Instrumental	Epistemological	Reflective	Participative
Type of Discourse	Type of Discourse	Type of Discourse	Type of Discourse
Simple	Complexity induced	Uncertainty induced	Ambiguity induced
Risk Problem	Risk Problem	Risk Problem	Risk Problem
Function:	Allocation of risks to one or several of the four routes		
Type of Discourse:	Design discourse		
Participants:	A team of risk and concern assessors, risk managers, stakeholders and representatives of related agencies		

Figure 4: The Risk Management Escalator and Stakeholder Involvement (from simple via complex and uncertain to ambiguous phenomena)

Table 6: Risk Characteristics and their Implications for Risk Management

Knowledge Characterisation	Management Strategy	Appropriate Instruments	Stakeholder Participation
1 'Simple' risk problems	<i>Routine-based:</i> (tolerability/acceptability judgement) (risk reduction)	<ul style="list-style-type: none"> ➔ Applying 'traditional' decision-making • Risk-benefit analysis • Risk-risk trade-offs • Trial and error • Technical standards • Economic incentives • Education, labelling, information • Voluntary agreements 	Instrumental discourse
2 Complexity-induced risk problems	<i>Risk-informed:</i> (risk agent and causal chain)	<ul style="list-style-type: none"> ➔ Characterising the available evidence • Expert consensus seeking tools: <ul style="list-style-type: none"> ◦ Delphi or consensus conferencing ◦ Meta analysis ◦ Scenario construction, etc. • Results fed into routine operation 	Epistemological discourse
	<i>Robustness-focussed:</i> (risk absorbing system)	<ul style="list-style-type: none"> ➔ Improving buffer capacity of risk target through: <ul style="list-style-type: none"> • Additional safety factors • Redundancy and diversity in designing safety devices • Improving coping capacity • Establishing high reliability organisations 	
3 Uncertainty-induced risk problems	<i>Precaution-based:</i> (risk agent)	<ul style="list-style-type: none"> ➔ Using hazard characteristics such as persistence, ubiquity etc. as proxies for risk estimates <p>Tools include:</p> <ul style="list-style-type: none"> • Containment • ALARA (as low as reasonably achievable) and ALARP (as low as reasonably possible) • BACT (best available control technology), etc. 	Reflective discourse
	<i>Resilience-focussed:</i> (risk absorbing system)	<ul style="list-style-type: none"> ➔ Improving capability to cope with surprises • Diversity of means to accomplish desired benefits • Avoiding high vulnerability • Allowing for flexible responses • Preparedness for adaptation 	
4 Ambiguity-induced risk problems	<i>Discourse-based:</i>	<ul style="list-style-type: none"> ➔ Application of conflict resolution methods for reaching consensus or tolerance for risk evaluation results and management option selection • Integration of stakeholder involvement in reaching closure • Emphasis on communication and social discourse 	Participative discourse



Nagara River Estuary Barrage



The Nagara River Estuary Barrage Conflict

■ Location



The Nagara River flows out of the mountains of Gifu Prefecture in central Japan. For roughly a half of its 136-kilometer course, it runs south through narrow valleys. Then, flowing through high dykes, it makes its way across the Nobi Plain before emptying into Ise Bay, and into the Pacific Ocean.



Nagara River
Estuary Barrage

Purpose of the barrage

- Flood Control
 - Nagaragawa Estuary Barrage, which prevents the inflow of saltwater, enables us to implement large-scale dredging and realize the safe water flow of Nagara River in case of flooding (designed flood discharge: 7,500m³/sec).
- Water Supply
 - The barrage prevents upstream intrusion of saltwater, thereby making it possible to make extra fresh water available as domestic water and industrial water supplies for Aichi Prefecture, Mie Prefecture and Nagoya City as rates of up to 22.5 m³/sec.



The Nagara River Estuary Barrage Conflict: A Brief Summary

- Local Fishermen and Natural Environmentalists opposed to the barrage construction.
- Ministry of Construction of National Government was unexpectedly challenged by such a public opposition.
- Crucial conflicts occurred among government officials, internal and external societal groups of diverse values , and non-unified social movement groups.



Pre-history of the Nagara River Estuary Barrage Conflict

- FY1960- Preliminary survey started
- FY1963-FY1967 The Estuary Resource Survey Team for the Three Kiso Rivers ("KST") conducted survey.
- FY1968 Project implementation plan survey started.
- Oct. 1968 The Basic Plan for Water Resource Development in the Kiso River Water System (the "basic plan") was decided.
- FY1971 Construction began.
- Dec. 1971 Policy on implementation announced.
- Mar. 1973 Basic plan (partial amendment).
- Jul. 1973 Implementation plan approved.
- Dec. 1973 Action demanding suspension of construction filed (old suit).
- Sep. 1976 Riverbank collapsed at Anpachi Town, Gifu Pref.
- Mar. 1981 Suit demanding suspension of construction abandoned (old suit).



History: Conflicts exposed and started

- Apr. 1982 Suit demanding suspension of construction filed (new suit).
- Feb. 1988 All fishermen's cooperative associations agreed on the start of the work.
- Mar. 1988 Construction of the main structure of the barrage began.
- Dec. 1988 Change of policy toward implementation indicated.
- Feb. 1989 Change of policy toward implementation approved.
- Mar. 1992 Additional survey report published
- Apr. 1992 Technical report published.
- Mar. 1993 Basic plan (complete revision)
- Apr. 1994 Nagara Estuary Barrage Survey conducted. (Finished Mar. 1995)
- Jul. 1994 Intermediate appeal filed on the case of suspension of construction (Nagoya High Court).

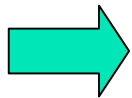


- Mar. 1994-Apr. Round table conference held (8 times).
- Mar. 1995 Change of implementation plan approved. Facility management policy indicated. Facility management regulation approved. Survey report submitted to Construction Minister Nosaka.
- Apr. 1995 Management started.
- May 1995 Construction Minister Nosaka: "Full-scale operation from May 23."
- Jul. 6 1995 All gates began operating.
- FY1995-FY1999 Nagaragawa Estuary Barrage Monitoring Committee (12 times)
- Jul. 1997 Dredging in the mound section started.
- Apr. 1998 Diversion to Nagara water supply system started; Diversion to Hokuchusei water supply system started
- .Dec. 1998 Court-of-appeal decision on action demanding suspension of construction (Nagoya High Court)
- .Sept. 1999 5900 m³/s of discharge observed during Typhoon No.16(Largest discharge after regular operation started)
- Apr. 2000 Transition to follow-up survey.



Historical Background

- 1960s- Kodo Keizai Seicho Ki
(Era of Rapid growth of Japanese Economy)
 - Water Resources Development Agency was established in 1962.
 - It was anticipated that industrial water shortage could become a bottleneck for continued economic growth.
 - Major water resources development plans were made all over Japan during this period.



Materplan for Kiso Riverbasin System included the development of **Nagara River Estuary Barrage** established 1968.




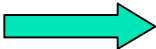
Social Changes Occurred after the Start of the Project

- Project inevitably had a long time lag between inception and completion.
- Industrial water demand started to drop.
 - Heavy industries recycle water in the plants.
 - Structural changes in Japanese Industry
 - From Materials (iron and chemical) to Manufacturing (automobiles and electric equipments)
- Values changed among the general public.
 - From economic development to sustainable society
 - Preservation of nature increasingly gained public awareness, and was requested to be given a higher priority than before in public project development.



Evolution of Conflict:

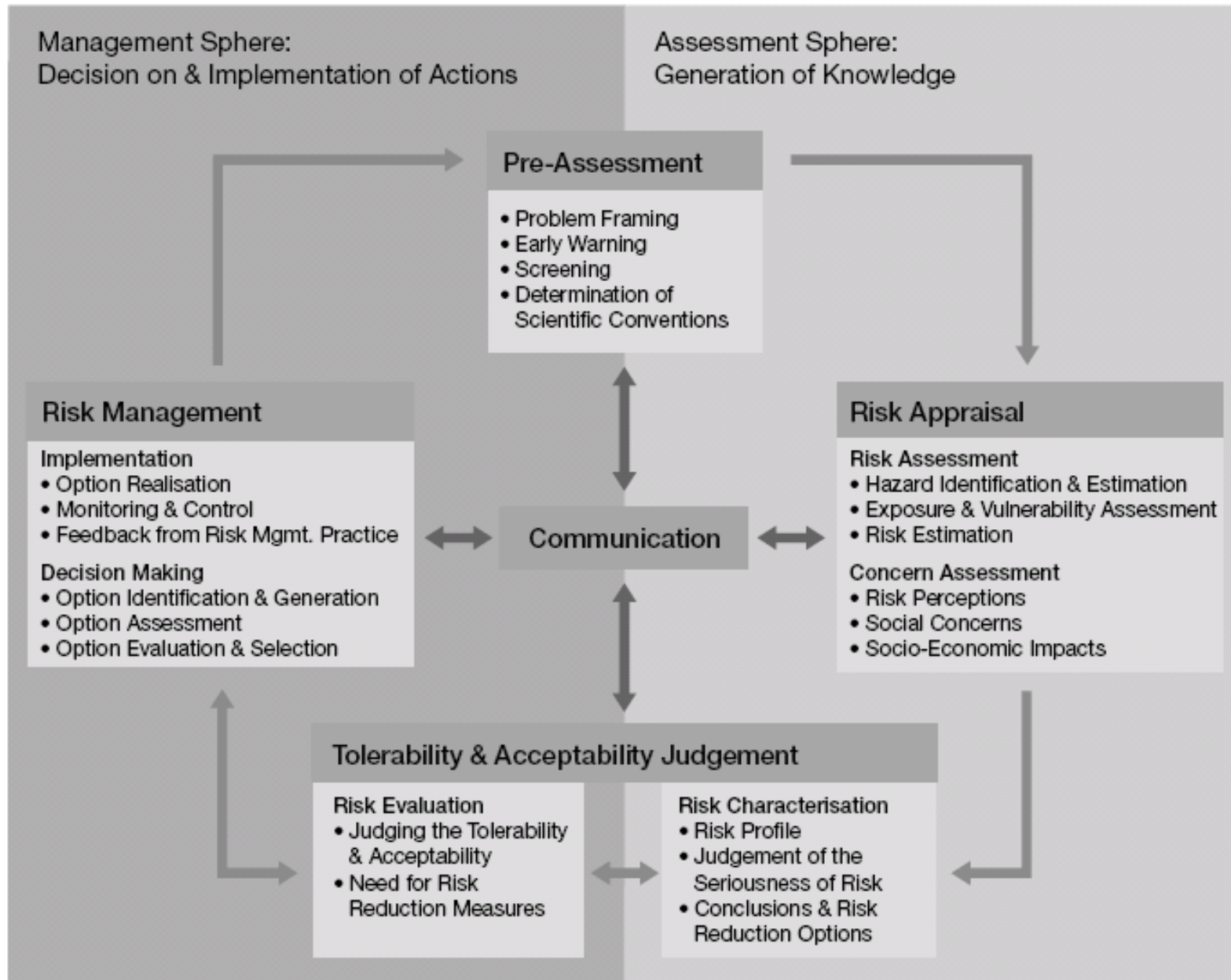
Changes in Key Stakeholders and Issues

- 1st stage (1973.12-1981.3)
 - 1st Suit: Opposing Group went to court and demanded suspension of construction.
 - Key Concerns: Can the barrage really contribute to Flood Control?
 - Stakeholders: Inhabitants in the river mouse, fisherman vs. water resources development agency (WRDA) commissioned by Ministry of Construction
 - Industrial water demand started to drop.
- 2nd stage (1982.4-1999.1)  The appeal was dismissed.
 - 2nd Suite : Opposing Group filed suecase by demanding suspension of construction.
 - Key Concerns: **Environmental rights**
 - Stakeholders: inhabitants in the upper and middle of the Nagara river basin vs. WRDA and citizens in flood prone areas
- 3rd stage (1999.1-at present):  WRDA won.
 - Arbitration and Round table conferences
 - Key Concerns: **Preservation of nature and precautions monitoring**
 - Stakeholders: Natural Enthusiasts living outside of the basin vs. WRDA and citizens in flood prone areas



Retrospective What-If Analysis

- Based on the Framework of IRGC RGF proposing the following five steps:
 - Pre-Assessment
 - Risk Appraisal
 - Tolerability and Acceptability Assessment
 - Risk Characterization and Risk Evaluation
 - Risk Management
- Assume if we date back and start now by anticipating what was to come (Retrospective What-If analysis is conducted .)



Pre-Assessment

- Had they conducted pre-assessment, could they anticipate such citizens' preference change for environment?
 - **Probably No**, nobody would be able to anticipate such a crucial preference change in the future.
 - **But**, provided **problem framing, early warning, screening and determination of scientific conventions**, citizens could have been benefited from better access to information and have favored to avoid the then still "**conflict in embryo**" caused by mutual distrust and suspicions, e.g., 1st suit.
 - Pre-Assessment could make the path of the **conflict different in quality**, leading to much **faster resolution**.



Risk Appraisal

- The “**concern assessment**” with citizen participation could have made the **situation better**.
- Government and citizens could have reached **better understanding** each other before the plan was decided and put into practice.
- Risk Assessment by way of Hazard Identification, Exposure & Vulnerability Assessment and Risk Estimation might have activated more pro and con debates. But **value split would have still been wide and not easy to overcome**.



Risk Characterization and Management

- The taxonomy of Table 6 and Figure 4 in the white book is found **not always easy to apply simply as it is.**
- In actuality internal observation and knowledge development have vital limitations- we need another external knowledge that tells us about the current status of the positioning in the framework. And...
- It evolves dynamically over time and thus the communication platform should not be closed.



Risk Characterization and Management (2) Linking to

- Our example can be “**complex**” but **not so much ambiguous** about value split. The opposing group was found **always antagonistic** to the project, and thus **not so much room for participative discourse**.
- The type of the conflict illustrated is Cognitive, Evaluative and Normative, but not so much of ambiguity-induced risk problem.
- Definitely, public participation is needed even for this type of conflict situation. Some indirect democracy (like public voting?) -linking to tolerability and accessibility judgment
- This may be adaptively developed as a socially viable solution (as a **bottom-up approach**).
- Alternatively it has to wait for a new institutional scheme (as a **top-down approach**).



More about conflict governance

- Conflict as a potential source for self-revealing and enhancing/degenerating process
- Conflict characterization
assertive vs. non-assertive
uncooperative vs. cooperative

Fig. 1 The Conflict Process

Source: Reproduced from Robbins (1991), Furnham (2005)

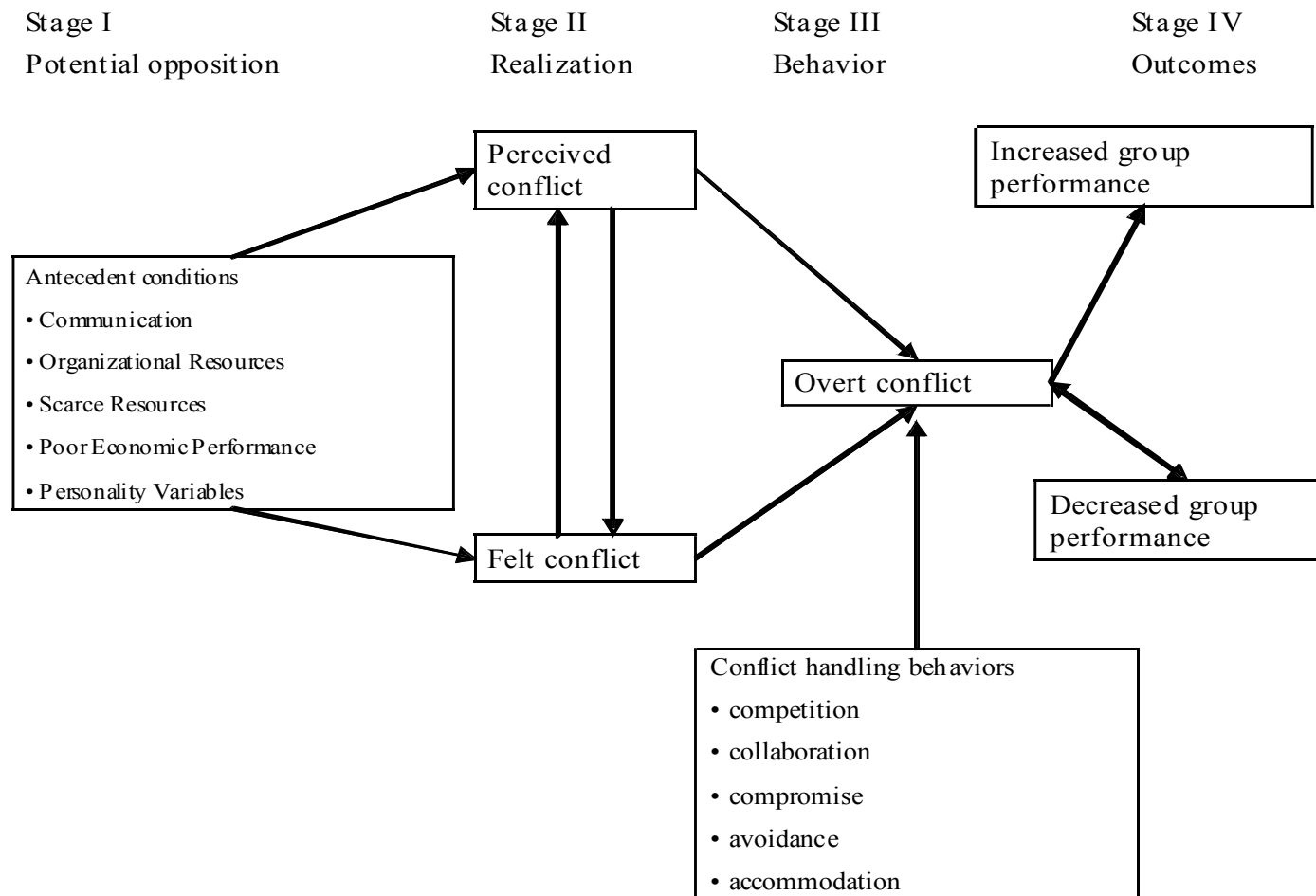


Fig.2

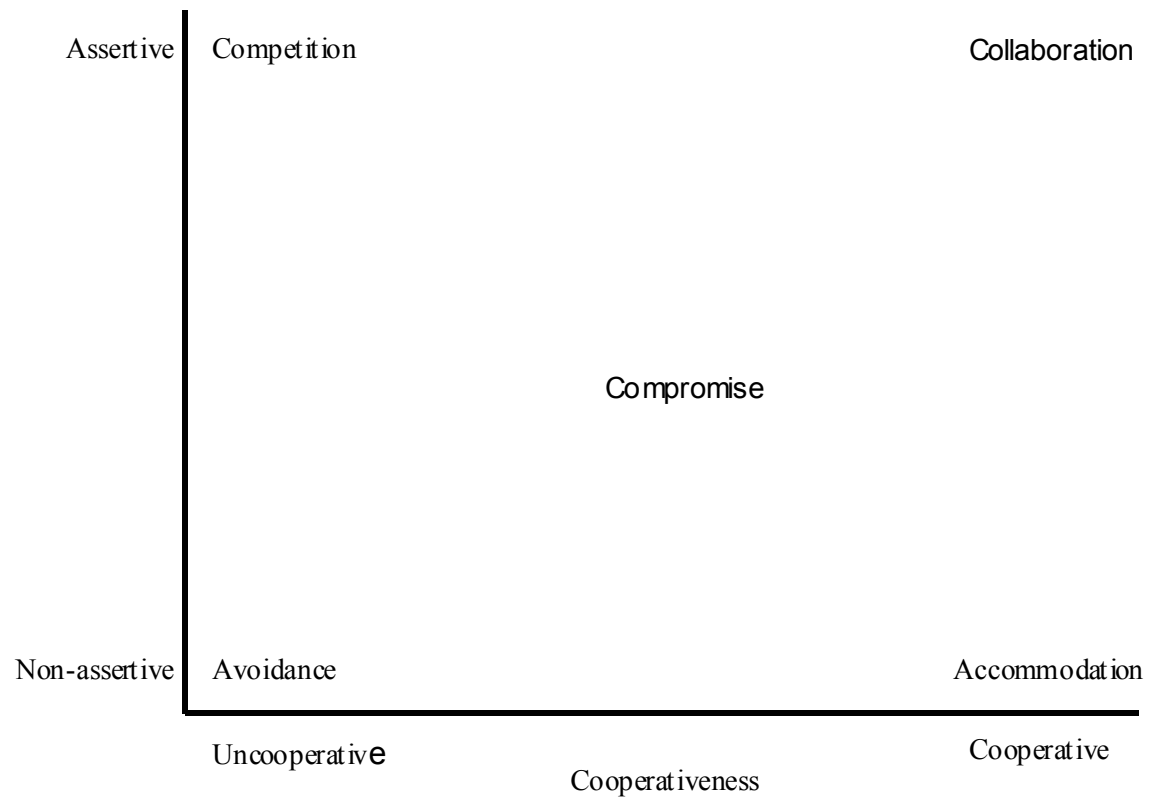


Fig. 2 Dimensions of conflict-handling orientations.

Source: Reproduced from Thomas (1976), Fumham (2005)



What makes disaster governance risks and conflicts special about?

- Some are not so much of conflicting nature (like fixing furniture to the wall)
- As a general agenda nobody disagrees, as it comes to you, you still do not disagree but action is still not taken.
Internal conflicts (issue prioritization)
Risk awareness and preparedness



More study and more progress

Thank you for your attention!