



Operational discussions on the PPP(Public-Private Partnership)-based Area BCM(Business Continuity Management)

Limitations of individual BCMs and emerging importance of Area BCM

2016 International Training Workshop on Natural Disaster Reduction

September 26th, 2016

Kenji Watanabe

Nagoya Institute of Technology (Nagoya, JAPAN)



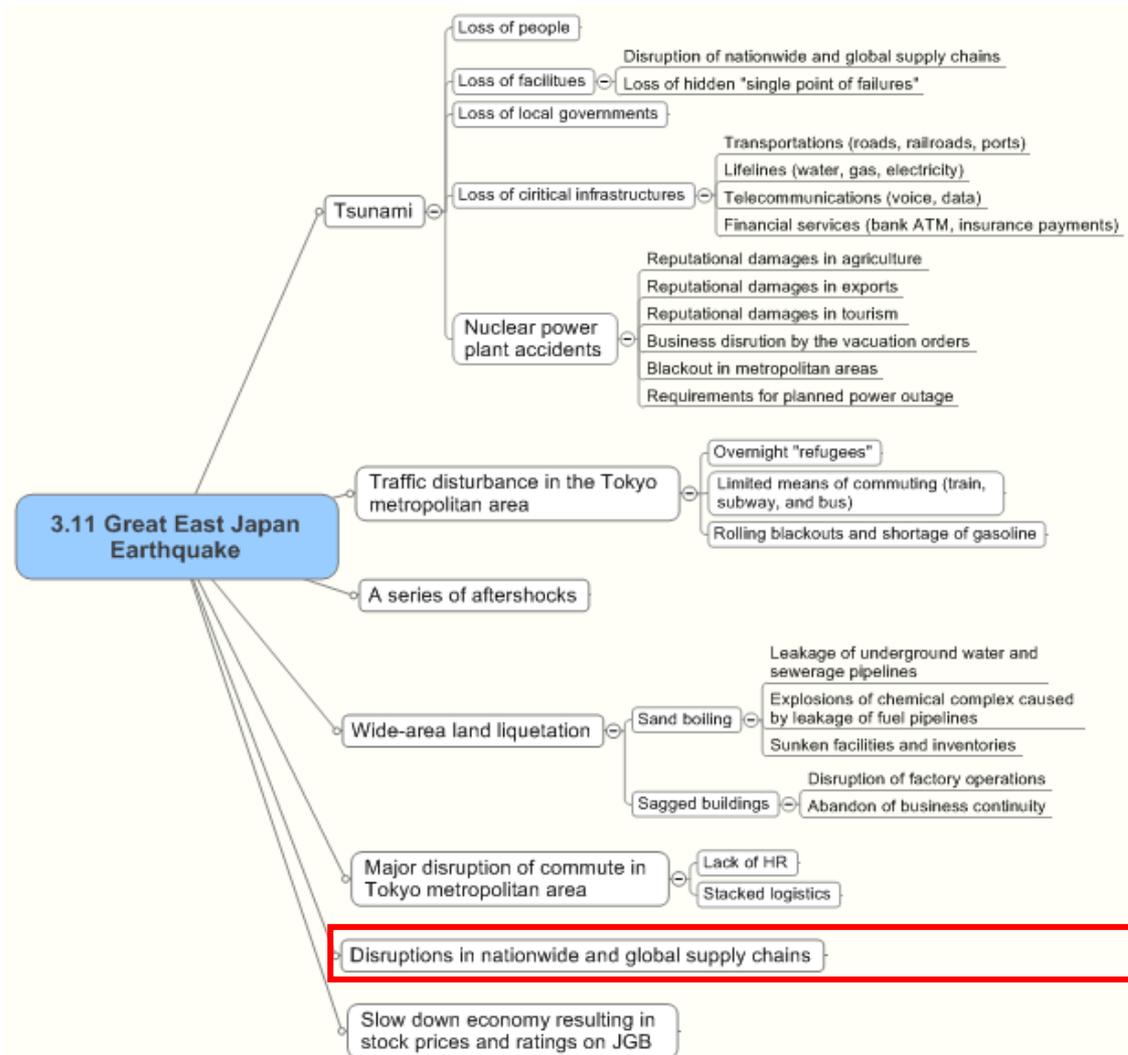
AGENDA

1. Quick review on the past disaster experiences in Japan
2. Emerging limitations of individual BCMs and importance of the PPP(Public-Private Partnerships)-based Area BCM
3. Case study for discussions
 - Case 1: Kyoto Area BCP*
 - Case 2: Timeline for disaster preparedness for Typhoon disasters*
 - Case 3: JICA Area BCM*

1. Quick review on the past disaster experiences in Japan

The chain-failures through dependencies

2011.3.11: the wider repercussions into the intangible social functionalities and values

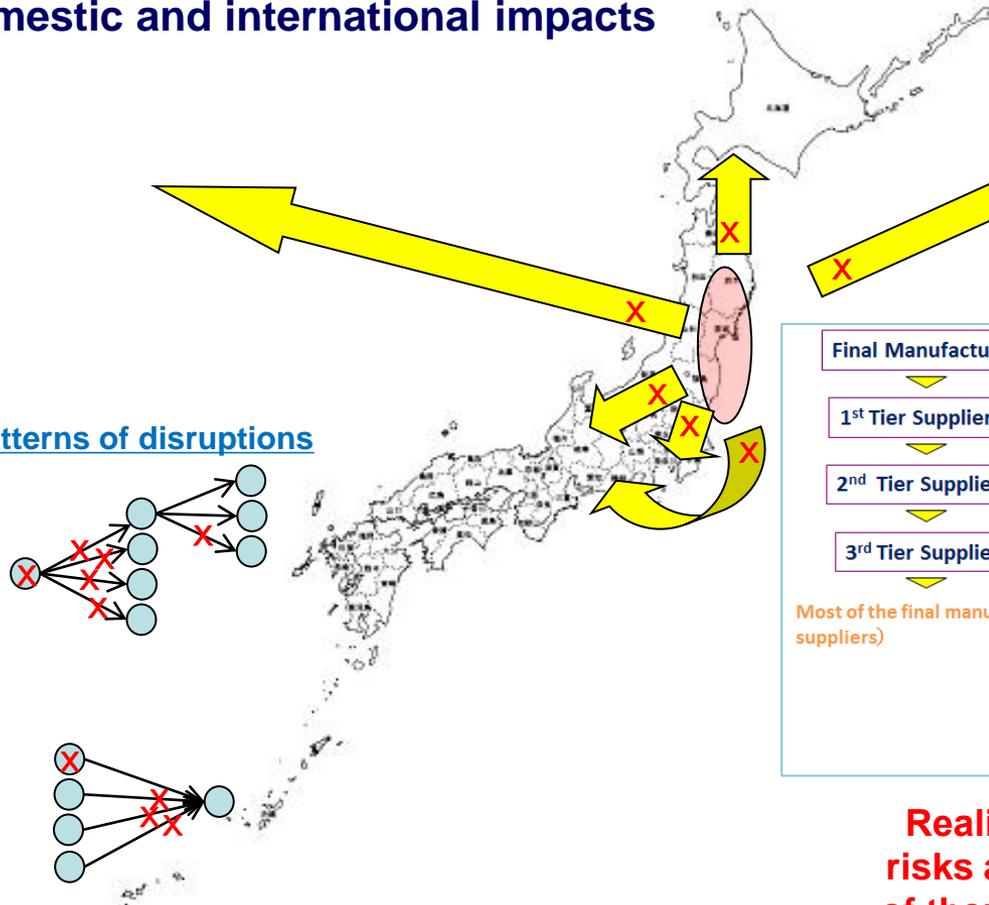


Spread damages through major supply chains

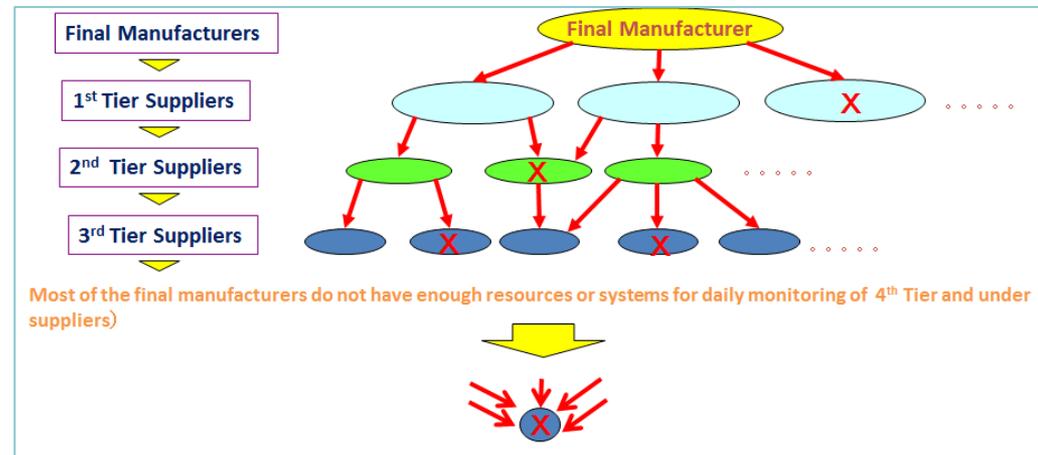
2011.3.11: visualized interdependencies in major supply chains
as results of chained disruptions

Domestic and international impacts

Patterns of disruptions



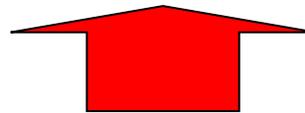
Disrupted supplies of products and services in Tohoku and North-Kanto areas



Realization of “unmanaged “ concentration risks at 4th and under Tier suppliers and most of them are SMEs (Small Medium Enterprises) without BCP

Major flood in Thailand [Jul.-Nov., 2011]

“the another connected dots”



- Climate change as one of macro factors
- Concentration of and increasing interdependencies among urban functions
- Rapid growth of population in the large cities
- Delayed disaster information sharing among stakeholders
- Lack of synergies and interoperability among individual BCPs/BCMs

Categories of social damages with large disasters

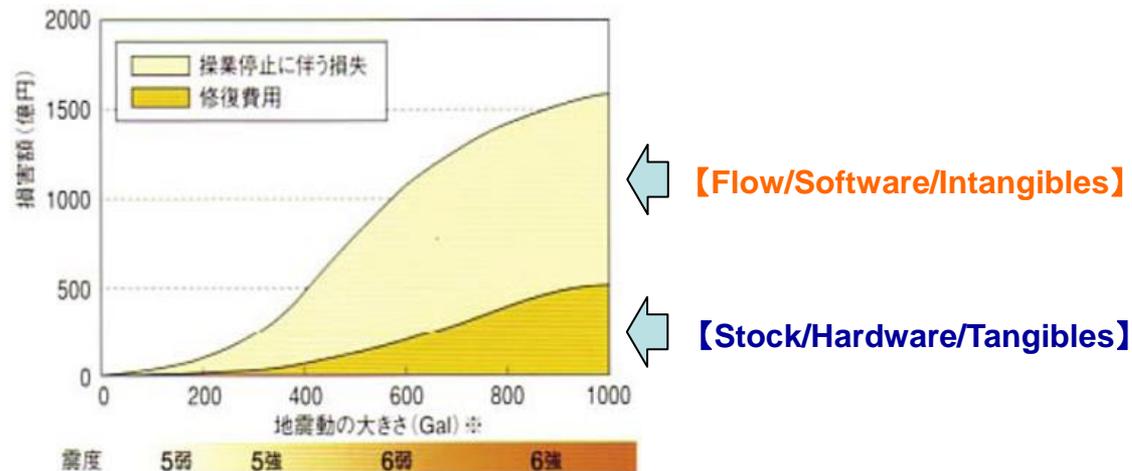
Stock – Flow, Hardware – Software, Tangibles - Intangibles

【Stock/Hardware/Tangibles】

Houses, office buildings, roads, railways, ports, electric wires, water channels, gas pipes, machines, computers, documents, monuments, and human-beings...

【Flow/Software/Intangibles】

Business (revenues, contracted obligations, profits, customers, trusts), passengers, logistics, service contents of critical infrastructure (electricity, gas, water, data), medical treatments, financial values, value-added data, safe and secured life environment, cultures & entertainments, vitalities & confidence....

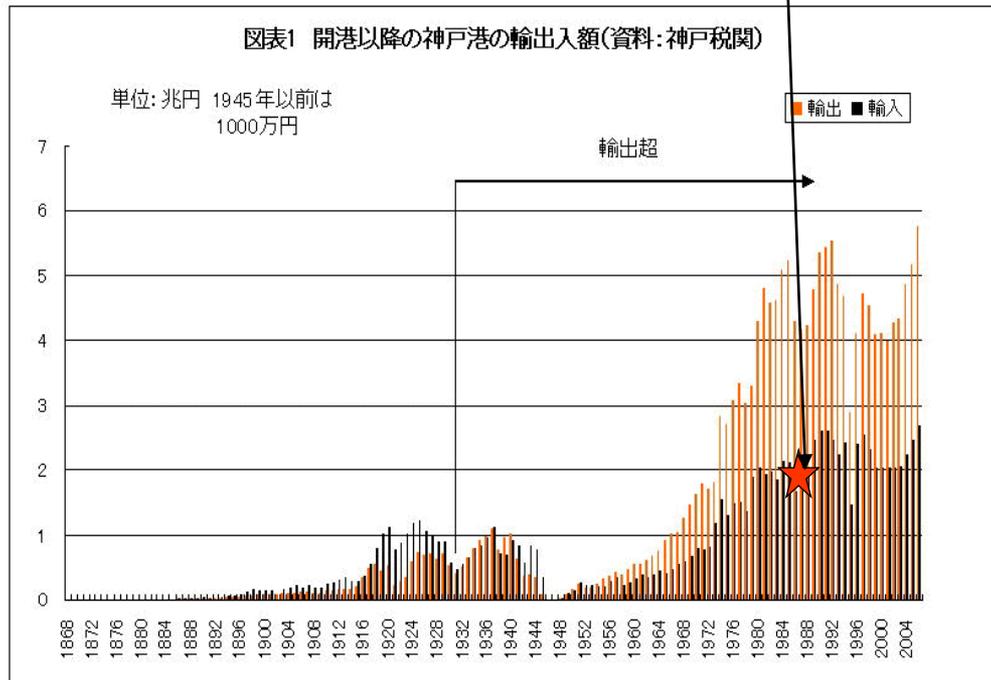


Long-term economical impact of a large disaster

Impact of opportunity losses and its consequences



Shifted to;
Osaka
and
Busan (Korea)



1980		2009			
1	NY/NJ(US)	195	1	Singapore	2,587
2	Rotteldam	190	2	Shanghai	2,500
3	Hong Kong	146	3	Hong Kong	2,104
4	Kobe	146	4	Shenzhen	1,825
5	Guaxiong	98	5	Busan	1,195
*****		*****			
12	Yokohama	72	25	Tokyo	381
16	Busan	63	38	Yokohama	280
18	Tokyo	63	46	Kobe	225
39	Osaka	25	51	Nagoya	211
46	Nagoya	21	56	Osaka	184

- Volume of the international container handling has increased
- International ranking of the Kobe has been dramatically declined and functionally replaced by Busan

From the statistics of the Hyogo Economical Research Institute

What's new: against our past response/recovery experiences

2016.4.14&16: Concentration risks after risk diversification efforts



- Many triggers for nation-wide SC disruptions
- TOYOTA proactively stopped other areas' factories
- Several "bottleneck" SMEs were identified



Damaged critical functionalities

2016.4.14&16: Damages in the operations in public sector & private sector

【Public Sector】



No entry allowed to the city hall

【Private Sector】



Disruptions at major suppliers for TOYOTA

Key challenges and the next steps based on my field research

2016.4.14&16: Quick overview of the field research

【Fukuoka】

METI(Ministry of Economy, Trade, and Industry)-Kyushu Regional Office [Auto-Div. & Semiconductor-Div.], MILT(Ministry of Infrastructure, Land, and Transportation)-Kyushu Regional Office, Development Bank of Japan-Fukuoka Br., NTT, and Kyushu Electric Power

【Kumamoto】

Kumamoto Prefectural Government [Commercial/Industry supporting Div.], Disaster Management Office, SME Associations, and MAFF(Ministry of Agriculture, Forestry and Fisheries)



Key challenges and the next steps based on my field research

2016.4.14&16: “To be” : conceptual process flows

Integrate existing information on the local economy and business activities

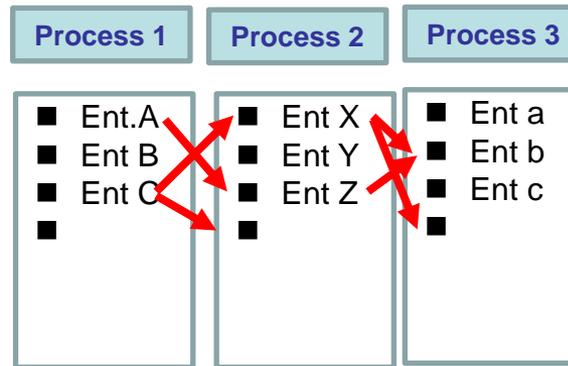


業種	企業名	所在地	従業員数	売上高	生産額	備考
繊維業	株式会社A	石川県	100	1000	1000	
繊維業	株式会社B	福井県	200	2000	2000	
繊維業	株式会社C	石川県	300	3000	3000	
繊維業	株式会社D	福井県	400	4000	4000	
繊維業	株式会社E	石川県	500	5000	5000	
繊維業	株式会社F	福井県	600	6000	6000	
繊維業	株式会社G	石川県	700	7000	7000	
繊維業	株式会社H	福井県	800	8000	8000	
繊維業	株式会社I	石川県	900	9000	9000	
繊維業	株式会社J	福井県	1000	10000	10000	



【図2 石川県と福井県の繊維工業の企業間取引（2013年）】

Connect the dots:
Visualize critical supply chains and identify the bottleneck enterprises through analysis and hearings



【Target enterprises】

- ◆ Lower tier suppliers
- ◆ Less alternative options
- ◆ High market share
- ◆ Many business counterparts
- ◆ Business with several core industries (“intersection” of core SCs)
- ◆ Having concentration in providing low materials or industrial-specific commodities

Governor’s decision on rescue the identified enterprise(s) and immediate execution

Aspects to be considered:

- value-added
- local employment
- external impacts
- competitiveness



Execute rescue actions:

- Priority recovery of critical infrastructure
- Emergency vehicle permissions
- Emergency gas & oil supply

Key challenges and the next steps based on my field research

2016.4.14&16: “To be” that was not realized by the actual situations

【TO BE】

- Damage awareness of the enterprises in the region ASAP and quick analysis of business impacts to the other regions (incl. overseas) through supply chains
- Identify damaged core/bottleneck enterprises and Governor’s decision on immediate “rescue” of the identified enterprises to survive and recovery
- Accountability for the rescue: maintain the local employment and economy

【Actual Situations】

- Many separated static information on enterprises and industries with different objectives existed but in the different formats (digital/non-digital)
- Governments collected dynamic information on damage/recovery status from news media fragmentally.
- All of the local governmental staffs were fully occupied with tasks to take care of citizens (mostly at evaluation shelters) : no disaster recovery task to support immediate recovery of private sectors were not identified.
- Damaged enterprises were so busy in recovery and hesitated to report their SOS
- As a result, both of public/private missed the critical first week to economic recovery
- Operational recovery of the national brands doesn’t necessary mean the maintenance or recovery of the local economy and employment

Key challenges and the next steps based on my field research

2016.4.14&16: Information sharing not only in the emergency situations

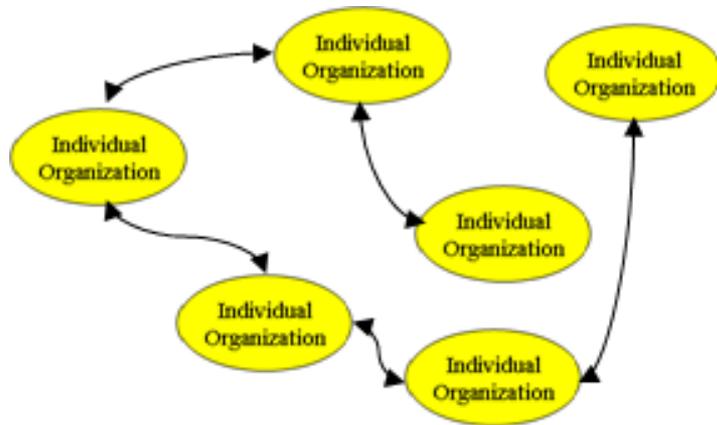
【Key challenges and next steps】

- Information sharing on local business activities among governmental entities at national/prefecture/city levels to support local enterprises(normal/emergency)
- Proactive usage of the RESAS(National analysis platform for regional economy implemented at every prefectural government) in the emergency situations
- Define emergency support task for the damaged local core/bottleneck enterprises as an official disaster response task of the local government
- Train people in local government (commerce div. and disaster management div.) to develop skills in visualization of the value of local enterprises and in analyzing business impact with their disruptions
- Establish a national team to be dispatched to the next disaster affected areas in the areas of visualizations and impact analysis

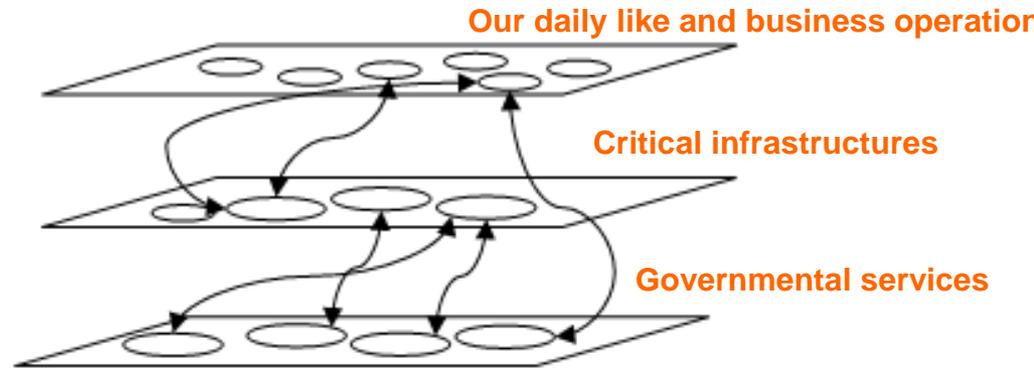
2. Emerging limitations of individual BCMs and importance of the PPP(Public/Private Partnerships)-based Area BCM

Increasing interdependencies of our society

Interdependencies in the “networked” society



Interdependencies
among organizations

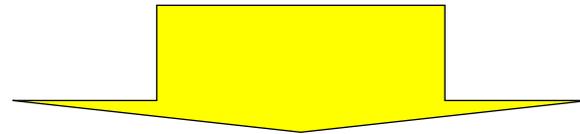


Interdependencies
among societal layers

Emerging vulnerabilities in business continuity

Scope of business disruption has been expanding
the “networked” business processes

- Increased speed of “chain failure” spread
- Widened area of “chain failure” spread
- Increased possibility of impacts from other’s failure
- Increase difficulties in detection in advance



Increasing “unexpected” incidents
and
Expanding economic damages per incident

Stakeholders

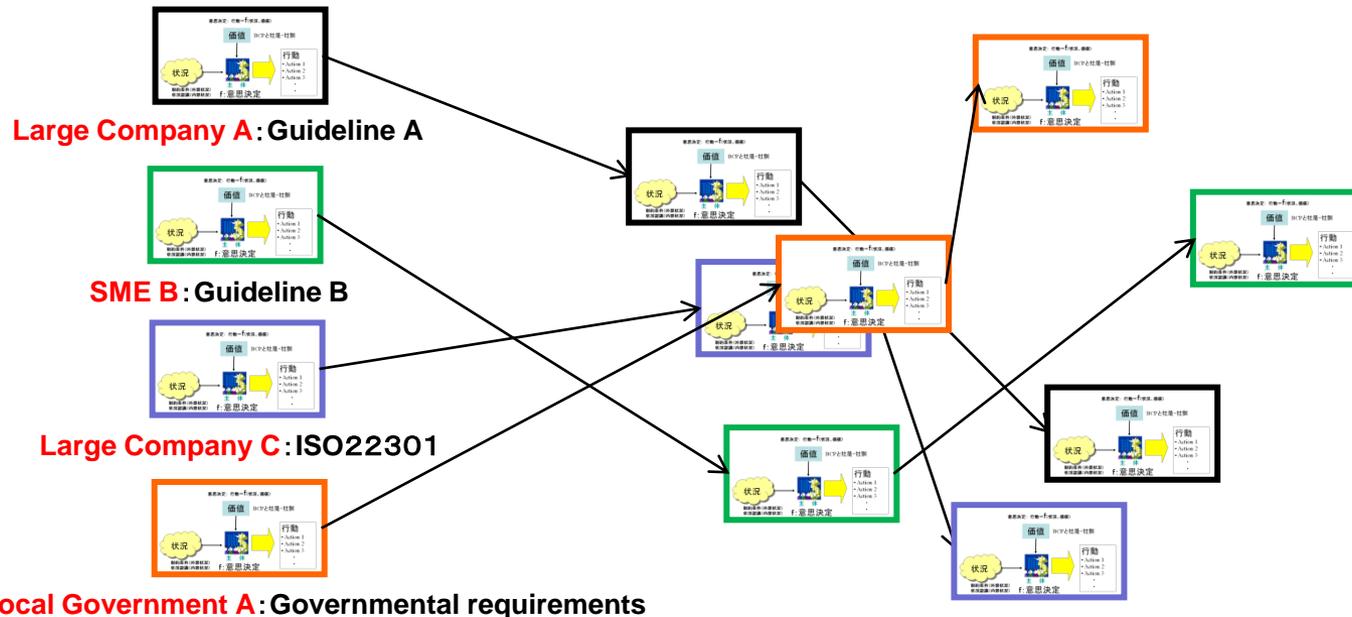
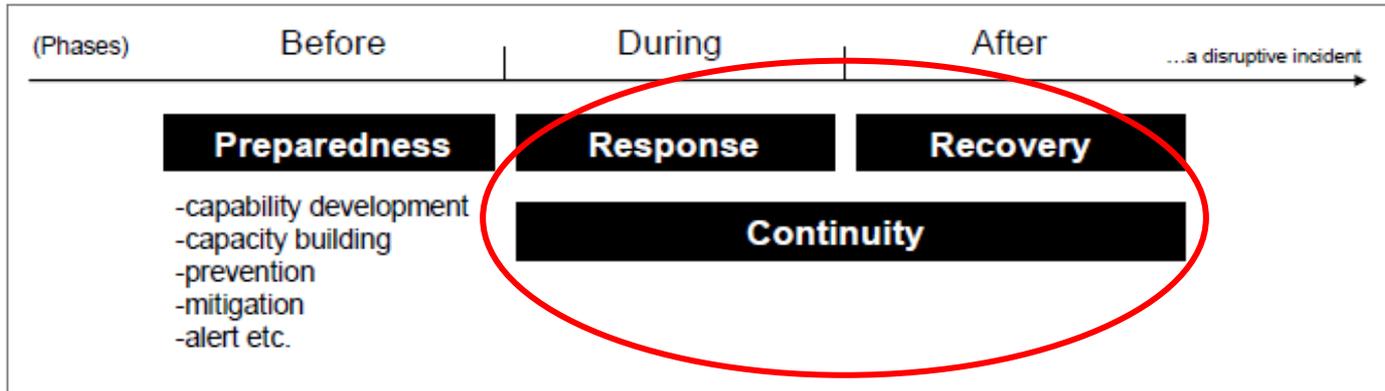
Many stakeholders have started concerning vulnerability in business continuity

Stakeholders	Relationship
Direct buyers	commercial contract
Direct suppliers	commercial contract
Indirect buyers/suppliers (Supply Chain)	goods & service supply
Corporate users/clients	commercial contract
Individual users/clients	contract
Investors	capital investment shareholding
Rating agencies	credit rating

Stakeholders	Relationship
Creditors(banks, trading companies)	credit agreement
Internal auditors	duty of auditing
External auditors	auditing contract
Employees and families	employment contract
Regulatory & Supervisory agencies	permission & authorization
Local governments	registration
Local communities	local resource sharing

Cross-organizational decision making in a large-scale disaster

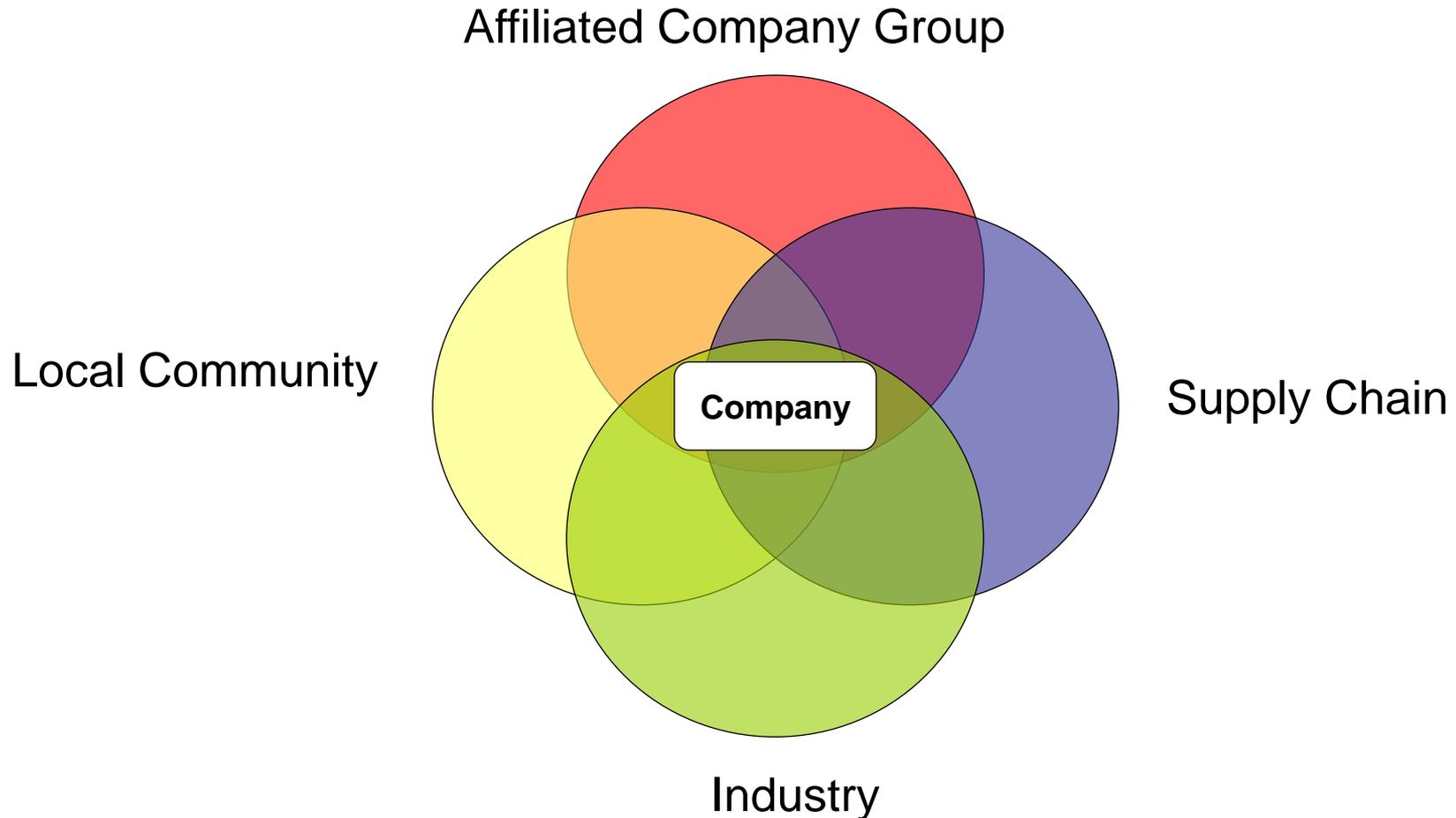
Inconsistencies among organization will cause inefficiencies and unnecessary conflicts in response and recovery activities



- Inconsistent info.
- Lack of resources
- Conflicts in coordination
- Delayed decisions
- Delayed recoveries

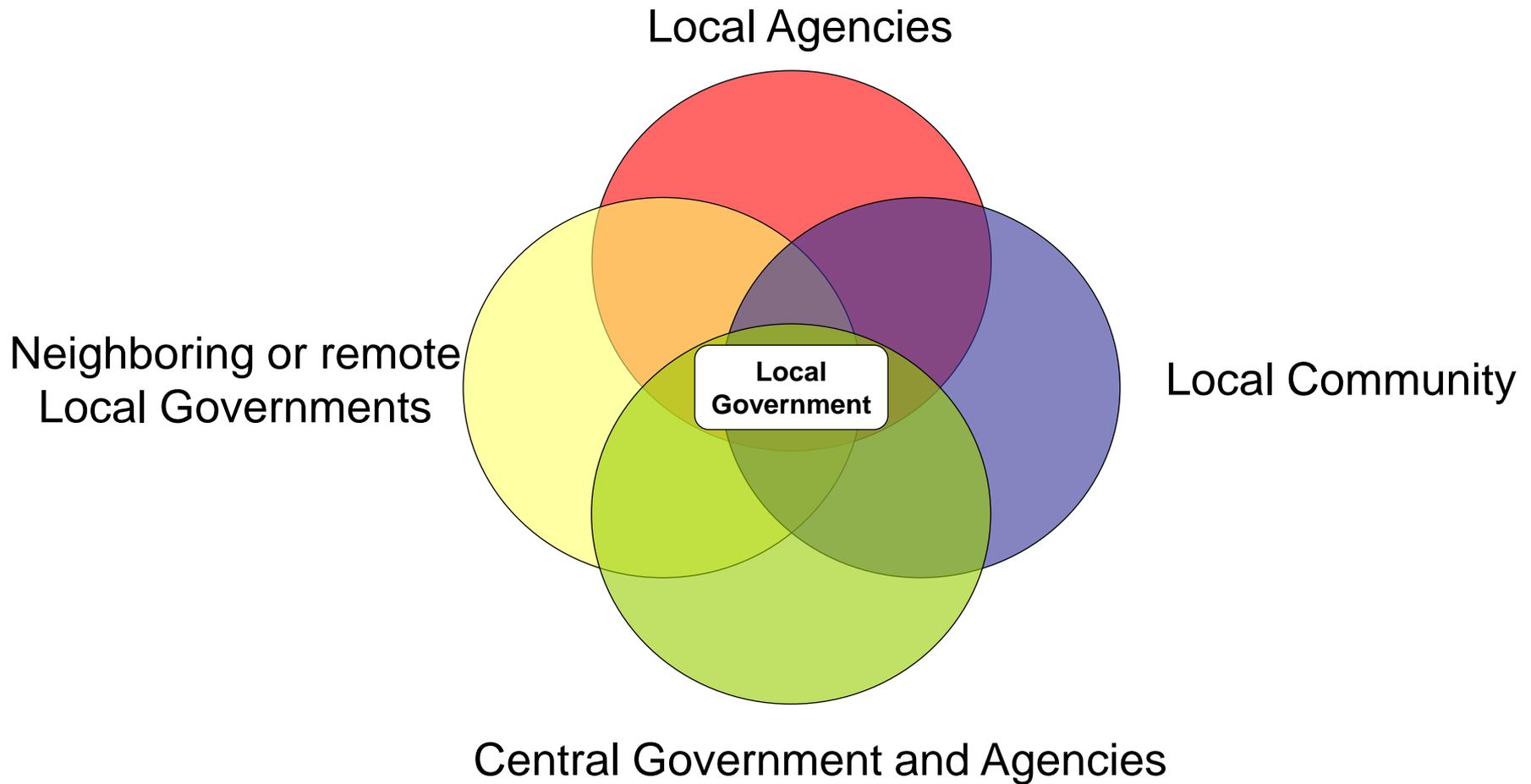
Shared BCM with stakeholders (Private Sector)

Stand-alone BCM is insufficient – scope should be expanded



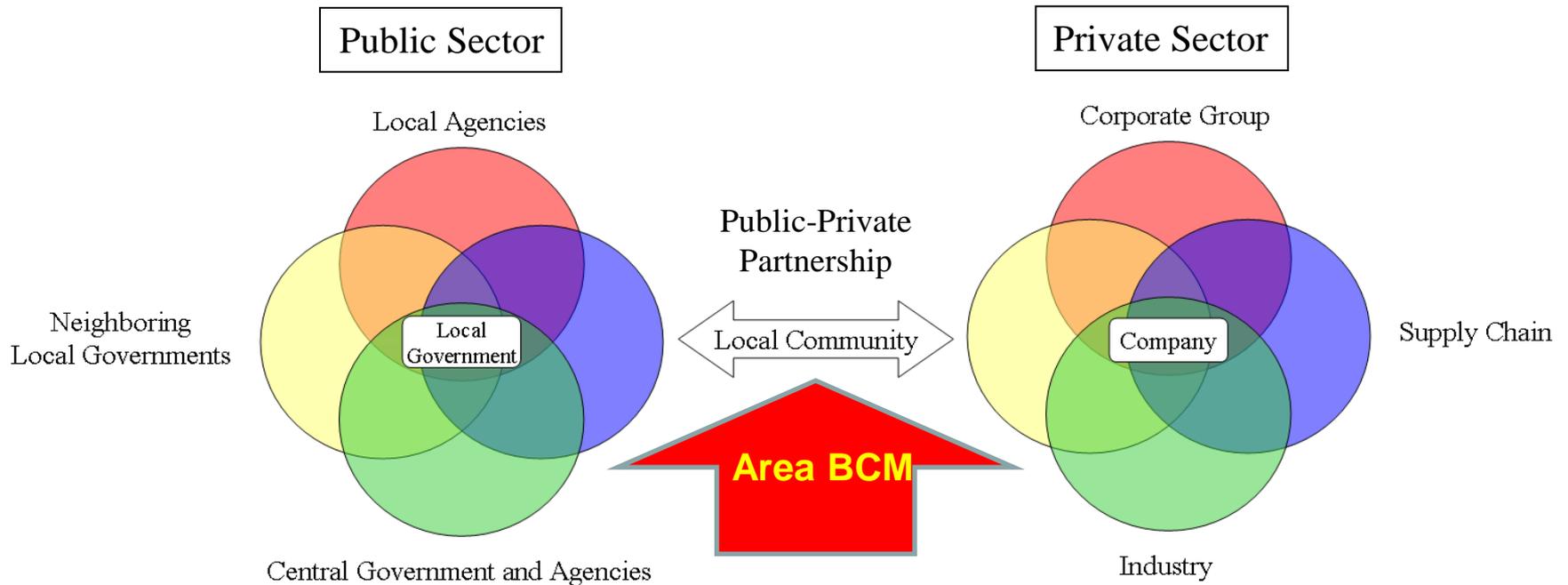
Shared BCM with stakeholders (Public Sector)

Stand-alone BCM is insufficient – scope should be expanded



Shared BCM with stakeholders (Public/Private Sector)

Emerging needs for PPP (Public-Private Partnerships) for societal security

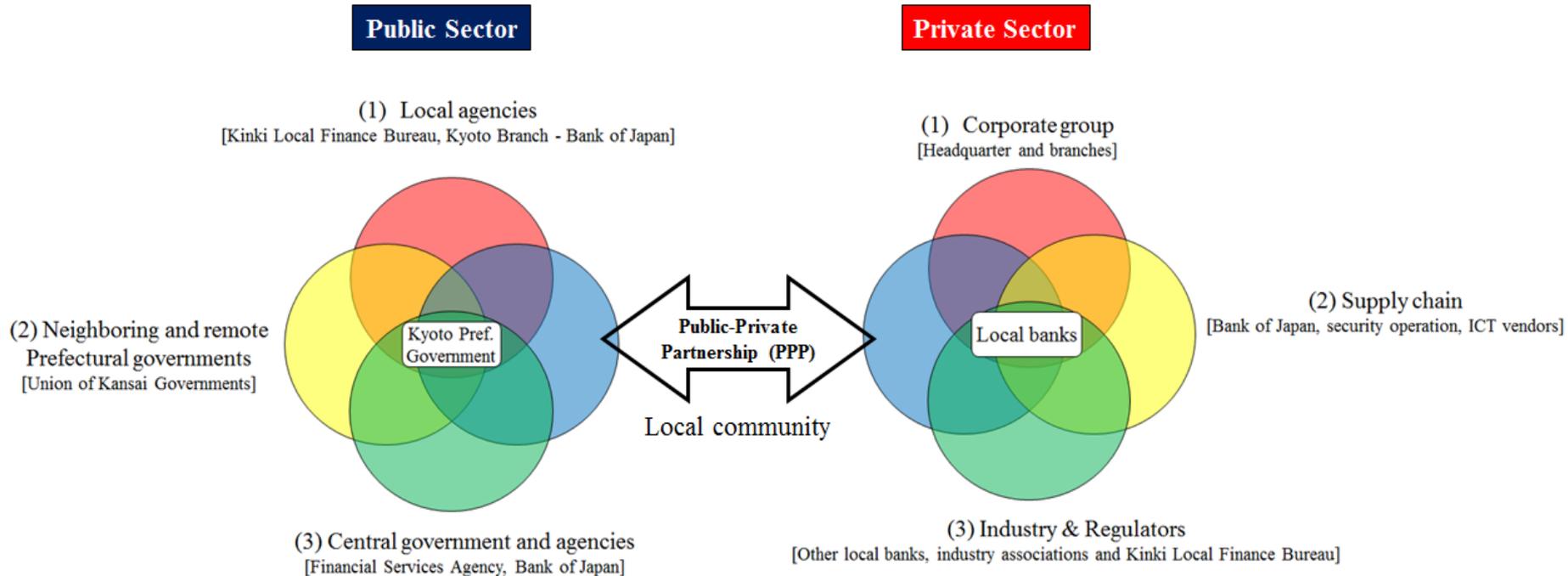


3. Case study for discussions

CASE 1: Kyoto Area BCP

PPP-based resilience enhancement structure

Joint-efforts to keep well-being of their citizens/customers even in the disaster situations

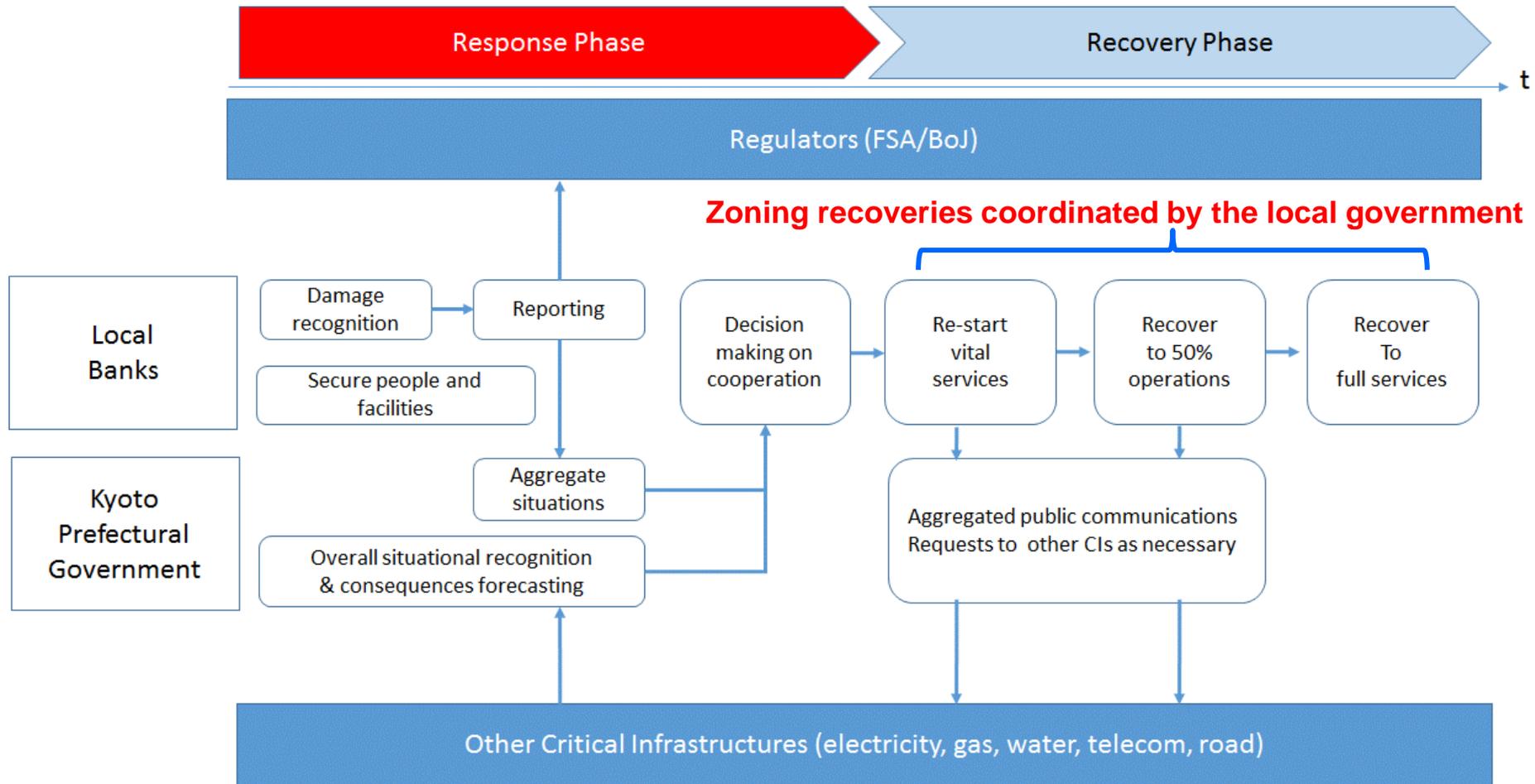


Feasible PPP based on;

- Shared recognition of the local risks
- Shared objectives to keep well-being of citizens even in the disaster situations
- Shared merits to overcome each limitation to resume critical social function
- Trust-building efforts through continuous discussions and exercises

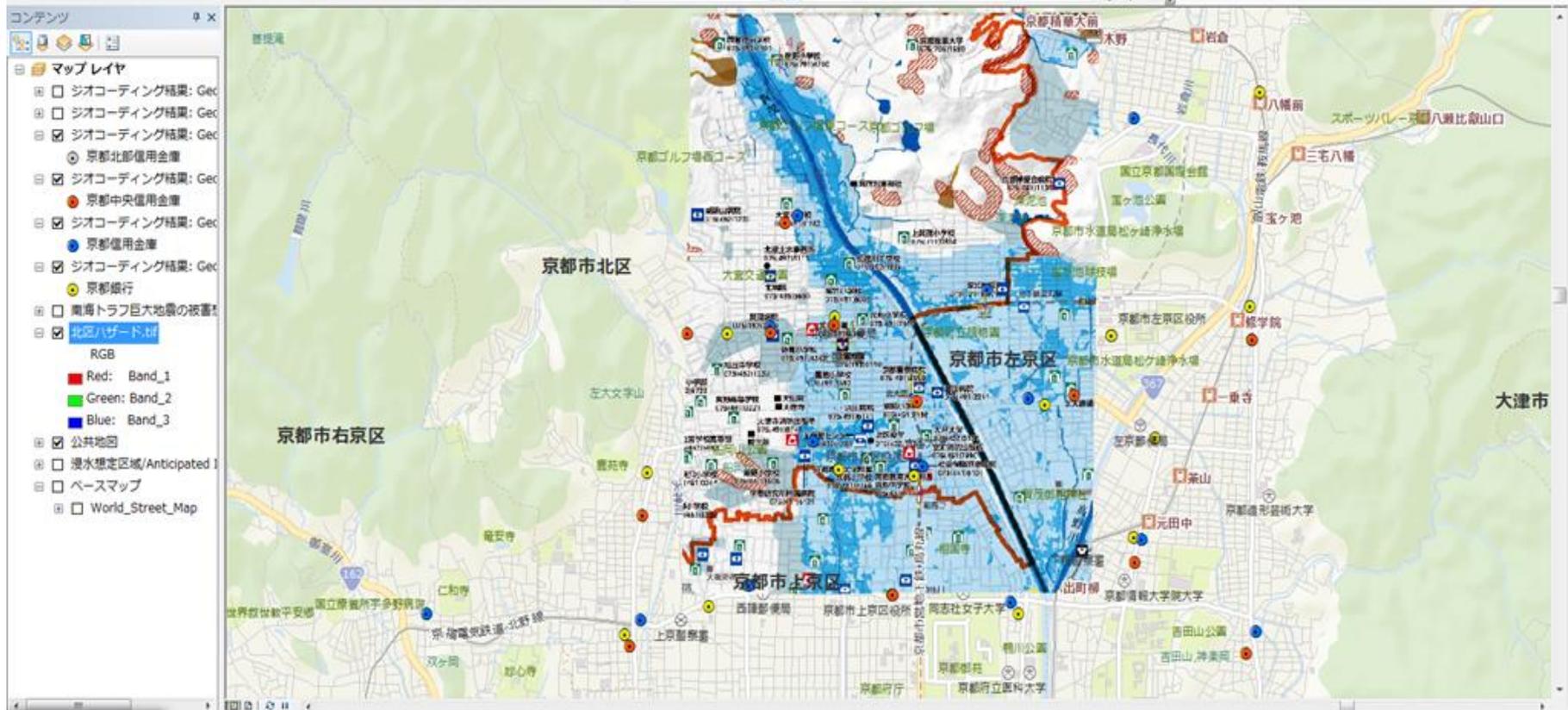
Conceptual operation flows under the on-going discussions

Optimizing recovery operations with coordinating internal/external resources



Web-GIS based DSS for Area-BCM in banking services

Flexible usage for Preparedness/Response/Recovery phases



Preparedness:

Response:

Recovery:

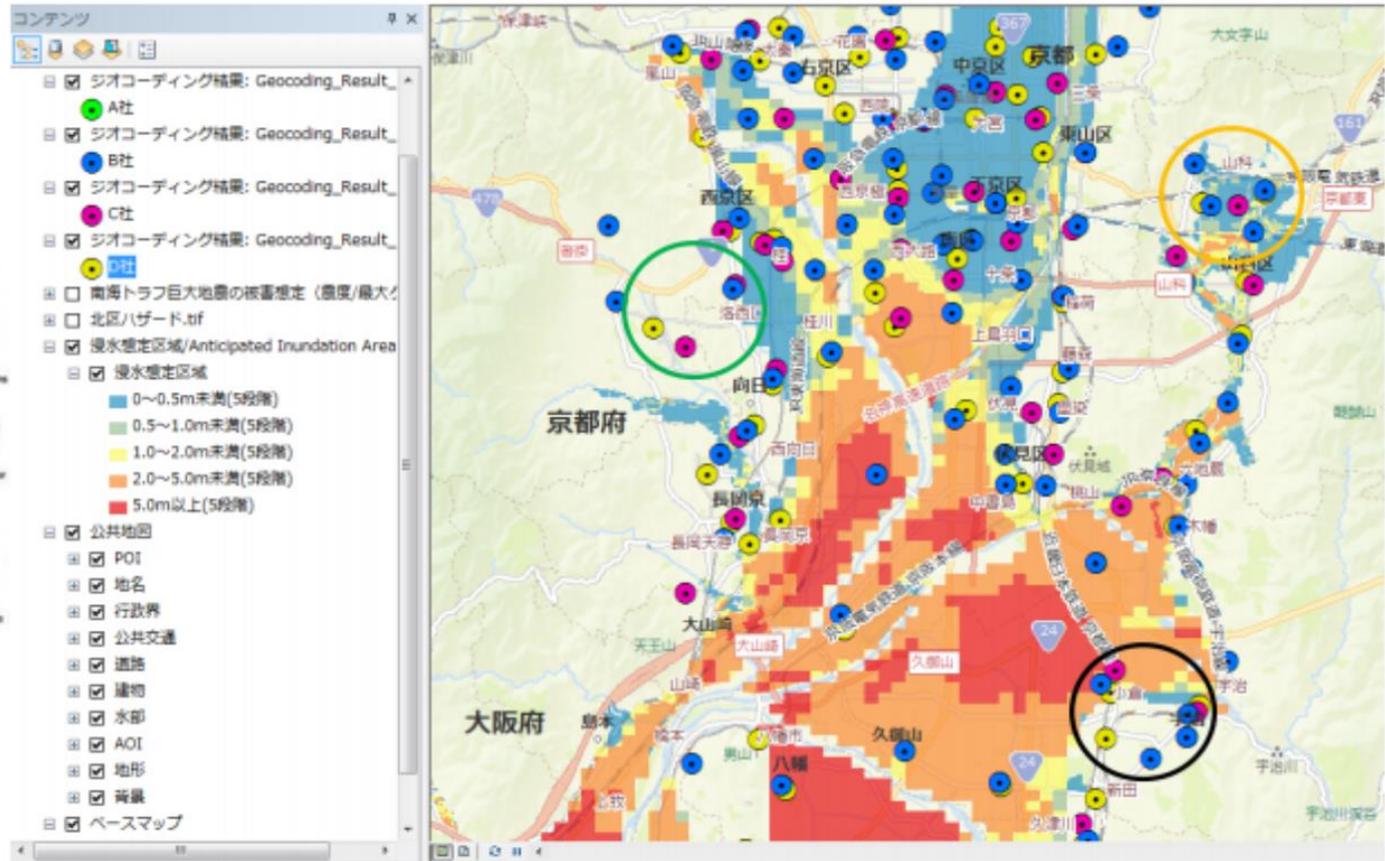
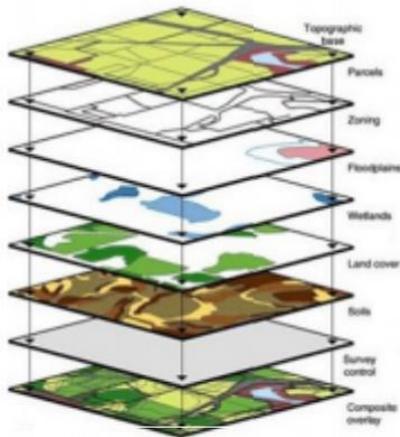
Damage simulation with hazard maps and use them in exercises

Situation awareness and required resources assessments (tangible/intangible)

PPP-based cross-banks recovery with “zoning optimization”

Aggregated data feed as one of GIS layers for DM HQ

To define required resources for recovery and to coordinate other CIs



CASE 2: Timeline-based area emergency response

Tentative definition of Timeline-based disaster management

Implemented in US disaster management activities and now in Japan

Predetermined action plans for disaster management to dynamically mitigate disaster impact

and

shared & coordinated among stakeholders
(national/local governments, CIs, enterprises, schools, local residents, and commuters)

Timeline-based inter-organizational disaster management

Pre-determined shared timeline-based activities among stakeholders



※タイムラインに関わる関係機関、防災行動は多岐にわたりますが、本イメージ図は国土交通省の対応や広域避難と交通サービスに重点を置いて整理したものであり、時間軸の設定、対応の実施などにあたっては、今後の検討、調整が必要となります。また、赤字は特に対応強化の必要と考えられる項目です。

From Ministry of Land, Infrastructure and Transport (Japan)

Timeline and ESF(Emergency Support Functions) Implemented among governmental sectors (US Government)

Emergency Support Function (ESF)	Incident Command (IC)				Operations Section							Planning Section				Logistics Section						Admn & Finance Section					
	IC/EOC / Vol. EOC Mgr.	Public Info Desk	Voice of Vashon	CCT	Operations Coordinator	Fire & Rescue Branch	Medical Branch	CERT Unit	Utilities Branch	Public Works Branch	Public Safety Branch	Public Health Branch	Planning Coordinator	Situation Branch	Message Center Branch	NERO Branch	Logistics Coordinator	Supply Branch	Transportation Branch	ARES Branch	Emergent Volunteers Branch	Mass Care Branch	Animal Care Branch	Admn/Finance Coord.	Accounting Branch	Legal Branch	Recovery Branch
ESF 1-Transportation						S				S							S	P		S							
ESF 2-Communications	S		S			P		S							P	S				P							
ESF 3-Public Works & Engineering								S		P																	
ESF 4-Fire Fighting						P		S			S																
ESF 5-Emergency Management	P	S			S							S				S								S			
ESF 6-Mass Care & Shelter								S					S				S	S		S	P	S					
ESF 7-Logisitics Management & Resource Support													S				P	P		S				S			
ESF 8-Medical Services & Public Health				S		P	P	S			S													S			
ESF 9-Search & Rescue						P	S	S			S																
ESF 10-Hazardous Materials						P		S			S																
ESF 11-Community Food & Water								S					S				S	S		S	P						
ESF 12-Energy & Utilities								P																			
ESF 13-Public Safety & Security										P																	
ESF 14-Long Term Recovery (Pending Plan)																											P
ESF 15-Public Information	S	P	S	S									S	S													
ESF 16-Volunteers & Donations																S					P			S			
ESF 17-Animal Care											S												P				
ESF 18-Administration and Finance																S	S			S				P	P		

Figure 2 – Emergency Support Function Assignment Matrix

P = Primary
S = Support

CASE 3: JICA Area-BCM

Area-BCM Project for ASEAN countries by JICA

Started with industry complexes and strong interests recognized

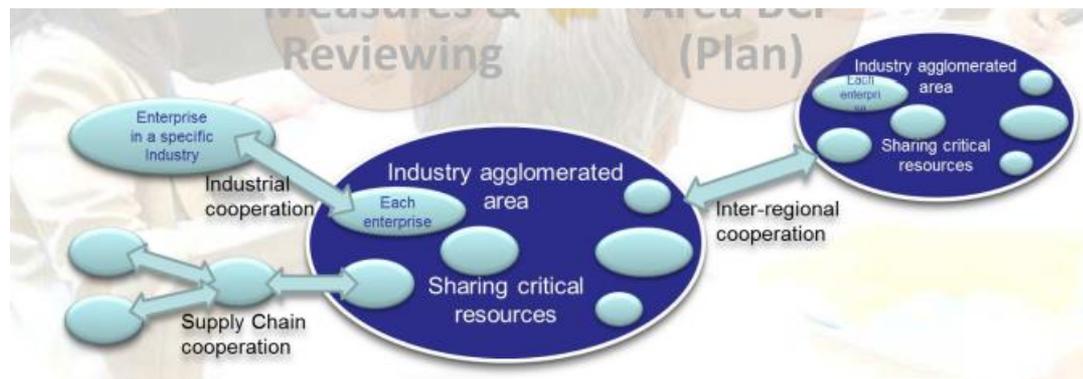
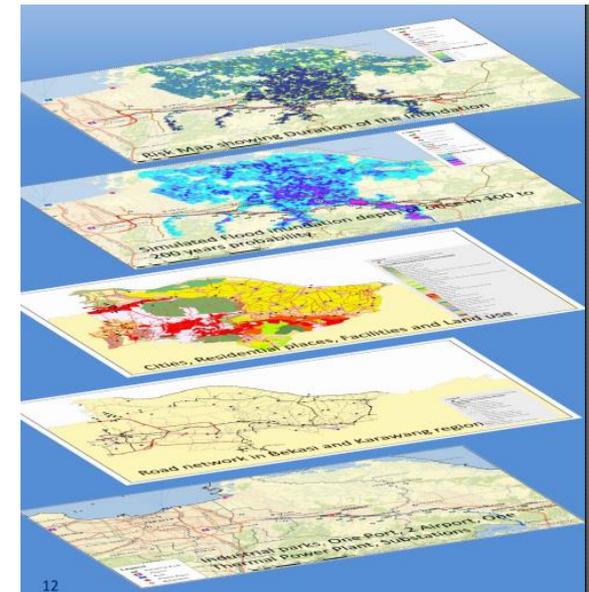
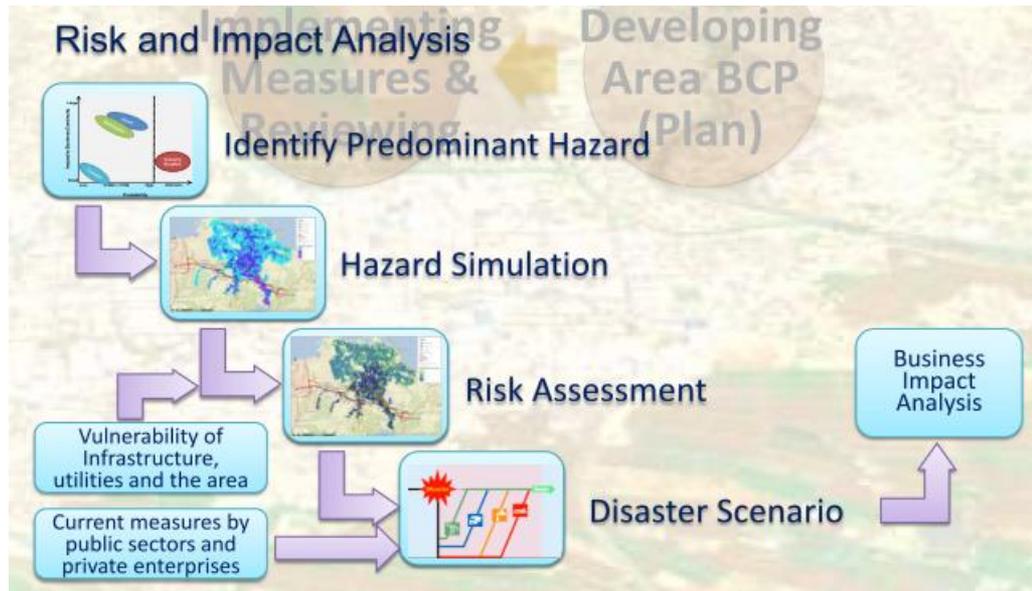
Area-BCM Project for ASEAN countries by JICA (Japan International Cooperation Agency)

with AHA Centre (ASEAN Coordinating Centre for Humanitarian Assistance on disaster management)

- 3 pilot sites selected and several workshops have been initiated in Indonesia, Philippines, and Viet Nam and now in Thailand.
- Shared regional risks among local stakeholders and discusses impacts of the realization of the risks.
- Several tools have been developed such as “Guide Book”, “Risk Assessment Reports” (for Cavite/Laguuna, Bekasi/Karawang, Hai Phong), and “Country Reports” (for Bruinei, Cambodia, Singapore, Malaysia, Lao PDR, Myanmar, Philippines, Indonesia, Thailand, and Vietnam)

Area-BCM Project for ASEAN countries by JICA

JICA is providing professional disaster and impact analysis tools to be shared and several workshops executed



Discussions

For further discussions:
watanabe.kenji@nitech.ac.jp