PPP (Public-Private Partnership)-Based Business Continuity of Regional Banking Services for Communities in Wide-Area Disasters

Limitation of Individual BCP/BCM Ensuring Interoperability Among Banks Cooperation with Local Governments for Socioeconomic Resilience in Japan

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Abstract. Traditionally, banks have developed Disaster Recovery Plan (DRP), Business Continuity Plan (BCP), and implemented structure of Business Continuity Management (BCM) for their business continuity as regulators required. However, once a wide-area disaster occurs, it is difficult for each bank only with individual BCP/BCM to continue local banking services at a limited but necessary level for vital activities and socioeconomic recoveries. Based on the actual experiences and discussions in the Kyoto Prefecture, the importance of Public-Private Partnership (PPP)-based Area BCM is recognized and actual procedures and systems concept are overviewed.

Keywords: Business Continuity Plan · Business Continuity Management · Public-Private partnership · Retail banking · Interoperability · Socioeconomic resilience

1 An Overview of Resilience Building in the Banking Industry

Before actual industry-wide damages occurred to the banking business due to the World Trade Center bombing in New York in 1993, main part of the resilience enhancing efforts of banking industry had been Disaster Recovery Plan (DRP) which mainly focused on Information and Communication Technology (ICT) readiness with data back-up, redundant networks, or back-up computer systems. However, the industry experienced the limitation of DRP in feasibility of recovery operations with not only operational element but also other elements such as human resources, operational sites, and external dependencies such as ICT vendors, and critical infrastructure and utility service providers.

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Based on the recognition of the limitations of DRP after the bombing disaster, Business Continuity Plan (BCP), which identifies an organization's exposure to internal and external threats and synthesizes hard and soft assets to provide effective prevention and recovery for the organization, while maintaining competitive advantage and value system integrity, had started to penetrate into bank's management [1].

After the banking industry acquired "lessons learnt" from experiences in preparations for the Year 2000 problem (Y2K) and in another industry-wide severe disruptions caused by the 9.11 attacks in 2001, BCP had been shifted into Business Continuity Management (BCM) as a management system with strategic continuous improvement [2].

Addition to the adoption to the above development of resilience enhancement in global banking industry, the Japanese banks had extra experiences with wide-area natural disaster oriented disruptions in retail banking services with the Great Hanshin earthquake in 1995, the Niigata-Chuetsu earthquake in 2004, the Great East Japan earthquake in 2011, and other disasters along with major floods or severe snow storms.

From among a wide range of banking services, this paper focuses on retail banking services, especially on accessibility of the deposit account, which will be highly demanded in wide-area disasters to secure vital activities and recovery efforts in the affected areas.

2 Emerging Limitations of Individual BCP/BCM

2.1 BCP/BCM Limitations and Challenges for Japanese Banks

As banking industry is highly regulated, most of the banks from the largest banks to small regional banks have been required to prepare BCP and operate it as BCM. They have been directed by the regulators such as the Financial Services Agency (FSA) and the Bank of Japan through guidelines and periodical regulatory inspections. As a result, BCP/BCM has been equipped at each bank. However, many of them are just to meet the necessary formal requirements from the regulators and lack of feasibility. On the other hand, banking operations have been getting heavily dependent on ICT and their operations are highly connected with each other through networks especially in nationwide settlement operations, wire-transfer transactions, and interoperation of Automated Teller Machines (ATMs).

Because of the interdependencies among the networks and individual BCP/BCM, there have been several industry-wide incidents caused by a single bank but spread through the nation-wide banking network. Each BCP/BCM is limited to an individual bank, and elements of interdependencies among banks are not much considered.

2.2 Emerging Importance of Industry-Wide Efforts to Build Interoperability Among Local Banks

As discussed in the previous section, banking operations are well networked and highly dependent each other, the limitations of individual BCP/BCM at each bank have a possibility to cause critical service disruptions at an industry-wide level when they have been damaged by severe disasters and any single bank could not response to by

themselves. After the Japanese banking industry and regulators experienced several industry-wide incidents, the industry has introduced street-wide exercises to make sure interoperability among banks. [3] The Bank of Japan is playing a proactive role to lead the efforts to ensure the availability of banking services as one of critical infrastructures for their local community even in wide-area disasters.

2.3 Recognized Needs for Changes After the Great East Japan Earthquake in 2011

In the Great East Japan Earthquake which occurred in March, 2011, the three banks, the Bank of Iwate, the Tohoku Bank, and the Kita-Nippon Bank, were severely damaged by the earthquake and tsunami. After the three banks recognized the limitations of business continuity by individual banks, the three CEOs immediately discussed and agreed to consider cooperation with sharing remaining resources as much as they could to recover their banking services to the minimum level that was required for the community to secure vital activities and recovery efforts.

The fields they considered for co-operation were [3]:

(1) Mutual back-up for cash availability management
(2) Private armored cars for cash and valuables transportation
(3) Telecommunication equipment
(4) Tools, stationaries, water, foods, and gas
(5) Employees transportation to the affected areas
(6) Coordination in office hours and exemption of inter-bank transaction fees
(7) Supporting shared corporate customers' recovery
(8) Media messages and public communications
(9) Governmental bill colleting operations
(10) Tentative shared branch operations

(2), (3), and (10) were actually implemented and effectively worked to recover and keep their banking operations at limited but required level for the community (Table 1).

Table 1. Implemented inter-bank cooperation

	Fields for cooperation among the three banks	Actions taken
(2)	Private armored cars for cash and valuables transportation	Because of the lack of gas for cars in the affected area, private armored car operator could not dispatch their cars to their bank clients. The three banks and the armored car operator agreed to share operations and also to transport essential commodities for their employees' lives in the disaster situation.
(3)	Telecommunication equipment	Each bank had telecommunication problems with the branches in the affected areas and the three

(*Continued*)

Table 1. (*Continued*)

	Fields for cooperation among the three banks	Actions taken
		banks agreed to share their telecommunication tools and equipment such as cell phones, satellite phones, or MCA (Multi-channel Access) radio systems.
(10)	Tentative shared branch operations	Some of their branches were heavily damaged by the earthquake and tsunami, and also some employees including management had become victimized or missing. The three banks agreed to set up tentative branches at templary sites.

After the earthquake, the three banks have worked with the Bank of Japan and established a council to continue discussions on an agreement for mutual backup in disasters, to execute street-wide exercises, and also to have collective negotiating with authorities to get necessary governmental support in disasters [4].

2.4 Implications from the Discussion Case

Through the discussions in the previous sections, the following points have been recognized and those should be taken into considerations in further development of local banking resilience;

- limitations of individual BCP/BCM at a single bank
- effectiveness of inter-bank operations at local level
- some difficulties to have accountability of co-operation
- need more understandings and supports from regulators
- need support from local government in priority transportation, public communication, and resource arrangements

3 Case: Kyoto BCP and Availability Enhancement of Regional Baking Services in Wide-Area Disasters

3.1 Kyoto BCP and Cooperative Efforts with Regional Banks

Based on the experiences of unexpected disruptions of social functionalities in the Great East Japan earthquake, the Kyoto Prefectural Government recognized the importance of an area-based BCP/BCM and developed the Kyoto BCP – Guideline for actions to establish socioeconomic resilience in Kyoto based on PPP (Fig. 1).

They illustrates the expected risks surrounding Kyoto as below [5]:

One of the key elements of the guideline is to maintain cash flows for residents and companies in the affected areas through activate individual BCP/BCM, cooperation among regional banks, special arrangement requests to governments, and public-private partnerships.

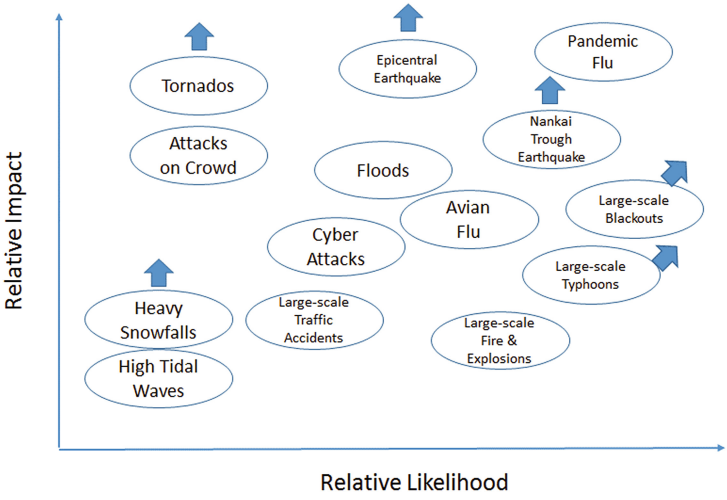

Fig. 1. Illustrated risk map defined in the Kyoto BCP

3.2 Conceptual Structure of the PPP-Based Efforts for Regional Banking Availability

The Kyoto BCP committee has several working groups and one of them is for regional banks and regulators (the Kinki Finance Bureau and the Bank of Japan – Kyoto Branch) to discuss possible cooperation in wide-area disasters. The working group started their discussions with the actual experiences of business disruptions with the flood caused by the concentrated heavy rain in August, 2012. In the disaster, some of the banks' branches with full services and only ATM machines were affected but the information was not shared among banks and local governments. This resulted in the lack of information to the residents and companies that wanted to know the accessibility to their deposit in the banks.

The banking industry is highly regulated and troubles in their businesses have to be reported to the local regulator, the Kinki Finance Bureau, that also have to report to the Financial Services Agency (FSA) However, the information is never shared with the local governments in the affected areas.

Based on the above experiences and situations, the regional banks and the Kyoto Prefectural government tried to expand their scope of BCP/BCM with the concept of Kyoto BCP [6].

Each local banks in Kyoto is expanding its BCP/BCM scope to its corporate group, supply chain, industry associations and regulators, and local community (Fig. 2).

The Kyoto Prefectural government is also expanding its BCP/BCM scope to local agencies, neighboring and remote prefectural governments, central government and agencies, and local business community (Fig. 3).

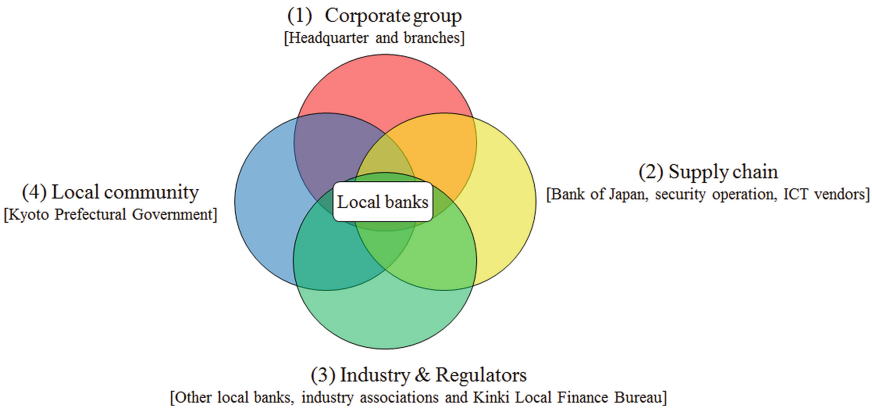

Fig. 2. Extended BCP/BCM scope for the local banks

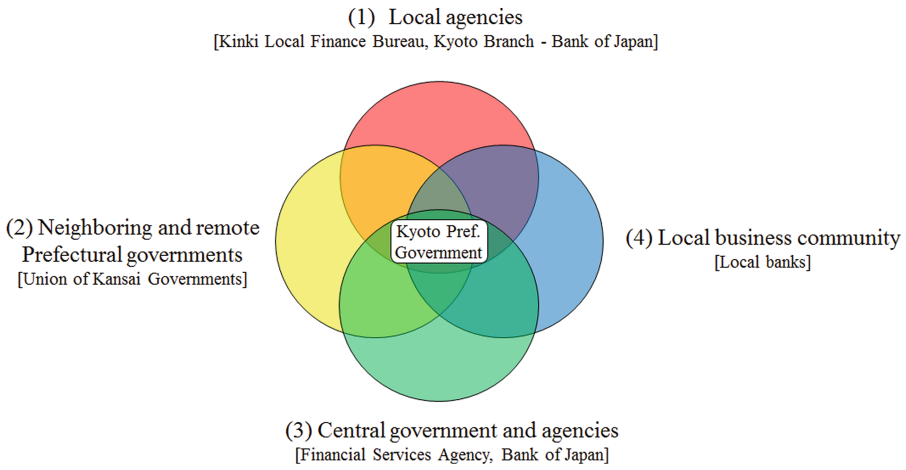

Fig. 3. Extended BCP/BCM scope for the Kyoto prefectural government

And the both sides, private sector and public sector agreed to work together to continue banking services at a limited but minimum required level in wide-area disasters based on PPP. Those activities are positioned as "Area BCM" (Fig. 4).

In the working group, detailed considerations, process designs, and actual agreements are ongoing. For example, several key points for discussions and coordination are defined at each phase for business continuity (Fig. 5).

(1) Preparedness phase (before a disruptive incident occurs)

- Criteria for activation of the shared headquarters for disaster management
- Organizational structure and contact lists
- Contact information maintenance and exercise schedule

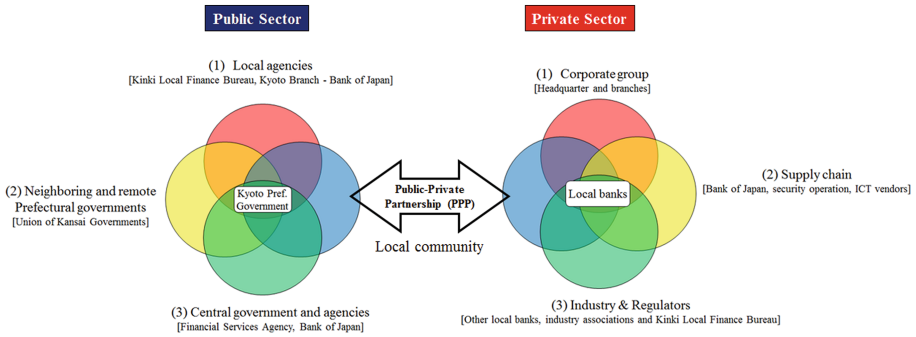

Fig. 4. Local community as a field for PPP-based Area BCM

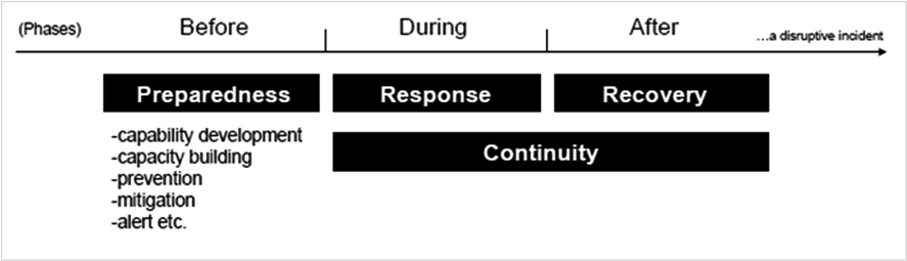

Fig. 5. Phases for BCP/BCM

(2) Response phase (during a disruptive incident is ongoing)

- Data format for disaster information from the Kyoto Prefectural government
- Format of information to be shared among banks and the Kyoto Prefectural government
- Monitoring operational situations at the banks
- Impact analysis with zoning and decision making on requests to other critical infrastructures

(3) Recovery phase (after a disruptive incident is convergent) Cooperation in:

- Mutual back-up for cash availability management
- Private armored cars for cash and valuables transportation
- Tentative shared branch operations

4 GIS-Based Decision-Support System for Area-BCM with Local Banking Service Resilience

Based on the discussions and agreements in the working group, a trial development of Geographic Information System (GIS)-based decision-support system.

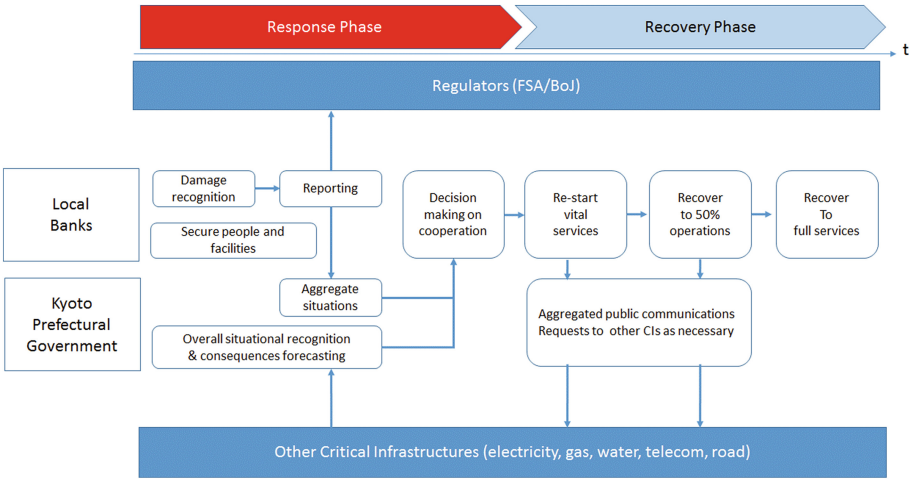

Fig. 6. PPP-based processes for inter-bank cooperation in disasters

(1) Once a disaster occurs, each local bank immediately starts damage assessment at the same time they starts securing their people and facilities.
(2) After activating the shared headquarters, each bank reports their damages to the headquarters and the aggregated situations are reported to the Kyoto Prefectural government at the same time each bank reports to their regulators.
(3) With information fed from the Kyoto Prefectural government on the overall situation (availability information from other critical infrastructure service providers) and consequences forecasting, the local banks make decisions on cooperation for shared business continuity [7–9]
(4) Based on the decisions and agreements, cooperation of banking services starts at the limited but required level for vital activities and socioeconomic recovery (Fig. 6).
(5) The Kyoto Prefectural Government inform their local residents, companies, and any other stakeholders about the banking service situations and negotiate other critical infrastructures that have interdependencies with banking services for support to the banking operations if necessary. [10] In this decision, a zoning analysis tool for leveling of banking service recoveries without any unnecessary geographical biases (Fig. 7).

The development project is still ongoing with some challenges:

- Feasibility of actual operations of the shared headquarters
- Currently four banks joined but branches of national brand banks have not joined yet
- Resources for this structure at the Kyoto Prefectural government is limited

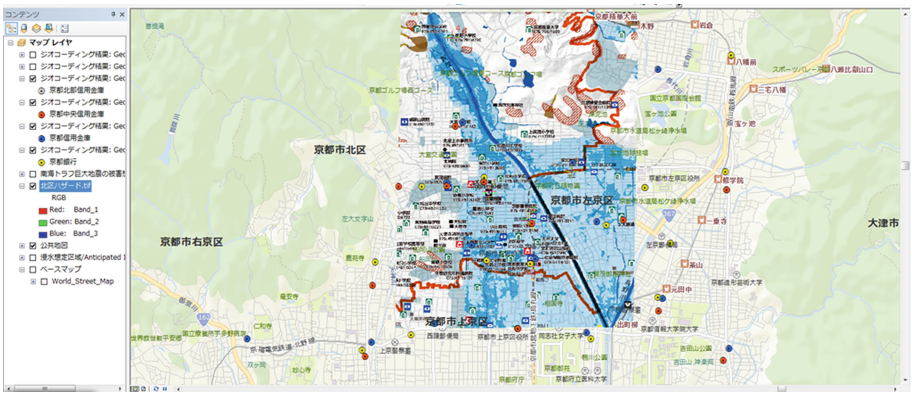

Fig. 7. Sample image of integrated map of flooded damages and bank locations

5 Conclusions and Next Steps

In order to continue local banking services at the limited but necessary level for vital activities and socioeconomic recoveries, taking individual BCP/BCM efforts at each bank is not enough. Based on the actual experiences and discussions in Kyoto Prefecture, the importance of PPP-based Area BCM is recognized. The Area BCM system concept and procedures are overviewed.

Next steps are moving the committee discussions and trial development of the decision support system forward and trying to use them in the incoming mid-small size disasters. It also can be used for a dynamic decision making exercise system for preparedness using hazard maps.

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