The flooding of the Chao Phraya River in Thailand and the Great East Japan Earthquake and Tsunami, both of which occurred in 2011, reminded us of the risks of business disruption and further impacts on national, regional, and global economies through supply chains when disasters occur anywhere in the world. Considering the increasing economic losses attributable to disasters, the fourth session of the Global Platform for Disaster Risk Reduction (2013) aimed to promote resilience and foster new opportunities for public-private partnerships as part of an overall approach to improving risk governance. Furthermore, it highlighted that a growing world requires a new approach to development action, emphasizing the private sector’s role in managing disaster risks. One of the most significant private sector contributions to disaster risk management is the creation of the business continuity plan/planning (BCP) and business continuity management (BCM) systems, which were standardized as ISO22301 and disseminated in many business enterprises around the world. However, a BCP or BCM system has been neither formulated for nor implemented in most local enterprises in industry agglomerated areas, even though these are located in areas vulnerable to disasters. Moreover, in the case of large-scale disasters, a business enterprise’s capacity may be too limited to mitigate damages and maintain operations through its own efforts, even if BCPs are prepared. The main reason for this is the disruption of public infrastructure and services. In order to minimize the negative economic impacts or economic losses, particularly in the case of a large-scale disaster that disrupts the fundamental infrastructure in certain areas, it is important to conduct risk assessment on a proper scale and to prepare scenario-based disaster management plans for area-wide damage mitigation. In addition, it is essential to have integrated resource management and strategic recovery plans to support each enterprise’s BCM actions in coordination with public sector activities. Considering this backgrounds, the Japan International Cooperation Agency (JICA) and the ASEAN Coordination Center for Humanitarian Assistance on Disaster Management (AHA Center) launched the “Natural Disaster Risk Assessment and Area Business Continuity Plan Formulation for Industrial Agglomerated Areas in the ASEAN Region” project in February 2013. The project introduced the new concept of the Area BCP, which, based on a risk assessment of the area, designates a framework and direction for coordinated damage mitigation measures and recovery actions by stakeholders, including individual enterprises, industrial area managers, local authorities, and infrastructure administrators, to allow business continuation of the industrial area as a whole. The project also established Area BCM as a cyclic process of risk assessment, sharing risk and impact information, determining a common strategy of risk management, developing the Area BCP, implementing and monitoring the planned actions to continuously improve the Area BCM system, and coordinating among stakeholders, in order to improve the capability for effective business continuity of the area.

This paper aims to evaluate the progress of the project and to explore lessons from the applied process of Area BCM and its benefits.

**Keywords:** disaster risk assessment, business continuity plan, business continuity management, Area BCP/BCM, risk management

1. Introduction

Despite efforts to save lives and the successful disaster responses that have reduced the number of casualties in many cases through laudable practices of improved preparedness, economic damages and losses are increasing remarkably and impacting local societies. As industries are connected by supply chains and trading networks, the damage has effects beyond borders; its impact may spread throughout the world.

The Great East Japan Earthquake and Tsunami in 2011, for example, put incredible strain on the national economy and had global impacts through industrial supply chains. The disaster severely disrupted the supply of Japanese-made vehicle parts to automobile assembly plants, forcing...
Toyota, GM, and other major automotive manufacturers around the world to shut down production for a lengthy period of time (Ando and Kimura 2012 [1]).

When an industrial agglomerated area suffers a catastrophe, it has significant impact on the local economy and employment and population outflow; these socio-economic changes spread throughout the nation. In the rehabilitation and reconstruction phases, local and national governments need to invest intensively for early regeneration of local industry, which is essential for restoration of the population’s living environment and normalization of socio-economic activities. Private sector participation in area-wide disaster risk reduction initiatives is hence a newly arising agenda item we need to discuss.

The Fourth Session of the Global Platform for Disaster Risk Reduction (GPDRR, organized by UNISDR) was held May 21–23, 2013, in Geneva. It was the first ever occasion at which the chair’s summary highlighted the importance of private sector intervention in disaster risk reduction as actors and partners. To follow up the chair’s summary, the “Guidance on Hyogo Framework for Action (HFA) Core Indicators Thematic Research” was issued, indicating “private investment in disaster risk management” as one of the three emerging research areas for preliminary development of input papers to the successor to the HFA.

The idea came from an understanding that increasing disaster risks represent a growing problem for the economic and business community, and business investments that aimed to strengthen competitiveness and productivity may have paradoxically and inadvertently contributed to increasing risk. Economic globalization has enabled critical gains in business productivity and efficiency, but those gains have created an over-accumulation of disaster risk in many business locations and in the global economy as a whole. The successor to the HFA should therefore reflect on the role and diversity of private sector engagement in reducing risk and building resilience, and, more specifically, clearly identify and reflect a commonly understood coordination framework with other stakeholders and a management mechanism.

The interactions between risk management in the public and private sectors should be integrated in a local disaster management plan that designates the roles of public organizations to secure the safety level of infrastructure and utilities to sustain community lives and businesses. In turn, the role of the private sector is to secure a safe environment for workers and a resilient local economy. In addition, the private sector is expected to participate in an inclusive coordination system for a resilient society by sharing disaster-relevant resources and information – as not only a partner but also an actor.

2. Area Business Continuity Management

2.1. What We Learned from Recent Catastrophes

Once a natural disaster has hampered or damaged a business, a certain amount of time will be required for that business to recover and return to a level of production sufficient for trading to take place. The recovery process may be disrupted by the loss and lack of business resources such as personnel, machinery, electricity, gas, and water. Other indirect effects may include increased expenses, lack of demand, short-term loss of market share, travel difficulties, involvement in recovery operations, decrease of production efficiency, loss of supplies, withdrawal of licenses, and loss of quality accreditation or approved standards. For many businesses, these impacts can be catastrophic.

The most significant private sector contribution to economic resilience has been the development of the business continuity plan/planning (BCP) and business continuity management (BCM) systems. BCM refers to any effort that aims to achieve business continuity by engaging in whatever is considered necessary to protect a company’s production, information, equipment, and employees. The BCP and BCM systems are standardized as ISO22301 (ISO 2012 [3]) and disseminated through many business enterprises worldwide.

The limitations of BCP or BCM systems were clearly self-evident following the Great East Japan Earthquake and the flooding of the Chao Phraya River in Thailand (Okada, 2011 [4]). Some prearranged BCP/BCM systems in private enterprises helped them survive to some extent, but overall, the plans failed to provide a sufficient basis for continuation of business or quick recovery from damage (Sato and Bessho, 2011 [5]). This was due mainly to disruption of area-wide installed common resources such as energy, water, transportation, and communications essential for business operations (Special Study Team, 2011 [6]). In these circumstances, it is necessary to develop new guidance as to how this risk might be more effectively represented in the successor framework to the HFA.

2.2. Area Business Continuity Management: A New Opportunity to Improve Economic Resilience

Based on the background described, the Japan International Cooperation Agency (JICA) developed the new concept of the “Area BCP” and “Area BCM” to improve continuity in the local economy in times of disaster. The feasibility of the concept was tested and confirmed in a project JICA launched in February 2013 in collaboration with the ASEAN Coordination Centre for Humanitarian Assistance (AHA Centre) (Baba et al. 2013 [2]). Area BCP/BCM refers to an area’s efforts to prevent economic stagnation of the targeted area regardless of the circumstances. To achieve this goal, cooperation between the private sector, national government, municipalities, operators of infrastructure and utilities in the area is necessary. Area BCM also requires a process of scientific assessment as a part of the management cycle in order to develop a common understanding of risks and impacts in the area, which should be based on a multi-hazard, multi-scenario, and probabilistic analyses. The initiative intends
Area BCM is a cyclic process of understanding risks and impacts, determining a common strategy of risk management, developing the Area BCP, implementing the planned actions, and monitoring to continuously improve the Area BCM system through coordination among stakeholders including individual enterprises, industrial area managers, local authorities, and infrastructure administrators, as well as communities, in order to improve the local economy’s resilience against disasters (Fig. 1). The Area BCP then designates a framework and direction for coordinated damage mitigation measures and stakeholder recovery actions in order for business continuation of the industrial area as a whole.

2.3. Area BCM Process

The first step of developing Area BCM is for private companies, local governments, infrastructure administrators, and utility operators to sit down together. The size of the area should be determined based on the interests of organized stakeholders, who should have a common understanding of the potential weaknesses of the area in times of disaster. In the process meetings, the stakeholders should work to identify possible bottlenecks that may lead to the disruption of business, and generate measures that will lead to a plan for business continuity in the area. The measures implemented can then be monitored and evaluated for better management of business continuity.

In order to create a common understanding of disaster risks and impacts among all parties involved in the Area BCM process, it is essential to have a scientific analysis of probable hazards, existing vulnerabilities, and the resulting risks to business interruption. Ideally, the analysis should be based on a multi-hazard (natural, Na-tech, man-made), multi-scenario, probabilistic methodology. This would include the potential hazards based on an assessment of the probabilities of them occurring.

The result of the risk analysis should be followed by a business impact analysis on an area-wide scale as well as within each of the participating organizations. Discussion of the impacts will then expose the problems and bottlenecks in the area. Creation of risk scenarios can provide the basis for stakeholders to discuss the risk management strategies, plans, and measures forming the basic structure of the Area BCP.

3. Application of Area BCM

Considering the recent rapid economic growth of ASEAN nations and the increasing disaster risks, particularly in industrial agglomerated areas in vulnerable coastal locations, JICA selected three pilot areas in Indonesia, the Philippines, and Vietnam for the first Area BCM application. In each area, many enterprises, government agencies, infrastructure managers, and utility operators participated in the Area BCM project.
Participant discussions within the established framework of Area BCM were facilitated by the project study team. A series of meetings and workshops were held to share information and improve the knowledge needed to formulate the Area BCP. Sessions were structured to promote interaction between the study team and the participants.

The entity that takes the initiative to develop Area BCM and leads the discussion differs according to country and local conditions. In the three pilot areas, the prefecture-level government in Indonesia, the municipality in Vietnam, and an authority overseeing the economic sector in the Philippines took the lead. Some of those are now considering the establishment of a legal framework under their administration for the Area BCM system in each respective area.

Participants in the applied framework can be classified into (1) the advisory group, including local and central governmental agencies; (2) the private sector, including major enterprises and small and medium enterprises (SMEs); (3) the infrastructure group, including the road authority or river basin organization; (4) the lifeline group, including the water resource manager and electric company; and (5) observers, including research agencies. Through a series of workshops, these participants discussed the fundamental policy of business continuity, critical hazards to be considered in Area BCP/BCM, current problems for business continuity, impact on the local community and industry, and bottlenecks for business continuity.

The drafted first edition of the Area BCP in each pilot area contains (1) the purpose of the plan, (2) the scope, (3) the hazards and vulnerabilities of the area, (4) the analyzed business impact, (5) strategies for industry continuity, (6) measures and activities to improve the capacity of industry continuity, and (7) implementation and evaluation strategies for Area BCM. Various types of measures and activities including hazard prevention, damage mitigation, quick response, and effective recovery were proposed.

4. Benefit of Area BCM, Evaluated from the Pilot Case Study

The Area BCM process unifies the efforts of stakeholders of the area, directs them toward a common goal, and allows the area to achieve recovery and reconstruction quickly, efficiently, and effectively. The range of measures – for example, the method selected – can help to encourage each business continuity manager to consider how to secure the required business resources. They also help to develop ways of cooperating through enhanced communication with other partners by sharing information among related parties in the area, as well as the clients of each enterprise. Furthermore, these considerations can promote expanded coordination with other industrial agglomerated areas and other strategically critical areas. Coordination through the supply chain is also enhanced by preparing an alternative supply chain network.

Each organization’s efforts were enhanced by the increase in responsibility following the development and coordination of Area BCM. Even companies that currently have no BCP/BCM may still start developing their own BCP/BCM. Moreover, cross-industry cooperation resulting from Area BCP/BCM can further promote cooperation among line industries, as it automatically distributes the concept of Area BCM to other areas. Another benefit of Area BCP/BCM is that it can give private companies the incentive to prepare plans for each stage of the disaster management cycle (prevention and mitigation, preparedness and response, restoration and rehabilitation), rather than following the usual tendency only to prepare plans for a response due to financial constraints and lack of experience.

Private parties will be involved more deeply in planning structural measures of risk reduction on an area-wide scale. For example, in disaster risk reduction, it is understood that some extent of redundancy in measures and functions is important in order to take effective backup measures and alternative actions. The combination of different schemes under Area BCM, consisting of sharing resources and investing in measures to minimize the effects of disasters while transferring risks, will add more redundancy to the area’s resilience. The public sector is also encouraged to invest in developing a more robust infrastructure. Since the regeneration of local jobs, the reconstruction of people’s living environments, and normalization of socio-economic activities are essential for the earliest rehabilitation of the locality, it is important for both public and private parties to increase their capacities in the area surrounding disasters. Linking the individual efforts of companies and public organizations, opportunities created by Area BCM can enhance strategic operations in normal businesses to avoid unexpected business risks and eventually contribute to disaster prevention as well as sustainable growth for all concerned parties.

Although it is premature to evaluate the total benefit of Area BCM, the enhancement of resiliency may encourage other enterprises to transfer their operations to the target area, where disaster risks are rather low compared to the other areas. The increased resilience of the area would also be reflected in the asset value in the investment environment, which could reduce the disaster insurance costs of local enterprises. If cost reduction follows, it will attract more investment to the industry area. Enhanced business continuity in the area as a result could foster the local economy and employment, which may have a huge impact to the nation. Enhanced business continuity in the area could result in fostering a vital economy, which may then bring substantial benefits to the nation. The process of Area BCP/BCM promotes all the engaged parties becoming aware of the connections (Fig. 2) to other members and helps the private sector to prepare well-balanced and standardized plans for all stages of the disaster management cycle.
5. Conclusions

Economic losses as a result of disasters – particularly of catastrophic disasters in industry agglomerated areas – have extensive economic impacts for nations and the global economy. As noted earlier, loss of employment and population outflow from the area can also have irreversible social impacts. The private sector can play a significant role in promoting resilient continuation of area business and early regeneration of local industry. In addition, the public sector needs to pay attention to industrial agglomeration areas in order to avoid catastrophic impacts on the national economy by developing strategies for area-wide disaster management involving the private sector in the system of management.

To encourage contributions by both the private and public sectors, the preparation of area-wide coordinated systems of disaster risk reduction such as Area BCP/BCM, as introduced in this paper, is becoming an increasingly important means of enhancing area resiliency to disasters or other threats of business disruption. Area BCM enables all the stakeholders in the private and public sectors to create mutual links and connectivity to avoid unexpected risks of lost assets and benefits. Two important questions here concern who will take the leading initiative of area BCM in the area of industry agglomeration, and who will need to do what.

As the case study revealed, the entity that takes the initiative in developing Area BCM and leads the discussion about strategies and actions may differ according to country and local conditions. In some cases, local government will be the leader. In recent years, authorities in the industrial and economic fields have become more interested in taking on initiatives and developing the concepts of area-wide resilience to disasters. While the private sector is definitely a part of the area-wide framework, it is not usually at the center of the management system. However, it is not an easy task for private enterprises to implement scientific risk and impact analysis, which is based on an area-wide, multi-hazard, multi-scenario, probabilistic methodology, as mentioned. As this comprises one of the essential steps of Area BCM, some public organizations should take the central role of implementing Area BCM.

However, the role of the private sector remains important. First, participation of all key stakeholders in the Area BCM system is essential to ensuring effective coordination. Private-public cooperation will provide the basis for generating the Area BCM process. Moreover, the private sector, as an actor in implementing disaster management plans in the actual location, should be able to provide coordination between the entities in the areas concerned and those in the external regions through inter-regional networks, industrial chains, and supply chain cooperation.

Second, we need to recognize that general management in private organizations may not take the process as seriously as they should. Conversely, after participating in an Area BCM process, private enterprises have the responsibility of linking their own BCPs to the Area BCP. For example, to share risk information, all parties need to disclose information related to business resources, current capacities, and any hazardous materials obtained in the area. This will effectively be reflected in the Area BCP formulation. The individual BCP is then interactively reviewed by each private enterprise. Constant dialogue and simulation exercises can also be effective in revealing the risks and difficulties that each stakeholder faces. This enables them to prepare a well-balanced and coordinated initial response capacity for catastrophic disasters with ef-
Acknowledging the recent large-scale disasters that disrupted common business resources that were essential for each enterprise’s business continuity, the private sector as a group of enterprises should also encourage the public sector to strengthen common resources’ resilience to disaster through a framework of area-wide cooperation. Since the industrial function of any specified area depends on critical common resources and infrastructure, including some outside the area, the concerned private enterprises should create a capacity as coordination framework with the public sector including local and national governments to secure the local economy.

The first application of such a framework, Area BCP/BCM in industrial agglomerated areas, has been introduced in ASEAN. Since the concept of area BCP/BCM is still new, experienced members of the private sector are expected to disseminate the lessons and knowledge of area BCP/BCM in other industry agglomerated areas and nations. Further, this concept of area-wide resiliency will be applicable not only to industry agglomeration but also to urbanization. To foster sustainable urban development, together with vital economic growth of each locality, private and public cooperation needs to be strengthened through the new opportunities presented by coordinated risk management.

Recent private sector efforts indicate what can be achieved and what challenges remain. The private sector can promote disaster resilience by developing BCPs and establishing BCM systems, as well as strengthening supply chain networks to ensure backup of business operations. The concept of shared resource management is also becoming better understood. In some companies, BCM plans have included concepts of corporate social responsibility in emergency events by incorporating plans for helping affected people. However, there is still progress to be made. Area-wide disaster management with significant stakeholder participation is one area in which further progress is necessary to scale up the coordination system of resilient society. The private sector can provide one key to this system’s success.

References:


