

Chapter 17

Continuing Business/Operations During a Disaster

Field of Expertise: Disaster Management Social Systems

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Summary

In the Great East Japan Earthquake, not only did the tsunami and earthquake cause direct damage to enterprises, but they also caused indirect damage through a supply chain that affected other enterprises, which then spread the affects abroad. In addition, a lot of damages to the main buildings of local governments occurred, which delayed the initial response of disaster victim relief and recovery. Consequently, the governments revised its Business Continuity Guidelines based on these lessons, and they promoted Business Continuity Plans (BCP) which can reduce unexpected situations. In the government organizations, securing substitute buildings was emphasized and the BCP formulation of the municipalities advanced to some extent.

Keywords: Business Continuity Plan (BCP), spread of the indirect damage, supply chain, substitute site, damage prediction

Introduction

Since around 2000, recognizing the necessity to disseminate BCPs to enterprises and organizations increased so that they would be able to continue critical business even if they were damaged by disasters in Japan. The Government publicized the Business Continuity Guidelines in 2005 (Figure 17-1) to promote BCPs. However, a lot of enterprises which did not have BCPs were hit by the Great East Japan Earthquake, and the cases that formulated BCPs did not work sufficiently also occurred. Therefore, the spread and improvement of BCP became urgent.

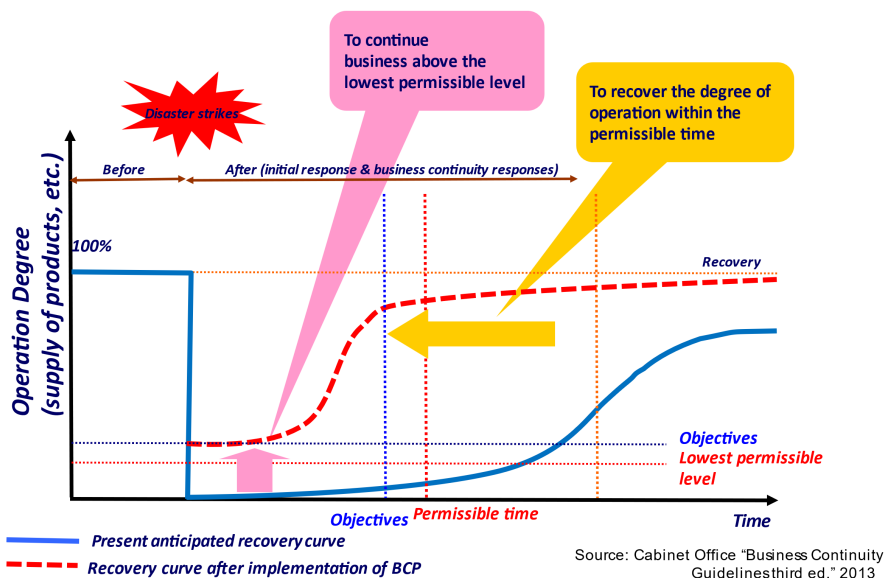


Figure 17-1. Recovery curve that business continuity aims for

1: Problems Revealed by the Great East Japan Earthquake

What happened?

In the Great East Japan Earthquake that occurred on March 11, 2011, many enterprises suffered from the earthquake and tsunami directly, and were unable to continue their business. Furthermore, the damaged enterprises which had produced primary materials stopped their supply, which interrupted other enterprises through the supply chain. Thus, indirect damage occurred. These troubles spread widely both in both Japan and abroad.

In the inquiry survey by the Tokyo chamber of commerce in March and April in 2011, 92.7% of all enterprises answered that they were experiencing the effects. According to the type effects that were being experienced, 78.2% attributed it to “Business conditions, such as the number of sales/customers”, and 59.6% said it was the “Procurement conditions such as materials or goods”. The former was caused by a decrease in demand, which influenced the enterprises. The latter was a more serious problem for an individual enterprise, and they had to procure substitute materials or goods as soon as possible.

As for public organizations, a lot of the main government buildings of the municipalities turned out to be unusable. Table 17-1 shows that 13 municipalities had to move all functions of the main building elsewhere. The breakdown of the main buildings which should work in the frontline for relief and recovery caused the delay of initial response. Furthermore, the main building of the Fukushima prefectural government office also became unusable.

The reality of the damage

The automobile industry, for example, suffered serious damage. The monthly output of cars in Japan was 800,000 in February 2011, then decreased to 400,000 in March and 290,000 in April. Toyota Motor Corporation was affected by the damage of the finished vehicle assembly plant in Miyagi Prefecture, but the bigger drawback factor was the damage of the Naka Factory of the

Renesas Electronics Corporation which produced the car parts such as microcomputers for engine-control and so on.

Table 17-1. Damage to the main buildings of city, town, and village governments, caused by the Great East Japan Earthquake

Prefecture (No. of Municip.)	No. of municipalities whose main buildings were damaged			
	Total	Relocation	Relocation partly	No relocation
Iwate (34)	22(6)	2(2)	2(1)	18(3)
Miyagi(35)	32(3)	3(2)	2(1)	27(0)
Fukushima(59)	36(0)	3(0)	3(0)	30(0)
Ibaraki(44)	34(1)	3(0)	5(0)	26(1)
Tochigi(27)	26(0)	1(0)	2(0)	23(0)
Gunma(35)	18(0)	0(0)	0(0)	18(0)
Saitama(64)	31(0)	1(0)	0(0)	30(0)
Chiba(54)	38(0)	0(0)	1(0)	37(0)
Grand TOTAL	237(10)	13(4)	15(2)	209(4)

Note: No. in () are the numbers of main buildings damaged by tsunami.
 These numbers do not include relocation by the effect of the Fukushima nuclear accident.
 Source: Research by Cabinet Office, Japan

At the time, these parts were not produced in other factories at all, and a long time would be required to begin production in other factories. Many enterprises which had received supply of the parts tried to shorten the recovery term, but it still took three months. Therefore, the domestic factories which had received the supply totally stopped operation approximately two weeks later. Then the factories restarted partly at the end of March, but the short supply of parts continued. Factories in other parts of Asia, the United States, and Europe stopped operation in late April, due to the time lag of the transportation of the parts.

2: Effectiveness of BCP was doubted in the Great East Japan Earthquake

The reality of insufficiency of the past

In the beginning of the introduction of BCP in Japan, the principal objective of the Government was to push forward quakeproof countermeasures to enterprises based on lessons from the 1995 Great Hanshin-Awaji Earthquake. Therefore, in early BCPs, many companies planned early on-the-spot recovery in the time of earthquake by anti-seismic reinforcement, etc. However, the tsunami that occurred in the Great East Japan Earthquake, and its damage greatly exceeded the anticipated damage of the tsunami at the time. The enterprises which were not prepared for this unexpected damage, namely infrastructure and essential utilities in the area being completely lost and having an inability to forecast how many months or years it would take for on-the-spot recovery. For that reason, they could not start recovery and were able to do nothing.

Furthermore, the enterprises without BCPs did not even have an occasion to think about a substitute site beforehand. Therefore, most damaged enterprises lost customers due to the late recovery, except for a few good practices (Maruya, 2016) in which an effective alternative base had been already considered, or a useful alternative base could be found immediately.

In addition, BCP did not spread to administrative organizations in the disaster area. There were few examples in Local Disaster Management Plans, in which they decided on a substitute site in case their main building was lost.

3: A New Approach ~ A BCP That Does Not Leave Room for the Unexpected~

The lessons learned in the BCPs of enterprises and organizations after the Great East Japan Earthquake were necessary for the improvement and ensuring that the unexpected would not occur. The Business Continuity Guidelines of the Cabinet Office were revised in 2013, and the third edition was created (The Cabinet Office, 2013). This guideline emphasizes the importance of recognizing the variety of the type and the level of crisis, and to introduce “substitute strategies” which are commonly effective in many types of disasters, rather than assuming a single type or degree of disaster and formulating a BCP that will just barely overcome it.

Specifically, the direct cause of the critical operation disruption was the lack of indispensable resources to the critical operations, such as sites, facilities, persons, information, etc., regardless of the type of disaster. Therefore, the guidelines emphasize the necessity to secure substitutions for resources (a substitute site, for example, see Figure 17-2), when considering the possibility that the company would suffer a large amount of damage. The guidelines also promote the enforcement of the countermeasures to secure these substitutions.

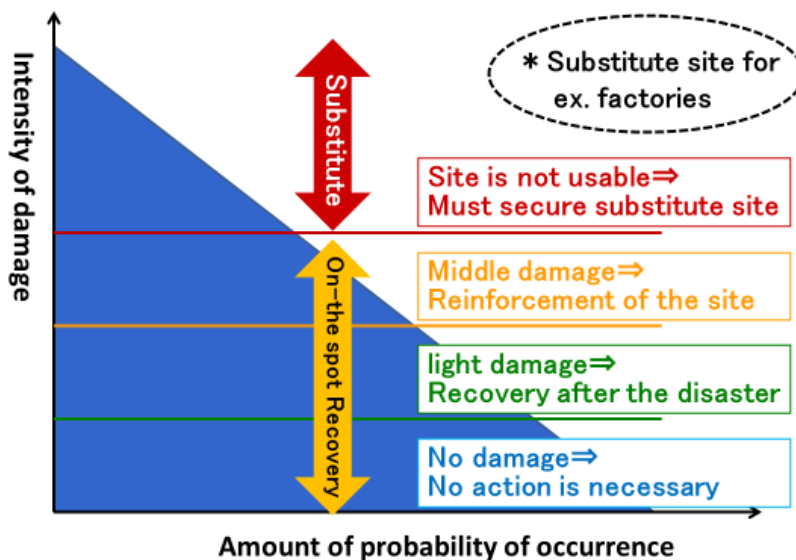


Figure 17-2. Substitute Strategy and On-the-spot Recovery Strategy

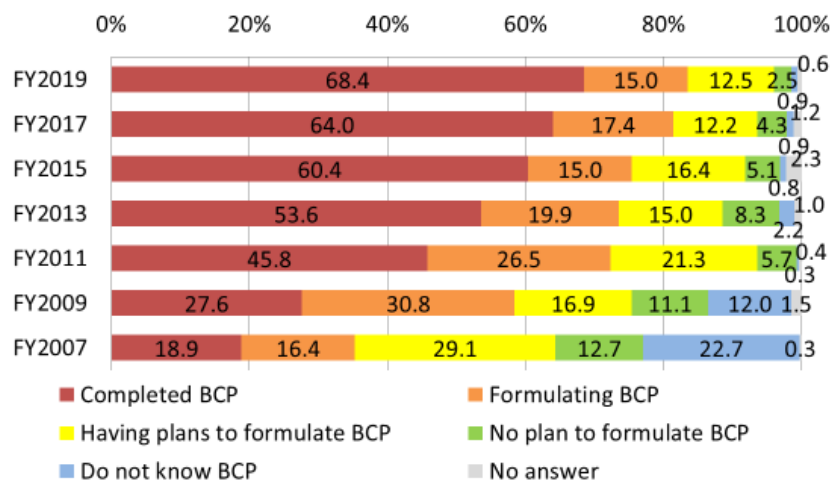
For central and local public authorities, the government revised guidelines and guides, and emphasized the necessity to secure substitute sites, emergency electric power, the means of communication that would be available in the time of a disaster, etc. and promotional policies to secure these were implemented.

4: Achievements and the Future

A new approach to disaster science

The result of the BCP formulation rate researched by the Cabinet Office every two years showed 68.4% of large enterprises had formulated BCPs (Figure 17-3), and 34.4% of medium-sized enterprises had formulated a BCP by 2019. According to the survey by Teikoku Databank, the formulation rate of BCPs including medium and small enterprises remained at 16.6% in Japan

in May 2020. Although I do not think the BCP document is required for all medium and small enterprises, BCP is surely necessary for the suppliers of important parts and materials that have a vital role in supply chains. Therefore, I think the necessity of BCPs is still high.



Note: "FY" means "Fiscal Year" No. of answers : 600 (FY2007), 369 (FY2009), 674 (FY2011), 1,008 (FY2013), 861 (FY2015), 724 (FY2017), 552(FY2019)
 Source: Survey by Cabinet Office, Japan FY2007-2019

Figure 17-3. The status of corporate BCP creation (large companies)

For the central and prefectural governments, all have formulated BCPs. According to the investigation by the Fire and Disaster Management Agency, 89.7% of the municipalities had formulated BCPs as of June 2019. Provided, I think that it is necessary to confirm whether these BCPs are sufficiently effective or not.

New support measures for business continuity ability improvement

Reasons why BCPs do not spread to medium and small enterprises often include that they do not have enough knowledge and know-how of the BCP formulation as well as not having the human and financial resources. Therefore, I analyzed the situation of formulating BCPs of medium and small enterprises and published the "BCP Introduction Guide for Medium and Small-Sized Businesses," (Maruya, 2020) consisting of 14 chapters, and have continued to update it. This guide is available on my laboratory website.

Additionally, I made a hypothesis that medium and small enterprises do not necessarily make detailed documents of BCP in full scale to raise their ability to continue business. I am now researching the necessary elements to improve the business continuity ability of medium and small enterprises and the reinforcement measures of these elements. For example, one possibility is to carefully prepare a list of parties that should be contacted as soon as possible in order to continue business immediately after a disaster. Using the results of these studies, I also conducted 6 consecutive BCP monthly open lectures at our institute in 2019.

Conclusion - from the author

The Small and Medium Enterprise Agency started the recognition system of the "Business Continuity Ability Improvement Plan" in 2019. Through this, we expect that the support from the

Government will be strengthened. The cooperation among industry, government, and university are also expected to develop. However, it is not easy for the enterprises which are very busy with daily management tasks to work on formulating BCPs. And now, COVID-19 has been spreading since early 2020 and it has become a new risk for business continuity. As the study on the correspondence to the disease in BCP is needed as soon as possible, experts, including myself, have started research and have begun to propose countermeasures.

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