



# DISASTER MANAGEMENT SCENARIO OF INDIAN ATMS DURING FLOODS

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## ABSTRACT

*The floods in Chennai in 2015 raised a question on the disaster resilience of ATMs (1) in India. This paper's intention was to assess this crisis based on the concept of BCP(2). Library research was used. The problems of the crisis were based on the newspapers and official reports. Public, private and foreign scheduled commercial banks are covered in the study. The views of the banking industry and the end user have been taken into account. Resources that can aid business continuity have been presented. Additionally, the future of BCP was discussed with regard to the Benchmark Resilience Tool that was developed in New Zealand. The results of this study are: Bank's action towards a usual circumstance shows its willingness and capability to recover from an ATM malfunction when faced with a disaster. The concept of BCP has not gone beyond IT(3). A synergistic industry-wide reaction towards disasters is still pending. The focus has been on the Indian scenario and hence the views expressed would be different in the case of developed countries. The technical aspects of an ATM have not been focused. Rather, the focus has been on disaster recovery resources. The observations of certification bodies have not been taken into account, due to lack of literature. This paper is going to add insights into further studies on the empirical level.*

**Article Classification:** General Review:

- (1) Automated Teller Machine
- (2) Business Continuity Planning
- (3) Information Technology

**Keywords:** Disaster Recovery, Chennai flood 2015, Business Continuity Planning, Benchmark Resilience Tool

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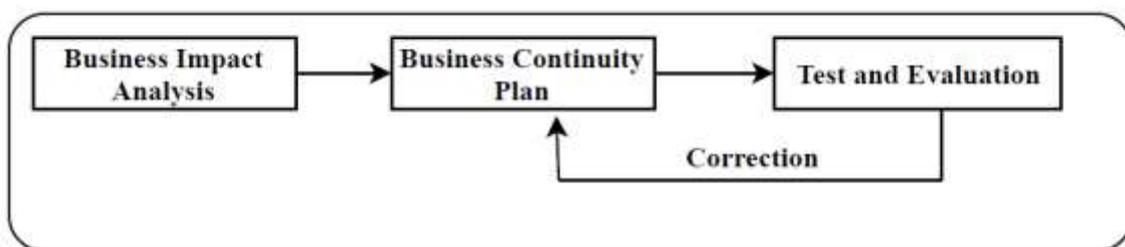
## 1. INTRODUCTION

The 28<sup>th</sup> of November 2015 was a horrifying experience for the inhabitants of Chennai. The El-Nino cyclone triggered the rains that flooded the low-lying areas in Chennai and parts of Cuddalore, Kancheepuram, Villupuram and Thiruvallur (Janardhanan, 2015). A record 1,049-millimeter rainfall, after a gap of 97 years challenged the unplanned infrastructure and illegal constructions. The disaster stalled major link roads, railways, airways, electricity and telecom. (Chaitanya, 2015; The Hindu, 2015).

The Mind the Risk report of Swiss Re, in 2014 had predicted and ranked Chennai as the 9<sup>th</sup> storm-prone metropolis in the world (The Hindu Business Line, 2016). Later when the flood occurred, it was ranked as the 8<sup>th</sup> most expensive natural disaster in the world. It was also remarked as the flood which caused the highest financial loss of \$2.2 billion, in comparison to other floods globally in the same year (Aon Benfield, 2015). The floods in Chennai impacted the Factory Mutual Global Resilience Index of 2015. India's natural disaster resilience came down from 112<sup>th</sup> to 119<sup>th</sup> position out of 130 countries. The ranking was based on the country's ability to face a natural hazard and ensure business continuity (Khan, 2016). In 2016, the Verisk Maplecroft report observed that 9% of the Indian population was susceptible to floods. Flood was ranked third among other natural hazards in India (The Guardian, 2016).

The manner in which common man's life was affected, a flood also has the potential to disrupt banking activities. Staff issues, power outage, interruption of electronic infrastructure and services, unusable premises, impediments to payments and receipts are the problems that loom large. Commercial activities and retail bank customers are the ones who bear the brunt. It brings the money supply to a standstill and this affects the economy (Miyakawa & Hosono, 2014).

Since flood is an inevitable cause, ATMs need to be safeguarded. The risk of an oncoming disaster can be measured beforehand. There is a process that companies can follow in order to get prepared for natural disasters. The process is diagrammatically depicted in figure 1 and it is explained below:



**Figure 1** The disaster recovery process

Business Impact Analysis (1) (BIA) is a study to identify the critical process/ function/ resource in an organization. It is a pre-requisite study done before preparing BCP.

Business Continuity Plan (2) (BCP) is a detailed blueprint which ranks the risks that were identified in the Business Impact Analysis. The ranking helps to prioritize the order in which containment and recovery activities have to be done. The BCP anticipates the types of possible disasters that could occur based on the business location. It points to the alternatives available to keep the critical resources running. It identifies the personnel who are responsible for containment and recovery (3). It charts out the communication channel for updating the outside world. It contains disaster recovery forms created beforehand to collect recovery and containment data from the disaster site. The BCP can also predict the approximate time needed for a process/ function/ resource to recover from a particular disaster.

The regular test and evaluation take place in order to accommodate technology update or regulatory changes or resource re-allocations. The changes that have occurred must be incorporated in the BCP so that it can remain relevant.

## 2. LITERATURE REVIEW

Earlier studies can help in shedding light on the insights that were derived regarding the impact of natural disasters on ATMs.

A banking system comes into being only when the customers place their faith in banks. Hence, even in the case of natural disasters, every bank customer expects the bank to provide assurance and assistance (Maitra et al., 2013). Such assistance from the banks which helps the ATMs to be functional will also be helpful in disbursing the government's financial aid to the disaster victims, without the effect of corruption (Ovadiya, 2014; World Food Programme, 2016; Akbar & Aldrich, 2017). In the studies conducted by Kadam & Manjusha (2017) and Brar et al., (2015), to see if banks were serious about keeping their ATMs functional using BCP, it was found that banks varied on the actions taken on preparing BCP and Disaster Recovery Plans. The banks were not having any in-house disaster management team, warning system, management personnel in-charge of disaster recovery and a communication channel in place. These were the studies that were based on the managerial perspective.

Khanapurkar (2008) noted that ATMs and the UPS (4) are usually located on the ground floor of bank buildings. This causes a functional failure. The ATM or a generator or the spare parts of both have to be re-purchased. Genevois, et al., (2015) added that apart from the machinery cost that banks bear, several recurring costs like rent, insurance, cash-in-transit cost, repairs and maintenance cost are involved. These costs are not going to cease when disaster hits. These were the studies that were based on the technical front.

From the light of the above studies, it was found that previous research studies had focused on the managerial, technical and innovation side of ATMs during floods. This study is unique with regard to the furtherance of BCP. The article points on moving from a traditional BCP concept towards Business Resilience Tool.

## 3. RESEARCH METHODOLOGY

Library research has been used. It was based on the newspapers and official reports that were published during and after the floods. They aided in finding the actions that were taken and the problems that banks faced. The article suggested the resources that could aid BCP and reached its' conclusion based on the actions and problems that were identified during the review. The review covers public, private and foreign scheduled commercial banks. The views of the banking industry and the end user have been taken into account.

## 4. DISCUSSION

The following actions were taken by banks during the flood in 2015 in Chennai:

- a) Deployment of mobile ATMs and point of sale machines for cash withdrawal (Rekhi, 2015).
- b) The bank branches worked even on Sundays to process financial transactions (Shah, 2015)
- c) The business correspondents of certain banks helped the lower income segment by using Aadhar (5) enabled micro-ATMs (Kumar, 2015)

Additionally, the finance ministry of India directed all the public sector banks to provide mobile ATMs to deliver the cash. In inundated areas wherein roads were not accessible, the banks were advised to use boats mounted with ATM or bank correspondents (Shah, 2015).

Even if these measures were implemented, table 1 depicts different kinds of problems that occurred during the flood in Chennai, Andhra Pradesh and Mumbai. The resource column suggests the facilities that can be used during the flood to avoid or alleviate these problems. Additionally, the resource utility and its use for banks during floods have been shown. These problems occurred due to improper planning and implementation of BCP by bank. These resources can help the banks to recover and contain the disaster.

**Table 1** Problems and resources with regard to the flooding of ATM

Problem Set No.	Problems	Resources	Resource utility	The benefit derived by the bank in using the resource
1	The management of UPS was tough since petrol was hard to be procured from the bunk. Placing the UPS in a lower area of the building made it prone to flooding (Dawada, 2005) Bank branches recovered faster than an ATM. Within 72 hours, banks could only restore 18% of ATMs in these three districts (Sridhar, 2014) Electronic channels like internet or mobile banking proved to be useless since electricity and broadband were not working. The vulnerability of the electronic channels to these natural hazards clearly gave a message that it was not an alternative to cash. (Sharma, 2016)	Vehicle mounted ATMs	Occupies lesser space	Negates the need to recover the ATM. Aids mobility and reach
		Local authorities	They run relief measures during disasters	Banks can negotiate for gaining temporary premises for dispensing bank services
		Service providers	They are concerned about customer satisfaction	Since competition looms large, they would offer support and alternatives in restoring the ATMs back to normalcy
2	It was hard to bring in human resource from other places since the transportation was cut off (Dawada, 2005)	NGO (6)	Help serve the needy and keeps bankruptcy at bay	Their volition and proactive attitude help banks cover up the manpower shortage faster and dispense services easily
		Security personnel	Available at all times	They'll protect the ATM as well as undertake the initial containment and recovery

Thus far, the flaws in planning and implementation of BCP were seen. Once these flaws are rectified, banks can use Benchmark Resilience Tool. This tool is a variation of the Business Continuity Plan (Lee et al., 2013). McManus et al. (2008; p. 82) proposed a

definition of Business Resilience as “a function of an organization’s overall situation awareness, management of keystone vulnerabilities and adaptive capacity in a complex, dynamic and interconnected environment.” The benchmark resilience tool goes further from the BCP and differs on the following lines, as shown in Table 2:

**Table 2** The differences between BCP and Benchmark Resilience Tool

<b>BCP</b>	<b>Benchmark Resilience Tool</b>
a) The plan stresses on risk aversion	a) It is about making the organization risk tolerant
b) It takes into account only the managerial factors	b) It also takes organization’s socio-cultural factors into account
c) It is about conducting an assessment on the already existing situation	c) It is about identifying the strength and weakness areas of an organization’s resilience and improving upon them
d) It narrows down to a mere cost driven disaster management function	d) It is about building the resilience of the organization and it is treated as a profitable venture
e) It links planning with disaster happenings	e) It validates the day-to-day process with resilience

Source: (Resilient Organisations, 2007); (Seville et al., 2008)

Benchmark Resilience tool was developed in New Zealand by the Resilient Organizations consulting and research team. It is the future of ATM operation continuity during floods.

## 5. CONCLUSION

The Business Resilience Tool is a resource that banks can use in order to cut down recovery costs and make banks more resilient. The below-given points are the additional insights that have been derived from the study:

- a) Information technology is the prime factor which surfaces when banks draft BCP. Banks must go beyond that. The lesser the focus on wider risk coverage, the banks would have lesser control over the disaster happenings. Non-IT resources were seen at risk during the flood.
- b) The standards are set by the regulatory body. The risk is measurable. Banks can audit and certify their risk resilience. Even after all these, banks in India are facing some lacuna. Disasters continue to happen and inaction leads to heavy losses. A synergistic industry-wide reaction towards disasters is still pending.
- c) In normal instances, ATM shuts down due to power outage or the operation of the ATM is facing downtime very frequently, it shows that there is some problem. The longer the time that is taken by the banks to fix the issue, the higher will be the Recovery Time Objective. A faster recovery shows the banks’ commitment towards resilience in running its ATMs during normalcy as well as in disaster.

## 6. LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

The focus has been on the Indian scenario. The views expressed would be different in the case of developed countries. The technical aspects of an ATM have not been focused. Rather, the focus has been on disaster recovery resources. The observations of certification bodies have not been taken into account, due to lack of literature.

Future studies can concentrate on empirical research and thereby shed more light on the factors that were discussed in this article.

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**NOTES:**

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- (2) The Reserve Bank Of India (Rbi) Defines Business Continuity Planning (Bcp) As “Policies, Standards And Procedures To Ensure Continuity, Resumption And Recovery Of Critical Business Processes, At An Agreed Level And Limit The Impact Of The Disaster On People, Processes And Infrastructure (Includes It); Or To Minimize The Operational, Financial, Legal, Reputational And Other Material Consequences Arising From Such A Disaster” (Rbi, 2011)
- (3) During working and off-hours
- (4) Uninterrupted Power Supply
- (5) Aadhaar is defined by UIDAI (Unique Identification Authority of India) as “a 12-digit random identification number issued to the residents of India” (UIDAI, n.d.)
- (6) Non-Government Organisation