

## **Devastating earthquake in Nepal: victims relief cash transfer through branchless banking\***

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### *Abstract*

Earthquake is a continuous and unpredictable natural process. Because of high magnitude earthquake in Nepal, thousands of people died and millions of personal homes, heritage, schools, etc. are fully and partially damaged. Millions of people are homeless and are sheltered under temporary arrangement. The victims are provided victim identification card from government level through manual process. The Government of Nepal has announced providing home grant to each victim household. At present, the process of digitization of victim data is very much important and relief cash transfer is crucial so that victim could get sheltered soon. This research paper designs a framework for proper digitization of data, quick and efficient way of relief cash transfer through branchless banking.

*Keywords:* earthquake, digitization, cash transfer, branchless banking

### **1. Introduction**

Earthquake is a continuous and unpredictable natural process which shakes the earth and lasts for less than a minute. The major earthquake of 25 April 2015 and 12 May 2015 of 7.6 and 7.3 magnitude respectively devastated central parts of Nepal. 31 out of 75 districts of Nepal have been affected, out of which 14 were declared 'crisis hit' for the purpose of prioritizing rescue and relief operations; remaining 17 adjoining districts are partially affected (Government of Nepal, 2015). It has been declared that 8,856 numbers of people have been death and 22,309 numbers of people have been injured. Likewise, more than 2,673 and 3,757 government buildings have been fully and partially damaged. More than 602,257 and 285,099 private houses have been fully and partial damaged. People are homeless and are forced for temporary shelter arrangement (<http://www.drrportal.gov.np>). The earthquake is followed by 458 numbers of aftershocks with local magnitude of 4.0 and more as of 24 May 2016 (<http://www.seismonepal.gov.np>). The destruction was widespread covering residential and government buildings, heritage sites, schools and health posts, rural roads, bridges, water supply systems, agricultural land, trekking routes, hydropower plants and sports facilities. It is estimated that the total value of disaster effects (damages and losses) caused by the earthquakes is NPR 706 billion or its equivalent of US\$ 7 billion (Government of Nepal, 2015). The Government of Nepal (GoN) has provided paper based

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earthquake victim identification card to those people who are homeless and are under temporary arrangement.

The homeless and earthquake affected people are in need of social assistance programme. Through the programme, life style of poor people can be changed (World Bank, 1997). The GoN has declared providing reconstruction assistance (financial, technical and social) to these needy people. So, they empower them to lead their own recovery (Government of Nepal, 2015). Through the assistance programme they could build earthquake resistance home. The government has announced providing financial assistance of NRs 200,000 to earthquake victims through banking channel into personal bank account (National Reconstruction Authority, 2016).

The presence of financial institutes is very much low or absence at Village Development Committee (VDC) level rather these institutes are highly concentrated at headquarter of districts in Nepalese context. The financial inclusion rate of Nepalese is low; it is only 35% (Singh, 2015). The primary motive of these institutes is to maximize the profit so they provide services at urban areas where there is a huge monetary transaction daily. Therefore, a huge number of people of remote areas are out of banking services. So, as to increase financial inclusion rate, new innovative technology called “branchless banking” needs to be used at VDC and settlement level in remote areas of Nepal.

The concept of branchless banking has been booming in developing countries. It has a huge potential to provide financial services to low-income households of remote and rural areas that are not reached by traditional banks (Mauricio and Mandrile, n.d). It is the use of technology, such as mobile phones and bank cards to conduct financial transactions electronically and remotely using third party outlets known as agents, financial services provider that allows customers to use financial services without going to bank branches (Cohen, Hopkins and Lee, 2008). In addition to transactional services, it also provides basic cash deposit and withdrawal and also government remittances for the poor (Subramanian, n.d). It has great potential to extend the distribution of financial services with lower cost both to banks for building and maintaining a delivery channel and to customers for accessing services (Ivatury and Mas, 2008).

### **1.1 Statement of the problem**

The GoN has provided paper based earthquake victim identification card to all affected people who are homeless and are under temporary arrangement through manual process. Moreover, the GoN has declared to provide financial, technical and social assistance to them so that they could build earthquake resistance home as soon as possible. The distribution of financial assistance is through personal bank account. The presence of banks and financial services is very much low or absence at VDC and settlement level rather concentrate at headquarter of district. And carrying huge amount of money from district headquarters and keeping it at settlement level by earthquake victims is always of high risk.

### **1.2 Objectives**

The main objective of this research work is to design a framework to distribute earthquake relief cash transfer through branchless banking. The secondary objective is to explore proper mechanism of digitization of victims' data.

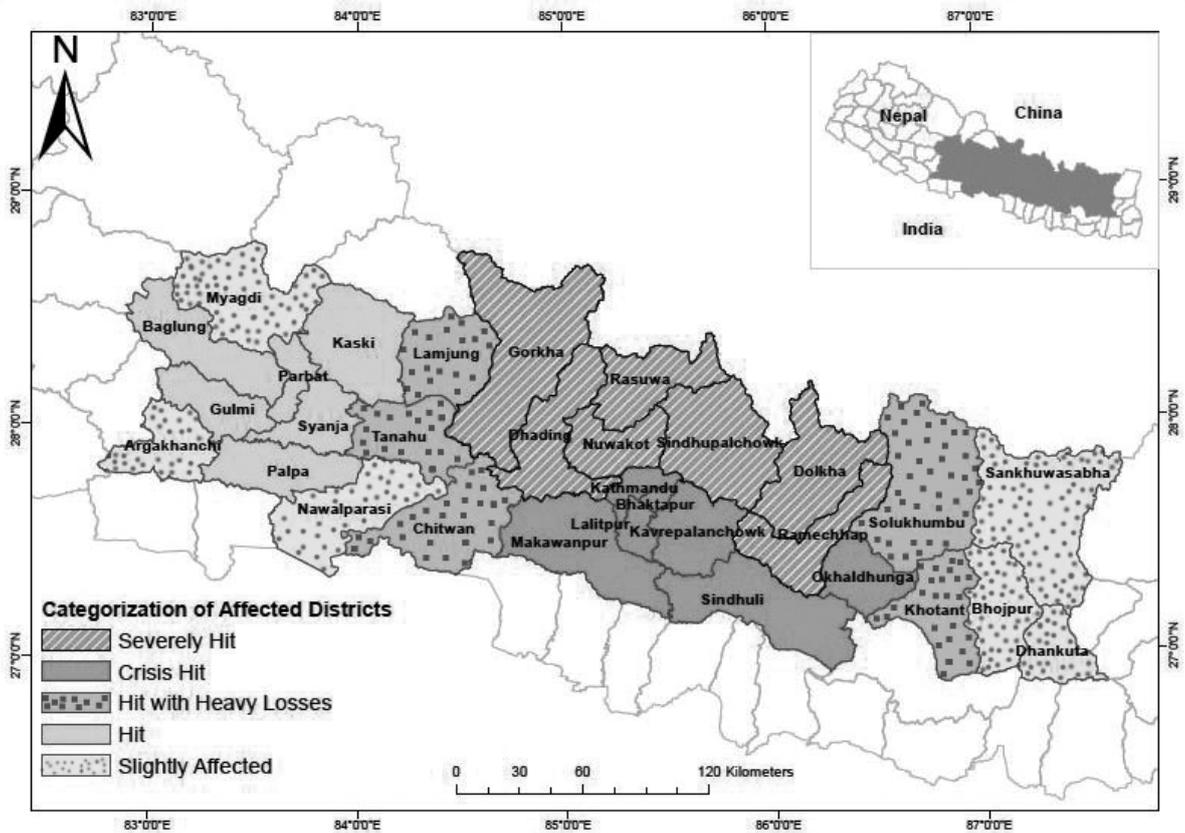
## **2. Literature review**

Nepal is the 11th most earthquake-prone country in the world. The first recorded earthquake of 1255 AD in

Nepal, that killed one-third of the population of the Kathmandu Valley including the King named Abhaya Malla. The last great earthquake of magnitude 8.4 in 1934 AD resulted in more than 10,000 deaths in the Kathmandu Valley. Most of the infrastructure and major heritage sites had to be rebuilt(Government of Nepal, 2015).

The high magnitude of 7.6 and 7.3 earthquake struck in a central part of Nepal on 25 May 2015 and 12 April 2015 respectively which affected 31 districts of Nepal. Out of these 31 districts 14 were highly affected. The earthquake affected districts and categories of earthquake affected districts are shown in Figure 1.

Figure 1. Categories of earthquake-affected districts



The major earthquake and regular aftershocks killed humans and damaged private houses, schools, government buildings, heritage and many other sectors. The share of disaster effects across sectors is shown in Figure 2. More than 58% of share is of social sector and 86% of social sector is housing sector.

Figure 2. Share of disaster effects across sectors

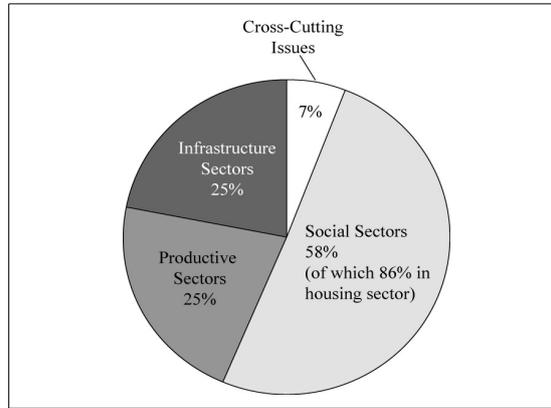


Figure 3 shows the number of death and injured people of 14 most affected districts namely Bhaktapur, Dhading, Dolakha, Gorkha, Kabhre, Kathmandu, Lalitpur, Makwanpur, Nuwakot, Okhaldhunga, Ramechhap, Rasuwa, Sindhuli and Sindhupalchowk. Out of these 14 districts, 3,532 people died in Sindhupalchowk district and 7,952 people injured in Kathmandu district.

Figure 3. Number of death and injured people of 14 most affected districts  
(Adapted from <http://www.drrportal.gov.np>)

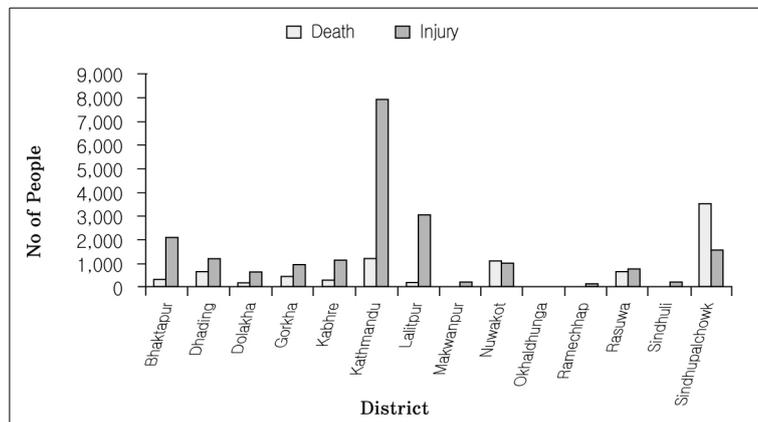
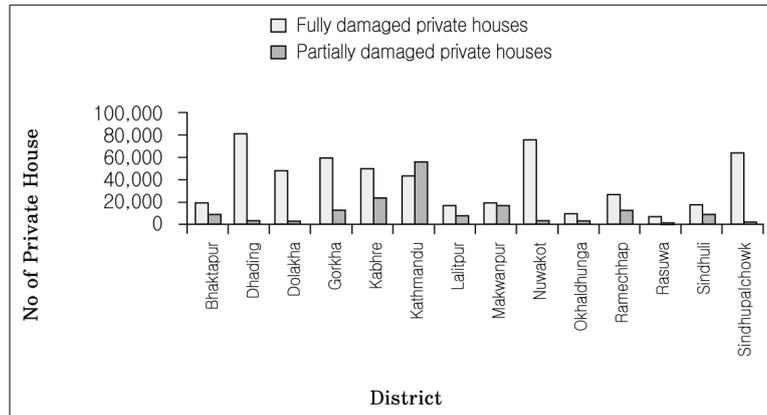


Figure 4 shows number of fully and partially damaged private houses in 14 most affected districts. In Dhading district, more than 81,313 numbers of private houses were fully damaged and 56,054 numbers of private houses were partially damaged in Kathmandu district.

Figure 4. Number of fully and partially damaged private houses in 14 most affected districts  
(Adopted from <http://www.drrportal.gov.np>)



The GoN with support of different NGOs, INGOs and development partners has provided different kind of support to these earthquake affected victims. The government has provided paper based earthquake victim identification card to all affected people. These victims were provided of NRs 15,000 as quick grant for temporary settlement and NRs 10,000 for warm clothes. At present, the government has declared of providing grant of NRs 200,000 in three installments to each household through banking channel into bank accounts from local government level. In fact, victims are in need of local government for their quick response.

Service delivery is an essential function in relation between government bodies and citizens. It is a part of complex relation between government, society and citizens. The government is a key public service provider while citizens has a right to demand quality services fast, easy at moderate cost. The image of government depends on service delivery with quality services at affordable price to its citizens(Eigeman, 2007). Through the proper utilization and implementation of technology and digital tools, the service delivery of local government could be more effective and challenges could be minimized(Fleming, 2014). Effective public service delivery is one of the key parameters to measure the goodness of governance. Therefore, government should be willing to formulate new strategies for effective public service delivery(Prasanna, n.d).

The rapid development of ICT has helped in exploring new opportunities for service delivery and income generation(McArthur and Snower, 2010). ICT is a potential tool of efficient public service delivery. It offers new possibilities for communication between people and organization and increases the quality and quantity of interaction with people. It enhances the transparency and access to organization(Prasanna, n.d) With the implementation of ICT-enabled public service delivery, it improves access to public services, increases efficiency, transparency and accountability of government(Eigeman, 2007).

With the innovation in technologies, globalization and regulatory disruption, there has been huge changes in global payments history. The global payment networks have transformed the lives of millions and billions people and many industries that were deprived of banking facilities(Faye and Niehaus, 2015). Technology helped banks to reach the doorsteps of the customer by overcoming the limitations on geographical/ physical reach in branch banking and easing the resource and volume constraints(Kumar and Chitra, 2013). Non-availability or limited availability of banking services in the rural areas has been the most common reason cited for considering payment “not feasible” through banks(National Planning Commission, 2012).

The branchless banking is a new innovative idea to reach to poor and unbanked people of rural areas. It is

a strategy of distribution channels which are used to provide financial services through the growth and development of technology and helps to expand the concept of the traditional bank branch (Deloitte, 2012). This technology has become a common mechanism to extend financial services to the economically deprived populations in the developing regions of the world (Anand and Sreenivas, 2013). The usage of branchless banking services has the potential of improving service delivery, reducing overall fiduciary risks and leakage in the system. The payments are made directly into beneficiaries' accounts. It facilitates beneficiaries with access to the modern financial system and prospect for future financial inclusion (Pandey and Joshi, 2014). The POS (Point of Sale) machine is very much popular for branchless banking because of its special characteristics such as light weight, resistant, equipped with printer and fingerprint sensor, online and offline mode of transaction and easy card reader (Leger, 2012). The biometrics is a feature measured from the human body that is distinguishing enough to be used for user authentication (Gorman, 2003).

### **3. Methodology**

The research paper is based on field visit experiences of the researchers and adopted qualitative techniques through Focus Group Discussion (FDG) method. The researchers have visited Dolakha, Mankwanpur, Okhaldhunga and Sindhuli districts of Nepal and interacted with district level officials like Chief District Officer (CDO), Local Development Officer (LDO), Programme Officers, district stakeholders and VDC level staff like VDC secretary, Social Mobilizers. Besides, they have also interacted with representatives from different banks and financial services providers, political parties, earthquake victims, etc. The main theme of FDG has been cash transfer to earthquake victims quickly, effectively and efficiently. The total number of participants is more than 25 in each district. The researchers' working experience was also used. Since, the researchers have been working as Management Information System (MIS) Specialists with National Reconstruction Authority (NRA) which is formed by Government of Nepal (GoN) after the earthquake in Nepal. The researchers have worked with the Ministry of Federal Affairs and Local Development (MoFALD) as MIS Specialists for more than 4 years and worked successfully on social cash transfer through branchless banking.

### **4. Proposed framework**

Based on the field visit and interaction with district, VDC staff and earthquake victims, it is concluded that the process of relief cash transfer is to be started as early as possible so that victims who are under temporary arrangement could settle at earthquake resistance house soon. The GoN has provided paper based victim identification card and recorded in register through manual process.

Since, the GoN decision is relief cash transfer through banking channel into personal bank account of victims. So, the list of victim maintained in register has to be digitized soon. Without digitized data of victims, it is not possible to open bank account. The central database is proposed at Government Integrated Data Center (GIDC) in Singhadurbar premise. Since, internet access from all VDCs is not feasible so offline database is proposed. After data digitization from VDC level, it is uploaded into central database through internet from district level easily.

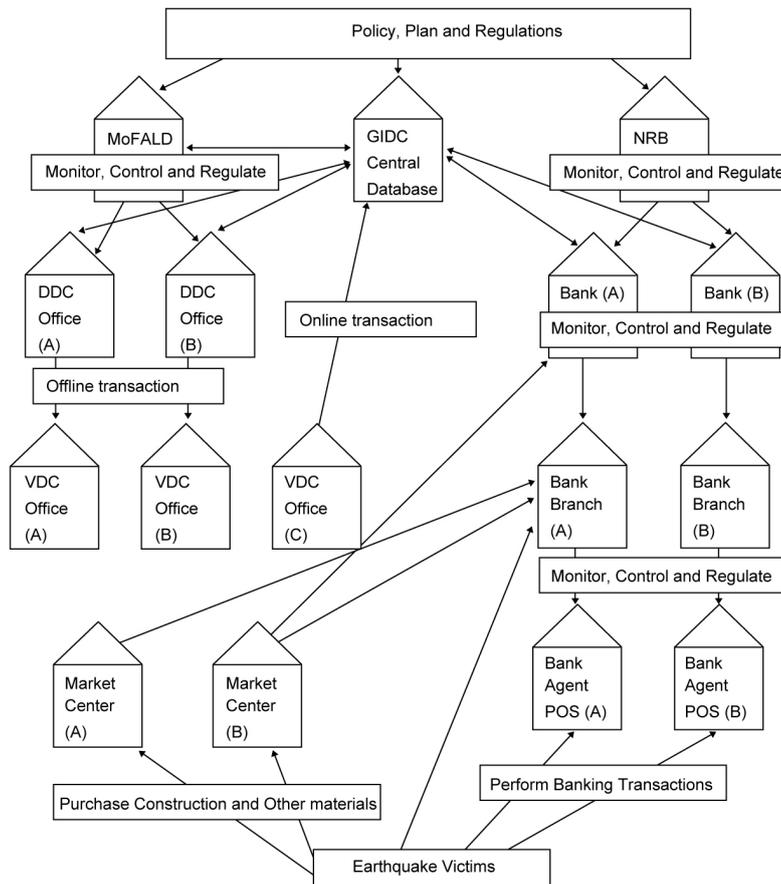
Figure 5 is a proposed framework for earthquake victims' relief cash transfer through branchless banking. Every organization like ministry, bank and citizen is governed by policy, plans and regulations of the Government of Nepal. The framework provides mechanism of both data digitization of earthquake victims' relief cash

transfer through branchless banking.

The process of data digitization starts from VDC level, since VDC has kept all information of victims in register. The representative from VDC like IT Assistant can digitize the list; if internet connectivity is available he can directly work online and submit to central server. If not, he can work offline and submit to District Development Committee (DDC) office i.e district level office which controls, monitors and regulates VDC office. From DDC office, central server is directly connected so the data can be easily accessible and submit the data online. The DDC offices are controlled, monitored and regulated by MoFALD.

The Nepal Rastra Bank (NRB) is a central bank of Nepal which monitors, controls and governs all banks like Bank A, Bank B, ....., Bank N. Similarly, Bank A monitors, controls and governs its branches at different places like Bank Branch A, Bank Branch B, ....., Bank Branch N. Now, Bank Branch A monitors, controls and governs Branch Agent A, Branch Agent B,..... Branch Agent N who provides banking channels to victims through POS machine. The POS machine may or may not operate online transaction directly to Core Banking System (CBS) of bank. If it cannot operate online transaction, it is arranged in such a way that list of victims of corresponding VDC is migrated into the POS machine. After banking transaction for more than a week, bank agent can go to bank branch office and update the latest data into CBS easily.

Figure 5. Proposed framework for earthquake victims’ relief cash transfer through branchless banking



The number of earthquake victims is high and availability of banks and banking channel is not sufficient, rather these are highly concentrated at district headquarters. Therefore, clustering of banks, their branches and branchless points has proposed in such a way that one bank provides banking services to at least one VDC beneficiaries.

Once the process of data digitization is completed, the list is sent to banks based on approved bank cluster. Based on the list provided by the government, authorized bank representatives can easily open bank account of victims and pre-filled Know Your Customer (KYC) form can be printed. The GoN can transfer required amount of money to concerned bank(s) based on the number of victims. And bank(s) can transfer to victim's personal bank account.

The earthquake victims with their paper based card can go to bank or bank agent where feasible and representatives from bank cross verify their identity like citizenship, victim identification card, etc. Besides, victims biometrics (finger print) is also enrolled into POS machine and used for cross verification of payment by same victims. As a result, victims can withdraw necessary amount of money easily. The bank agent uses PIN code and victim's biometrics (fingerprint) to identify the correct victim. After final verification, the agent gives physical required cash to the victims. Now, victims can easily order necessary material for construction of house from nearby market center.

## **5. Conclusion**

The high magnitude of 7.6, earthquake struck in central part of Nepal and damaged private houses, government buildings, school buildings, heritage, etc. More than 8,856 people died and 22,309 people injured. Many people are homeless and are under temporary arrangement. The GoN has provided paper based earthquake victim card to each household. The GoN has announced of providing financial, technical and social assistance to earthquake victims so that they can build earthquake resistance shelter soon. The GoN has announced of providing financial assistance of NRs 200,000 to each household victims in three installments of NRs 50,000, NRs 80,000 and NRs 70,000 through banking channel into victim's personal bank account. It is natural that carrying a huge amount of money from district headquarter to settlement level is always of high risk. Moreover, placing a huge amount by victims who are under temporary arrangement is more risky. This research proposes a framework for earthquake relief cash transfer through branchless banking. The presence of banks and banking channels are highly concentrated at headquarter of district only. These banks are not sufficient to provide banking facilities to all VDCs of earthquake affected districts. Because of different constraints like infrastructure, policies, human resource management, high cost, monetary transaction, etc. banks are not able to establish their branch offices at each VDC of these districts. Therefore, in order to cater relief cash transfer, branchless banking is one of the solutions which are very much easy, quick, reliable and efficient. The proposed framework definitely helps to digitize the list of victim and operate bank account with victim's personal biometrics easily. The branchless banking can easily provide banking channel to all victims at VDC level so that the relief cash transfer is easy, safe and reliable.

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