Roles of Tribhuwan University in the aftermath of 2015 Nepal earthquake

Misar Kumar Lamichhane

Master of Philosophy in Higher Education
Department of Education
Faculty of Educational Sciences

UNIVESITY OF OSLO

August 2018

Roles of Tribhuwan University in the aftermath of 2015 Nepal earthquake

Misar Kumar Lamichhane

Master of Philosophy in Higher Education
Department of Education

Faculty of Educational Sciences

UNIVESITY OF OSLO

August 2018

2018

Roles of Tribhuwan University in the aftermath of 2015 Nepal earthquake

Misar Kumar Lamichhane

http://www.duo.uio.no/

Trykk: Reprosentralen, Universitetet i Oslo

Abstract

In the last few decades, globalization pressure has resulted in the rapid transformation of higher education, depending on societal needs and demands. Modern day higher educational institutions have become more dynamic in their functions and have implemented changes in their aims and objectives to meet societal demands. One such function is the role of university in disaster management and handling post-disaster crises. In this study, I studied the case of Tribhuvan University's (TU) response after the 2015 Nepal earthquake. I attempted to analyze and assess how TU addressed society's specific and immediate expectations as the country's major higher educational institute. The study was a qualitative study where I interviewed TU's officials (Vice Chancellor, Deans and experts) for obtaining relevant data.

The main aim of this study, to assess the response of TU in 2015 post-earthquake phase, was addressed by looking at the roles of different Faculties/Institutes associated with TU. The findings were then interpreted with the use of the analytical framework of the study that was designed to address the research questions which asked whether TU's responses in the 2015 post-earthquake phase were formal/informal and active/passive, as well as the ways TU's functions as an institution could be interpreted in the time of natural crisis.

The results suggested that TU's Institute of Medicine and Institute of Engineering played an active role after the 2015 Nepal earthquake, and the post-disaster responses of these Institutes were informal. The element of formality of knowledge in these Institutes made TU act informally as a response to the earthquake aftermath. On the other hand, the Faculty of Education remained passive and typically adhered to its original functions.

Acknowledgements

I would like to register my sincere gratitude to my supervisor, Prof. Peter Maassen, for providing me with valuable expertise and structured guidance in order to pave my way to the intended destination.

I am equally indebted to Prof. Monika Nerland, and all other faculty members of the UiO for providing me with necessary exposure throughout the years. I would also like to acknowledge Dr. Jens Jungblut for his constructive suggestions and feedback at the initial stage of my thesis work. He really helped me in formulating research questions, and writing the introductory section.

I am thankful to Kristi Barcus and Mari Elisabeth Mjøen for their support and cooperation regarding administrative matters. I would also like to acknowledge the interviewees of my project: Vice Chancellor, Deans and Professors of Tribhuwan University for providing me with valuable information in response to my queries.

My special thanks go to my classmates Nirmal and Mahesh for stimulating discussions, and for helping me keep things in perspective. I should not forget to thank Kamal Prasad Khanal for giving me suggestions and feedback in finalizing my thesis, and Sushil Dhakal for a proofread.

Last but not the least; I would like to thank my wife Gyanu Rai for her perennial care, support and encouragement throughout this project. My daughter Melody also deserves a huge thank for her sweet smile while at home.

List of Tables

List of Figures

Abbreviations

AFU	Agriculture and Forestry University
BPKIHS	BP Koirala Institute of Health Sciences
FoE	Faculty of Education
FWU	Far-Western University FWU
HE	Higher Education
IoE	Institute of Engineering
IoM	Institute of Medicine
KAHS	Karnali Academy of Health Sciences
KU	Kathmandu University
LBU	Lumbini Baudhha University
MoE	Ministry of Education
MWU	Mid-Western University MWU
NAC	National Awareness Campaign
NAMS	National Academy of Medical Sciences
NPM	New Public Management
NSC	National Seismological Centre
NRC	National Reconstruction Campaign
ODP	Organizational Disaster Preparedness
PAHS	Patan Academy of Health Sciences
PokU	Pokhara University
TU	Tribhuvan University
UGC	University Grants Commission

UNDP	United Nations Development Program
VC	Vice Chancellor

Table of Contents

1. Introduction

Along with the pressure of globalization, marketization and new public management (NPM) on higher education (HE), universities worldwide have gone through a variety of transformations over the last half-century (Drori, Meyer, & Hwang, 2006). In fact, transformations in the universities occur steadily with time. However, from time to time, more dynamic changes within universities take place, which influence the functionality of the universities. It is all because universities are expected to address the changing aspirations and knowledge needs of the society. Consequently, universities' traditional structures have declined affecting their longstanding boundaries, which once were thought of as a stable regulatory order (Enders, 2005).

Since their establishment, universities have become social organizations that contribute to the production and application of knowledge, training of highly skilled labor forces, selection of the dominant elites and the generation and transmission of ideology (Castells, 2015). However, in the contemporary world of increasingly dynamic and knowledge driven societies, the roles of universities are not limited to their traditional dominant functions of teaching and research. Indeed, they are getting involved to fulfill more versatile roles (Ben-David, 1977; Clark, 2004; Geiger, 2004) depending on their national, international and environmental contexts.

On the one hand, universities' role in teaching and research as institutions is largely incapacitated by entrepreneurial pressure and the race for becoming market relevant (Altbach, 2008); on the other hand, various crises, such as the environmental, political and economic crises the world has been dealing with, also pose new challenges and additional roles to play for the universities. An example of a very specific crisis is the devastating 2015 earthquake of Nepal, which posed new challenges for the universities of Nepal to synchronize their core functions with society's expectation of involving these large institutions in disaster management. To address the society's immediate expectation during the crisis, it was realized that the role of universities is imperative to contributing to the national government's effort of handling the crisis; for instance, by proactively participating in all phases of disaster, and in the National Reconstruction Campaign (NRC).

The present study aims to contribute to a better understanding of the role of universities in economically poor countries in the aftermath of disasters. Herein, I examine the case of

Nepal's largest university, Tribhuvan University (TU), and its strategic roles in the 2015 post-earthquake situation. Since the role of this institution in the post-earthquake recovery is an understudied topic, and since there have been no previous attempts in the academic community at constructing a global theory on this topic, this study will be exploratory in the context of universities' role in post-disaster management in developing countries like Nepal.

1.1. Background of the study (April 2015 Nepal earthquake)

The south Asian subcontinent has several earthquake prone regions (Jigyasu, 2002), and Nepal has been ranked the 11th most earthquake-prone country in the world (Peduzzi, Dao, Herold, & Mouton, 2009). Ever since the first recorded earthquake of 1255 that killed one-third of the population of Kathmandu Valley, Nepal has experienced a major earthquake every few generations (Chaulagain, Rodrigues, Silva, Spacone, & Varum, 2015). Earthquakes have always existed in Nepal. Records show that earthquakes of more than or equal to 5.0 Richter scale have occurred at least once every year since 1987, except in the years 1989 and 1992 when no such events were recorded (UNDP Nepal, 2018). Some of them were devastating in nature. As per the record of National Seismological Centre (NSC), devastating earthquakes hit Nepal in 1934, 1980, 1988 and 2011 causing extensive casualties and a significant destruction to human settlements.

Most recently, the earthquake with a 7.8 magnitude occurred causing devastation across a quarter of country's landmass on 25 April 2015 with Barpak being the epicenter in the Gorkha district that lies about 76 km northwest of Kathmandu. This earthquake was followed by more than 300 aftershocks greater than magnitude 4.0 (as of 7 June 2015). Four aftershocks were greater than magnitude 6.0, including one measuring 6.8 which struck 17 days after the first major quake. All in all 8,790 people succumbed to death during the 25 April earthquake and 22,300 were injured (National Planning Commission, 2018). It has been estimated that the lives of eight million people, almost one-third of the population of Nepal, have been impacted by the 2015 earthquakes. 31 of the country's 75 districts were affected, out of which 14 were declared 'crisis-hit' for the purpose of prioritizing rescue and relief operations; another 17 neighboring districts were partially affected (Roy, Sathian, & Banerjee, 2015).

1.2. 2015 Nepal earthquake damage at academic institutions

Referring to the academic situation, the devastating earthquake of April 2015 affected almost the entire education system of Nepal. More than 5,000 schools were damaged in the earthquake, and as many as 1,000 schools collapsed as a consequence of the major first quake (Goda et al., 2015). According to the University World News, and other reports the quake caused huge damage to academic institutions (Chiaro et al., 2015). The main administrative building of TU – one of the largest universities in the world in terms of student numbers – collapsed. Offices of the vice-chancellor, rector and registrar were destroyed while the planning and international divisions next to the administrative building were partially damaged. Reports show that nine constituents and 25 affiliated colleges of TU – with half of them in the capital – were damaged either completely or partially. Similarly, minor damage also occurred at Kathmandu University (KU), located approximately 30 kilometers east of the capital. Furthermore, the damage occurred at the examination controller's office at TU and examination centers which led to cancellation of the board examinations that were scheduled (Chiaro et al., 2015).

According to the Ministry of Education (MoE), primary and secondary schools suffered the most from the quake. As indicated, an estimation of 5,000 public and private school buildings – around 350 in the Kathmandu Valley alone – were destroyed in the quake (University World News, 2015). In addition, thousands of the residential houses, buildings of the national heritage, roads and many other human-made constructions were destroyed that directly or indirectly affected Nepal's academic sector.

1.3. Rationale of the study

Every year, Nepal experiences disasters of different kind. Of late, for most Nepalese, disasters educe the painful memories of the devastating earthquake of April 2015. For others, it might even trigger the memories of floods and landslides, blizzards and avalanches, lightning and firebreaks, airplane crashes, ten-year long conflict, or even the Royal massacre.

Although these memories are fresh and painful, Nepalese citizens are still lacking better preparedness of their safety in disasters. As a result, every year hundreds of people lose their lives and properties are damaged leading to chaos.

While the physical, social and economic impacts of disasters in developing countries have increased alarmingly over the last few decades (Jigyasu, 2002), the research community has largely neglected the subject of disaster management in the context of colleges and universities (Stein, Vickio, Fogo, & Abraham, 2007). In the academic community of HE research, there exists a significant amount of literature on the core functions of universities and their roles in socio-economic development. At the same time, what is less theorized and scarcely researched is the roles that colleges and universities play in post-catastrophic situations. On the one hand, the body of literature in HE lacks a broad, interdisciplinary and conceptual framework for universities and their roles in the aftermath of disasters; on the other hand, the research community in economically poor countries like Nepal has not been able to investigate the role of universities in fostering preparedness, response and recovery efforts of disaster management.

Thus, in this setting, the present study tries to introduce a framework to fill this gap by bringing forward the largest and most cherished institutions – universities, with the analysis of their roles in post-disastrous situations. Particularly, it aims to elucidate the role of TU in the post-earthquake situation in Nepal with an aim to develop more conceptual and empirical knowledge on the functions of universities in post-catastrophe situations in general.

1.4. Research questions and objectives

The basic assumption underlying this study is that universities' contribution to the society at the times of an immediate crisis is strongly anchored in the way in which they handle knowledge and transfer it to students, and in the way, they develop expertise, among other things, through producing knowledge. In other words, the academic institutions could play an integral role in post-crisis management through widespread transfer of knowledge, precautions and safety measures. In this context, this thesis involves an examination of TU's response to society's expectation in the aftermath of the devastating 2015 Nepal earthquake. The main aim of this study was to explore the role of TU's different Faculties/Institutes (Faculty of Education, Institutes of Engineering and Medicine) in 2015 post-earthquake

management. Based on this aim, the following research questions were formulated to systematically address the overall research problem of what roles TU played in the aftermath of 2015 Nepal earthquake.

i. To what extent did TU have a plan for its operations in the 2015 post-earthquake situation in Nepal?
ii. Were TU's responses after the 2015 earthquake active or passive?
iii. To what extent did TU respond formally and informally to the 2015 earthquake?
iv. How can the functioning of TU in the post-disaster phase of the 2015 earthquake be interpreted?

1.5. University as an organization

Universities are highly complex organizations with a number of functions that include the common cultural transmission, students' growth and development, provide easy access to equality and opportunities, research and knowledge development, progress of capacity as required by the labor market and to provide public service to society (Clark, 2004). Over the last few decades, the concept of universities as formal organizations has emerged as an interesting area of research. In general, universities are not viewed as formal organizations but are considered as 'loosely coupled' in the sense that their individual units operate with a great deal of autonomy (Weick, 1976). Weick (1976) postulated that loosely coupled systems are the best approaches to experimentation or localized adaptation without forcefully implementing changes in the whole system but rather making changes in the specific system where required. Weick used the US educational system as an example of how loosely coupled systems are both prevalent and important for organizational function. Understanding an organization as a loose coupling of actors, rewards, and technology may help better explain how organizations adapt to their environments and survive amidst uncertainties. Weick commented that most researchers assume that one can "understand" an organization by examining the formal structures, goals, and activities of an organization. Yet clearly, there is another part of organizations that is informal, chaotic or even anarchic, yet somehow productive, adaptable, and crudely organizing.

1.6. University as a knowledge institution

Universities serve as important hubs for knowledge transfer between a large number of actors and organizations. It is in fact one of the objectives of universities that efficient knowledge transfer is pivotal to building up a strong society. In this regard, universities and academics solely contribute to the benefits of the society by focusing on teaching and research that have social, economic and cultural impacts. In this study, I focus on how universities as knowledge institutions are associated with societal benefits through efficient knowledge transfer at the time of crisis. In addition, I attempt to understand the close connection between universities and society.

1.7. Relationship between university and society

The aforementioned objectives of universities are all applicable in shaping a society's future (economic status, social status and political status) (Brennan, King, & Lebeau, 2004). Historically, universities have played a myriad role as ideological apparatuses and training and production of skilled labor forces (Castells, 2001). These directly influence the society we are living in. In the modern world, universities are flexible in adapting and changing as per the social and economic needs and demands from people and their societies. This has contributed to bringing about wider changes in societies. Societal changes are dependent on the fundamental changes in society's core institutions, such as the societal policy and the economy (Olsen, 2007). Universities in this context can bring about the transformational changes in particular societies and regions that are beneficial for people (Brennan et al., 2004). Some of the major changes and transformations that universities can have an impact on are shown in figure 1.

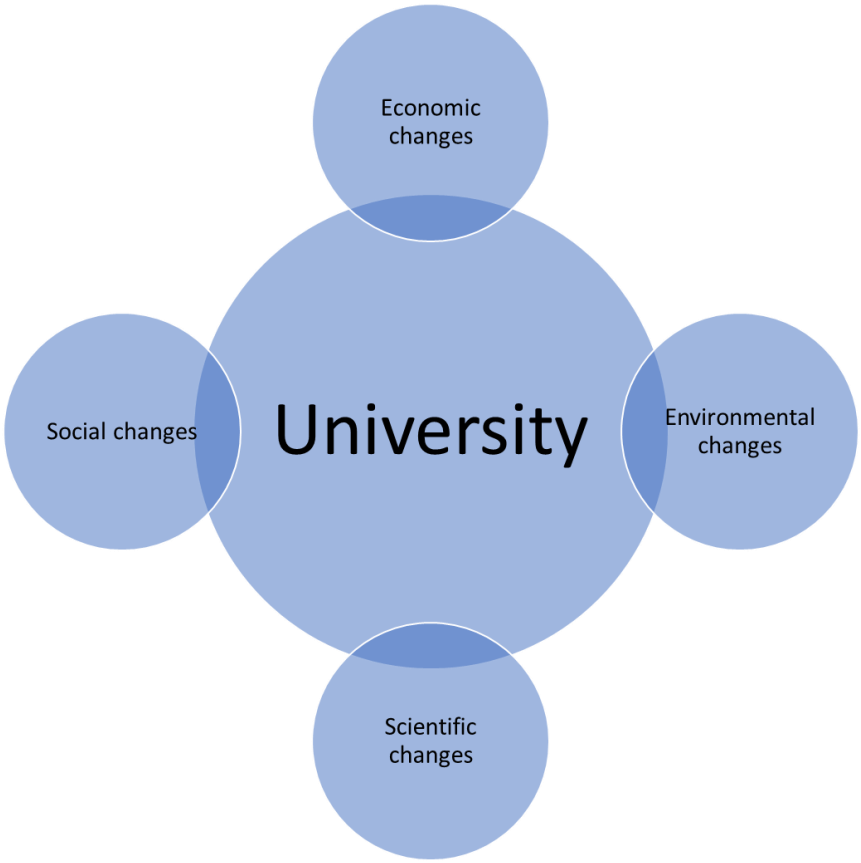

Figure 1: Major changes in society that universities can bring about (adopted from, (Brennan et al., 2004).

1.8. Thesis structure

The thesis comprises six chapters. Each chapter has its importance in the current study. Chapter one introduces the area and topic of the research. It provides a brief background of the study, motivation and rationale, research problem and questions, significance and outline of the study.

Chapter two is concerned with setting the context and providing the background information to the higher education system in Nepal in general. In particular, it provides a brief overview of TU as a major educational institution in Nepal.

Chapter three presents the literature review and theoritical framework. It deals with the global academic literature which sheds light on various roles of universities in different contexts in order to develop an appropriate concept for this study. Since this study is exploratory, it has tried to build a general framework on the role of universities in post-disaster situations on the

basis of relevant literature discussed. It will take into consideration Oliver's conceptual approach to organizations' responses to external institutionsl pressures (1991), Castells' (2001) and Trow's (1970) functions of university, and several other relevant literature and relate them to TU.

Chapter four discusses various aspects of the research methodology. It provides the overview of research design, research methods, sampling technique, data collection and data analysis procedures. In addition, this chapter concentrates on potential ethical issues, validity and reliability of the study.

Chapter five presents qualitative data gathered from the field work with special focus on the findings from the interviews. The findings have been discussed with reference to the analytical framework developed in chapter three.

Chapter six discusses the main findings. The findings have been discussed as in the sequence of the research questions.

Chapter seven presents conclusion and recommendations. It comprises the main conclusions based on the findings of the study. Where necessary, this chapter has also made an overview of suggestions and recommendation for future research. The thesis ends with concluding remarks of the whole study followed by the list of references.

2. Background: Setting the context

Nepal is one of the poorest countries in South Asia. It has a poorly developed economy, very low per-capita income, and is relatively isolated. On top of this all, it is regularly affected by different kinds of natural disasters. However, there is a limited financial, technological and human capacity to deal with the disasters. With these limited capacities, TU, the largest and the core University of the Nation, can be expected to involve itself and its Institutes/Faculties in managing the effects in the aftermath of disasters in the country. In this chapter, various aspects of TU will be presented in order to provide the reader with relevant background information for this study.

Until 1982, TU was the only university in Nepal and it was spread across the nation. The concept of multi-university in Nepal developed after the formation of a royal commission in 1982. Consequently, Nepal Sanskrit University was established in 1986. Subsequently, Kathmandu University (1991), Purbanchal University (1994) and Pokhara University (1997) were established to further promote higher education in Nepal (Paudyal, 2016). Similarly, several other publicly and privately funded universities were established in the later years. Currently, there are 9 privately and publicly funded universities in the country. In addition, there are several university-like educational institutions that provide medical education to students (Paudyal, 2016). The full list of higher education institutes in Nepal at present is shown in table 1.

		Affiliated campuses	
University/Academy	**Constituent Campuses**	**Community Campuses**	**Private Campuses**
Tribhuwan University (TU)	60	422	559
Nepal Sanskrit University (NSU)	14	2	2
Kathmandu University (KU)	6	0	15
Purbanchal University (PU)	3	5	121
Pokhara University (PokU)	4	0	49
Lumbini Baudhha University (LBU)	1	0	5
Mid-Western University (MWU)	1	0	0
Far-Western University (FWU)	1	0	0
Agriculture and Forestry University (AFU)	2	0	0
BP Koirala Institute of Health Sciences (BPKIHS)	1	0	0
National Academy of Medical Sciences (NAMS)	1	0	0
Patan Academy of Health Sciences (PAHS)	1	0	0
Karnali Academy of Health Sciences (KAHS)	1	0	0

Table 1: List of universities and academies and their constituent and affiliated campuses in Nepal (Adopted from, Paudyal, 2016).

2.1. TU as the biggest higher education institution of Nepal

Nepal's modern education system is one of the youngest in the world (Mathema, 2007). In fact, higher education (HE) emerged in Nepal only after the fall of 104 years (until 1951) long Rana regime. The education system of Nepal only started to flourish after the democracy was established in 1951 (Mathema, 2007, Paudyal, 2016).

The first higher education college in Nepal, Tri-Chandra College, was established in 1918, which also marks the beginning of modern higher education in Nepal. To facilitate smooth running of higher education institutions, the committee on higher education was established in the year 1957. The first Nepali university, Tribhuvan University (TU), was established in 1959. After the establishment in 1959, TU has become the country's largest education provider with more than 500,000 students gaining higher education and vocational training in different TU affiliated Faculties and Institutes spread across the nation with the majority of them located in the capital city Kathmandu.

Until 2006, when the Monarchy was in practice in the country, the King served as a formal leader of TU. However, the historic democratic movement of 2006 appointed the Prime Minister of the country as the head (Vice Chancellor) of TU, whereas the Minister of Education served as the pro-chancellor of the university. The Vice Chancellor (VC) is the chief executive of the university and is supported by the Rector and the Registrar of the university. TU serves as a non-profit educational organization of the country and is funded exclusively by the government of Nepal (Tribhuvan University, 2018). In the year 2013, TU was declared as the country's first central university by the government of Nepal. The main objectives of the country's largest education institute are outlined below.

- To prepare capable human resources required for the overall development of Nepal.
- To impart standard higher education.
- To protect and develop national culture and tradition.
- To involve in extensive, empirical and timely creation of knowledge and research in the fields of arts, science, technology and vocation.

These objectives were set with an aim to providing non-profit and selfless services to different fundamental elements of the nation including society, politics, arts, culture and tradition, finance and economy and science and technology.

2.2. TU faculties, departments and councils and authorities

TU is one of the largest universities in the world in terms of number of students. Data shows that in the year 2012/13 the total of 500,717 students was enrolled in different campuses affiliated to TU (UGC, 2012/13). TU runs different educational programs through 60 constituents and 931 TU affiliated campuses that are spread throughout the country. Approximately, 15,000 faculty and non-teaching staff members are employed by TU (Tribhuvan University, 2018). The university offers 1079 bachelor's level courses and 1000 master's level courses (Chongbang & Campus, 2014).

The decision-making bodies of TU are divided into 4 independent councils: the executive council, the academic council, the research coordination council and the planning council, all of which work hand-to-hand as decision making bodies of the university, as well as for smooth running of the TU's administration (Tribhuvan University, 2018). Each of these councils is individually described here in short with their major functions at the university.

The executive council of the university consists of 7 members and is involved in executive decision making of the senate, decision making on grants and reviewing and granting affiliation to private campuses. In addition, the council is responsible for appointing university officials. The academic council of the university consists of 50 members. This council is responsible for decision making on educational policies and practices in regard to academic curricula of the university. Furthermore, the council extensively makes decision on teaching, examinations and research activities. The research coordination council of the university is mainly involved in the formulation of the university's research policies and activities. The council constitutes 27 members and works in close collaboration with academicians, whose function is to design and approve guidelines for researchers. Moreover, it coordinates the different roles and responsibilities of research organizations at the university. The planning council of the university constitutes of 29 members and performs an advisory role in making short and long-term plans. Moreover, it is involved in developing

annual programs of the university and the implementation of such programs in a timely manner (Tribhuvan University, 2018).

2.3. TU structure of higher education

At TU, higher education study program offerings consist of varied bachelor's (3-5 years) and master's (2 years) degree programs. The language of instruction is both Nepali and English. The final examination for most programs is generally once a year at the end of an academic year. However, with the introduction of the new semester system in 2015, TU conducts examinations bi-annually. TU has already implemented the semester system from the year 2015 to all its constituent and affiliated campuses. The structure of the current TU's education system in Nepal from the primary level to university level is shown in figures 2.3.

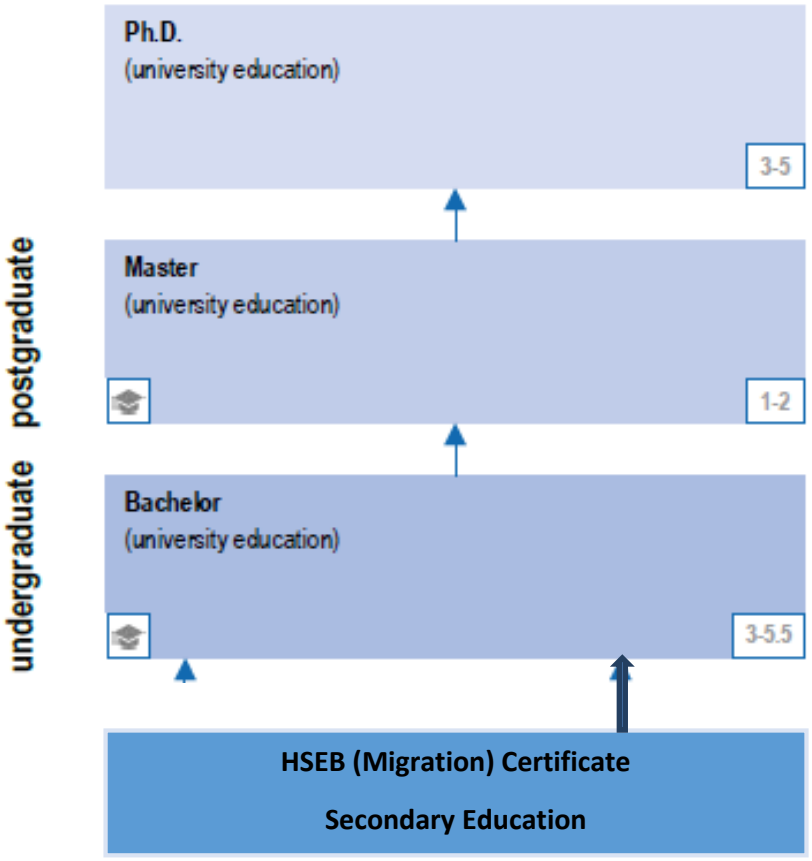

Figure 2: The structure of TU education system (Tribhuvan University, 2018).

2.4. TU's Faculty of Education

Tribhuvan University's Faculty of Education has a long history. It was established in 1956 — 3 years before the establishment of TU. The Faculty of Education is the largest in the university with 26 constituent campuses and 590 affiliated colleges spread all over the nation. The Faculty of Education is responsible for producing trained school teachers, teacher educators, educational planners, researchers, education policy and curriculum makers and other human resources required in the educational sectors of the country. The Faculty runs various undergraduate (B. Ed) and postgraduate (M. Ed, M. Phil) degree programs, as well as trains and educates PhD scholars and researchers. The current figure suggests that 26 PhD students have successfully completed their doctorate degree work at the Faculty. In addition, 48 PhD candidates are currently enrolled in the PhD program run by the TU Faculty of Education (Tribhuvan University, 2018).

In this study, I have attempted to assess the role of the TU Faculty of Education in crisis management after the 2015 earthquake. Being the leading Faculty of the country's biggest university, I assumed that it played a significant role along with the Institutes of Medicine and Engineering in crisis management in the aftermath of the 2015 earthquake. Hence, in this study, through interviews and evidence collection, I have attempted to summarize what specific role the Faculty played in handling the aftermaths of the 2015 Nepal earthquake. Nonetheless, the scope of this study is not limited to the role of the Faculty of Education. In fact, the roles of other Institutes and departments of the university in the management of 2015 Nepal earthquake aftermath have been extensively covered in this study.

2.5. Challenges faced by TU

Despite being the country's largest university, TU is encircled by numerous obstacles that have hindered the smooth running of the university. TU is faced with several economic, social and political challenges which need to be addressed systematically. Some of these are individually discussed here.

First and foremost, the quality of higher education provided by TU has always been a subject of national interest. It is a bitter fact that except for some technical institutes, TU has not been able to meet the standard of education when compared internationally. Enthusiasm and

dedication among professors and teachers seem to be lacking in most campuses. The classes consist of mainly lectures and are non-interactive. The students are taught facts rather than involving them in intellectual debates, interaction and research. Discussions, seminars and conferences rarely take place due to the lack of funding and passivity of professors and lecturers. Examination system for most courses is very conventional with one final written exam at the end of the semester. Students barely get a chance to take part in project or field work, case-studies and practical experiments. Moreover, the academic calendars are not followed strictly which leads to unscheduled holidays, teachers' and students' absenteeism and incompletion of academic courses. The consequences of all this is reflected in the students' results, which suggest that the failure rate in non-technical faculties is above 50% both at undergraduate and postgraduate levels (Ministry of Education Nepal, 2016).

Funding has been another issue at TU. Being a state funded university, the majority of its funding comes from the government. As a result, the university is highly politicized making it even more difficult to implement changes and introduce reforms in the system. Other funding sources of the university include registration, examination and tuition fee from students. A small portion of the TU's funding also comes from donations by the private sector such as pharmacies, laboratories and industries. Indeed, the quality of TU's education is directly affected by the shortage of funds. Lack of money has affected the expansion of facilities such as libraries, laboratories, scientific equipment, classrooms, lecture halls and field work. Recent figures suggest that only 5% of the national budget was allocated for the education sector in the year 2017-2018 (Ministry of Education, 2016). In the past years, similar trends were observed in terms of allocating budget in education. Figure 3 shows the allocation of budget for the education sector in Nepal from the year 2005 to 2013.

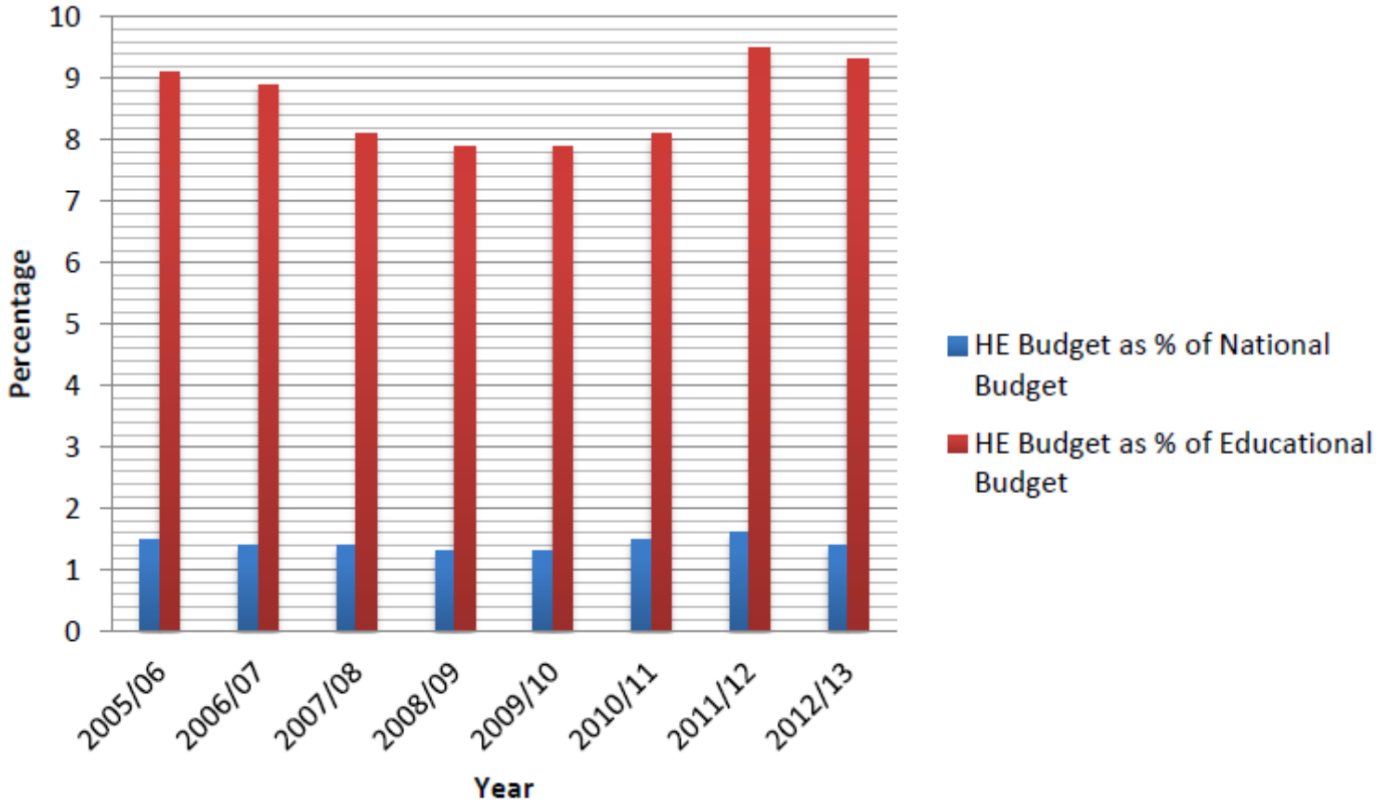

Figure 3: Percentage of higher education budget of total educational budget allocated in Nepal from the year 2005 to 2014.

Approximately, 9% budget was allocated to higher education of total budget in 2005/2006. The succeeding years saw steady decline in the budget allocated to higher education (adopted from, (Karki, 2015).

The budget for the university must be approved by the Ministry of Finance officials who are not the experts in the field and often this results in budget allocation discrepancies. On the other hand, the university hasn't been able to increase its own income to compensate for the government's low budget allocation. One of the major challenges of TU is its rapid expansion over the last few years (Karki, 2015). Despite several funding sources, TU has grown so much that the university is having difficulties in its management.

Politicization is another major challenge TU is facing now. Most of TU's campuses are controlled by political leaders. The policies and reforms towards improving TU's quality are severely impacted by such political trends on the campuses. Although politicization of the university has its own merits, extreme politicization and involvement of faculty members and students in some crucial agendas have affected the whole academic atmosphere and policy

making system of the university. More importantly, there are many student groups linked with different political parties that have their own vested interest in the university's reforms and policies. Also, there is competition and rivalry among various student groups who constantly protest and agitate against each other shutting down campuses and going on strikes. This has been ongoing for several years and does not seem to change. Political parties form their own sister organizations using the young and politically immature university students who are incapable of making national decisions on political, social and economic issues. They are in a way persuaded by political leaders and their parties as their tools for their own interest in the university. Student voices are not raised on educational or campus issues but the government's decision of increasing fuel prices and implementing important changes. Moreover, the political scenario in Nepal is that all the political parties are on a race to appoint their own party members or people who are linked with their political party in major posts of the university.

In spite of these challenges, TU, being the largest public organization of the nation, is considered to have huge potentials to contributing to the national economy and societal development.

3. Theoretical Basis and Analytical Framework

This chapter mainly focuses on the theoretical basis and analytical framework of the study. In a research project where the data produced is mainly qualitative empirical, it is imperative to address the study's research question by using theories to inform data collection and analysis. In this setting, the analytical framework of the study plays a key role in linking the research questions of the study and qualitative data analysis by reviewing what is theoretically known about the relevant empirical subject matter (Timmermans & Tavory, 2012). Thus, I have used an analytical framework as an approach to systematically analyze my qualitative data (collected through interviews) using proposed theories and concepts in the subject area.

In this chapter, I have reviewed the available literature that studied the roles of universities in different settings, including the post-disaster management. In particular, I have profoundly reviewed the work by Oliver (1991) who conceptualizes strategic organizational responses to institutional processes. To elaborate, it conceptualizes the different strategic responses that organizations adopt when they are put under institutional pressures; and their strategic actions to institutional influence. Here, I try to address the theories and framework put forward by Oliver (1991) in the university setting in situations where universities are under pressure for contributing to the management of a post-disaster situation the country is facing. Thus, I wanted to assess how TU as a formal or informal organization acted (actively or passively) during the post-earthquake situation.

I have also reviewed Castells (2001) and Trow (1970) in order to build a theoretical understanding of functions of universities. Additional literature is reviewed to provide insights into different roles of universities in post-disaster management, such as medical and emergency help to those affected, reassurance and psychological support to vulnerable individuals, initiating fund-raising campaigns and raising voices for help in dealing with the crisis, etc. Here, I have also reviewed global academic literature based on similar situations with an attempt to fit them in my study context.

3.1. Castells' and Trow's functions of universities

Since their inception, universities have performed basic functions of teaching and research. The function of research is relatively new, but handling knowledge is still the basic identity of

universities. In fact, teaching and research are templates of universities throughout the world, which provide professional training for high level jobs as well as an increased body of theoretical knowledge and its application to practical problems. The roles of universities have been changing from time to time; their roles in this changing environment cannot be limited to the tasks of teaching and research only. They are expected to play new roles and address new challenges. In the section that follows, attempt has been made to briefly discuss the functions of university as postulated by Castells and Trow.

Castells (2009) notes four major functions of universities. Firstly, universities played a major role historically as *ideological apparatuses*, expressing the ideological struggles present in all societies. In one way or other, universities were the producers of values and social legitimation. The second role – *the selection of the dominant elites* – was also historically as important as the production of values. The selection of elites is accompanied by a socialization process that includes the formation of networks for their social integration, and the establishment of codes of distinction between them and the rest of society. The third function was *the training of the labour force*, which saw the emergence of the professional university. The professional university has always had this basic function, ever since it started specializing in the training of church bureaucrats. Later, universities were called upon to train engineers, accountants, economists and other social workers when the process of industrialization required the training of such professionals. The fourth role of the university - *the production of scientific knowledge* – has become a core function of a science university. This is a relatively late invention that rooted in the German research university model in the second half of the eighteenth century. Introduction of this kind of universities led to the development of a different university, which could be called a science university. The prime focus of such university lies on the production of new knowledge.

Similarly, Trow (1970) presents *the autonomous* and *the popular functions* of American colleges and universities cropping up out of the movement from mass towards universal higher education. In these functions, the distinction lies between those activities and purposes defined by the university itself, and those that the university takes on in response to external needs and demands. Similar to Castells, he also indicates the ***contradictory functions*** a university is confronted with due to the current process of massification in the HE sector. According to him, commitment to the diffusion of the high culture, creation of new knowledge, and selection of the elite groups fall under the autonomous functions, whereas,

commitment to offer places for many students and provision of useful knowledge and service are two popular functions**.**

Trow (1970) *5 functions divided into autonomous and popular functions*		**Castells (2001)** *5 functions*
Autonomous *(defined by university for itself)*	Transmission of culture	Transmission of ideology
	Selection and formation of elite	Selection and formation of elites
	Production of new knowledge	Production of new knowledge
Popular *(service function in response to demands of society)*	Provide place for as many students as possible	
	Provide useful knowledge to every institution/group that wants it	Training of skilled labour force

Table 2: Overview of university functions as presented by Trow, 1970 and Castells, 2001)

Above are literature which focus on the universities' roles as transmitting ideology, selection and formation of elite, production of new knowledge, mobility, and training of skilled labour force.

Interpretations on functions of university above are relevant even at present, but if we look at the Nepal earthquake 2015, there is not much we can get out of these traditional functions. The functions of university as posited by Trow and Castells were, in fact, developed and identified in a normal situation, and in a normal society. And these functions do not include what specific roles a university should play in dealing with the effects of natural disasters. In the societies that are developing in a kind of normal way, universities can be expected to have functions along the line of Trow and Castells, but in situations which are not normal, for example, when a country is largely affected by a natural disaster, universities are expected to act more than these traditional roles.

Taking these functions into deep consideration, in this study, I have tried to examine to what extent TU as the largest institution of the country responded in the aftermath of the 2015

Nepal earthquake. It was speculated that in one way or other TU contributed in handling the effects in the aftermath of earthquake.

3.2. Oliver's institutional theory in organization study

Oliver (1991) theorized that institutional isomorphism is a key to organizational conformity and is dependent on the institutional environments and pressures. In doing so, Oliver has put forward several organizational strategic responses to institutional processes ranging from organizational conformity to organizational resistance.

These strategic responses are identified as acquiesce, compromise, avoid, defy and manipulation, which are outlined (as predictive factors vs the strategic responses) in a tabular form in the figure 4 and 5. In the figure 6, five specific institutional predictive factors that are implicated in organizational institutional pressures are defined individually with research questions and the predictive dimensions hypothesized (Oliver, 1991).

Predictive factor	Strategic responses				
	Acquiesce	Compromise	Avoid	Defy	Manipulate
Cause					
Legitimacy	High	Low	Low	Low	Low
Efficiency	High	Low	Low	Low	Low
Constituents					
Multiplicity	Low	High	High	High	High
Dependence	High	High	Moderate	Low	Low
Content					
Consistency	High	Moderate	Moderate	Low	Low
Constraint	Low	Moderate	High	High	High
Control					
Coercion	High	Moderate	Moderate	Low	Low
Diffusion	High	High	Moderate	Low	Low
Context					
Uncertainty	High	High	High	Low	Low
Interconnectedness	High	High	Moderate	Low	Low

Figure 4: Institutional antecedents and predicted strategic responses proposed by Oliver (Oliver, 1991, p. 160).

Strategies	Tactics	Examples
Acquiesce	Habit	Following invisible, taken-for-granted norms
	Imitate	Mimicking institutional models
	Comply	Obeying rules and accepting norms
Compromise	Balance	Balancing the expectations of multiple constituents
	Pacify	Placating and accommodating institutional elements
	Bargain	Negotiating with institutional stakeholders
Avoid	Conceal	Disguising nonconformity
	Buffer	Loosening institutional attachments
	Escape	Changing goals, activities, or domains
Defy	Dismiss	Ignoring explicit norms and values
	Challenge	Contesting rules and requirements
	Attack	Assaulting the sources of institutional pressure
Manipulate	Co-opt	Importing influential constituents
	Influence	Shaping values and criteria
	Control	Dominating institutional constituents and processes

Figure 5: Strategic responses to institutional processes (Oliver, 1991, p. 152).

Institutional Factor	Research Question	Predictive Dimensions
Cause	Why is the organization being pressured to conform to institutional rules or expectations?	Legitimacy or social fitness Efficiency or economic fitness
Constituents	Who is exerting institutional pressures on the organization?	Multiplicity of constituent demands Dependence on institutional constituents
Content	To what norms or requirements is the organization being pressured to conform?	Consistency with organizational goals Discretionary constraints imposed on the organization
Control	How or by what means are the institutional pressures being exerted?	Legal coercion or enforcement Voluntary diffusion of norms
Context	What is the environmental context within which institutional pressures are being exerted?	Environmental uncertainty Environmental interconnectedness

Figure 6: Antecedents of strategic responses and their predictive dimensions defined with research questions (Oliver, 1991, p. 160).

Hence, organizations practice resistance and activeness of different degrees in response to external constraints and demands. Consequently, organizational responses to environmental institutional pressures - vary from conforming to resistant, from passive to active, from preconscious to controlling, from impotent to influential, and from habitual to opportunistic (Oliver, 1991).

In this study, it is important to understand Oliver's concept on two dichotomies (passive/active and conformity/resistance). According to Oliver, what makes an organizational response passive or active is not whether an organization conforms to or resists exogenous constraints or demands. Instead, it is determined by whether the organizational response attempts to alter or recreate the meaning of exogenous demands. Thus, according to Oliver, strategic responses are active responses. For instance, one of the most active responses to institutional pressures is avoidance. This is because avoidance is considered as an act of resistance since it attempts to purposefully conceal institutional pressures with an aim to change the content of the expectations.

However, the organizational response to the institutional pressures is considered as passive if an organization takes the institutional pressures as a given constraint to be obeyed. According to Oliver (1991), 'different types of responses emerge when distinction is made between the two dichotomies (compliance/resistance and passive/active). Compliance (because of responses that lead to changes to meet the exogenous demands) and resistance (because of responses that deny changes and do not meet the exogenous demands); passive response (when organizations take the institutional pressures to be obeyed) and active or strategic (when organizations redefine or alter the institutional pressures)'. Table 3 summarizes Oliver's definition and concept of active and passive responses to the institutional pressures.

Type of response	**Compliance**	**Resistance**

Passive	Adherence to original expectations	Disobedience
Active (strategic)	Adherence to reinterpreted expectations	Voidance

Table 3: Types of response to exogenous pressures proposed by Oliver (1991)

To conclude, Oliver (1991) suggests that organizations may adapt active responses to institutional pressures to enhance organizational effectiveness and this strategy may in turn influence organizational performance. Oliver's article proposed that "organizations do not invariably conform the rules, myths or expectations of their institutional environment''. In this study, I have attempted to apply Oliver's proposal to Tribhuvan University's role as an organization in its responses to environmental institutional pressures after the 2015 Nepal earthquake.

3.3. Literature Review

University researchers, scientists, policy makers and administrators are thought to have a key role in the aftermath of crises such as, situations created due to the effects of excessive rainfall, flood, cyclone, storm, landslides, earthquake and volcanoes. In fact, as an educational institution with an objective to broadly contribute to the welfare of society, the role of the university is important in all phases of a natural disaster. These phases may include disaster reduction, acute post-disaster phase management, community education and training and research and studies (Ahmad, 2007; Ayo, Adeboye, & Gbadeyan, 2011). However, in most cases, the university's role in such situations has been observed as being limited to fund mobilization and emergency support. Other possible ways by which universities can assist in crisis management include active involvement in policy making and reconstruction, recruitment and mobilization of volunteering supports, work as a local NGO to help in the post-disaster phase (Shaw, 2006). Different roles that universities can play in post-disaster management are individually discussed below.

3.3.1. University's role in pre-disaster phase

Before we discuss the role of the university in post-disaster management, it is worth to know how the university can play a part in disaster prevention, pre-disaster management and damage reduction. Pre-disaster management means identifying and assessing the physical

characteristics and risks of a disaster that is likely to occur in the near future and make policies based on these observations. Similarly, the appearance of man-made disasters such as war, fire, events, and nuclear accidents can some extent be reduced or even prevented if appropriate measures are taken. However, this does not mean that every future disaster is predictable. For instance, the occurrence of natural disasters, like flood and landslide, can be reduced significantly through human efforts. On the other hand, other natural disasters, like earthquake, tsunami and storm are eminently unpredictable and inevitable.

Universities can indeed play a significant role in disaster reduction/prevention and management by formulating and implementing strategies (figure 3.4.1). Moreover, the university through research activities can contribute in anticipating the impacts or the consequences that a certain future disaster can bring in a particular place or a society and thus plan response actions to reduce or nullify the unfavorable consequences (Wisner, 2006). Surprisingly, studies have shown that universities, in most cases, are unaware about their roles in disaster reduction, disaster preparedness and risk management planning (Ahmad, 2007; Ayo et al., 2011). This in fact is concerning in the sense that most disaster planning and implementation efforts require scientific evidence where likely consequences and outcomes of disasters need to be predicted and validated; and universities can be regarded as the most authentic and reliable sources in producing research based information which are to be translated into policy and regulatory measures as part of the disaster management strategy.

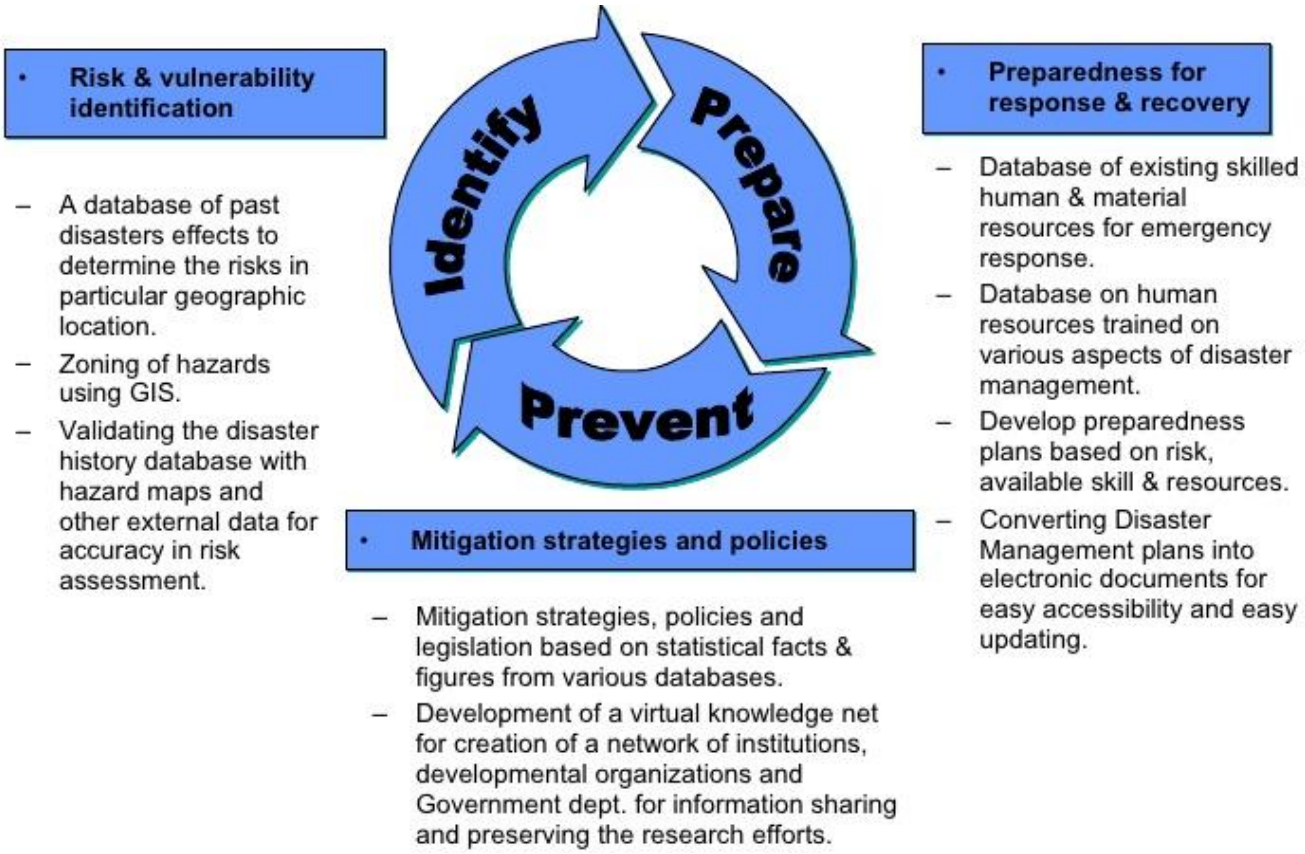

Figure 7: Role of university in various phases of disaster management (Ayo et al., 2011).

3.3.2. University's role in scientific and medical support in post-disaster situation

Scientific and medical support by universities are the most important and immediate aspects of post-disaster management. Among all adverse consequences of disasters such as deaths, injuries and health effects, risk of disease outbreaks, property damage, political chaos, social and psychological impacts; physical injuries and health are the most important factors that need to be immediately addressed as these are directly associated with people's life (Pourhosseini, Ardalan, & Mehrolhassani, 2015). It is no doubt that following a disaster a significant number of people would be seeking basic and emergency medical assistance (Shrestha, Sosin, & Meltzer, 2012). This could be because of the direct consequences of the disaster or the secondary consequences, for example, disease outbreaks due to lack of hygiene that a disaster can induce. Thus, during this time, health support remains a key to further reducing the adverse effects of a disaster. Table 4 presents an overview of the major medical

assistance that will be required during the time of post-disaster phase (De Ville de Goyet, 2001).

Priority	Time period	Comments
Trauma care	0 to 48 hours: initial lifesaving care	Traumas may include burns and crush syndrome, especially in urban areas.
Routine medical emergencies and primary health care	Resumes as soon as the need for acute lifesaving care subsides (within 24 hours)	Emergencies include earthquake-related cardiovascular emergencies and premature births.
Disease surveillance	Urgent—within 48 hours, rumours of impending epidemics will be circulating	Surveillance is a sensitive public information and education issue. A simple, syndrome-based system is needed that will involve humanitarian organizations.
Provision of safe food water	A predominant issue within 48 hours	The challenge is to provide a sufficient quantity of reasonably safe water and food.
Psychosocial care	7 days to 6 months	Mental health assistance is best provided by local personnel, if available.

Table 4: Health priorities following an earthquake (adapted from, De Ville de Goyet, 2001)

The country affected can utilize its scientific and medical expertise and tools in handling emergencies of a crisis. These may include scientists, doctors, nurses, medical students, and scientific and medical infrastructures and equipment. In the past, these professionals have been used as important tools in various capacities in handling a crisis. For instance, during the 1918 influenza outbreak in the United States, a large number of medical professionals were mobilized for rapid control of the situation. In fact, the situation demanded universities to cancel medical student classes to assist physicians, nurses, microbiologists and scientists in

taking control of the pandemic (Starr, 1976). Similarly, the 1952 polio epidemic in Denmark required the University of Copenhagen to recruit students to provide help to doctors in ventilating the patients with respiratory failure (Trubuhovich, 2003). These are two examples where universities' active participation has proved vital in handling a medical emergency. Similar approaches can be of utmost importance in handling other types of crisis such as natural disasters. Below are a few examples.

During the 2009 Queensland tsunami in Australia, medical students were inadvertently employed by the university. Despite the lack of equipment, medical students worked alongside Red Cross members, government rescuers and others to give primary care and mental support to the victims. In fact, the university was prepared beforehand for such situations where they had trained students to exactly deal with such unforeseen events (Ladds, 2010). Similarly, after the 2010 great Haiti earthquake, many challenges were faced by the University of Haiti. In collaboration with Médécins Sans Frontières (international humanitarian organization also known as doctors without borders), the university encouraged its medical students and nurses to actively participate in relief efforts (Krin et al., 2010). This is also an example of active response in line with Oliver (1991) because student doctors are not accepted by relief organisations to volunteer in relief efforts. However, considering the damage done by the disastrous earthquake, the organisation made a bold and immediate decision to involve students in providing medical help to people who were injured or affected in the earthquake.

In a similar setting, when Pakistan was struck by the 2005 Kashmir earthquake, Pakistani medical students were deployed by the local university in providing medical assistance to children and adults affected in the earthquake. However, the students had not received any sort of training to face the situation. It was clearly noticeable that students were lacking disaster management and emergency care skills and hence faced difficulties in helping the victims, especially children (Sabri & Qayyum, 2006). From this, it appears that pre-preparedness is absolutely essential for efficient post-disaster management where universities could prepare and train their students for such inevitable crisis in the future.

In countries like Nepal that face numerous natural disasters every year, effective relief efforts must be in place. Universities could help in this regard by implementing effective relief plans such as first aid and disaster management training to its medical students, through deployment of its skilled forces that may include people working in administration, teaching, policy

making, as well as students. Furthermore, these forces can be used to perform tasks that require little or no technical knowledge. For example, these forces can be used as runners during rescue efforts, information providers, clerks and for other duties. In addition, depending on the facilities available at universities, their expertise could be utilized as a tool while handling a crisis. For example, the scientific equipment and experts in the field could help swiftly recovering bodies and performing DNA tests in the university labs for identification.

In summary, at the time where a country is facing extreme difficulty in using its skilled forces such as doctors and nurses and healthcare professionals, its academic institutions' active role is crucial to efficient handling of the crisis. University hospitals can effectively mobilize their medical students and healthcare professionals in providing general and first aid treatments for people that are affected. However, for these to be effectively implemented during the actual crisis, plans should be in place beforehand. The universities are required to prepare and train their skilled forces to deploy them timely and with minimal hassle during the time of crisis.

Also, the universities can deploy its administrative workers in non-technical relief efforts. Nonetheless, some sort of training and guidance should be in place or be given to them. The possible scientific and medical support that universities can provide during the time of crisis is shown in figure 8.

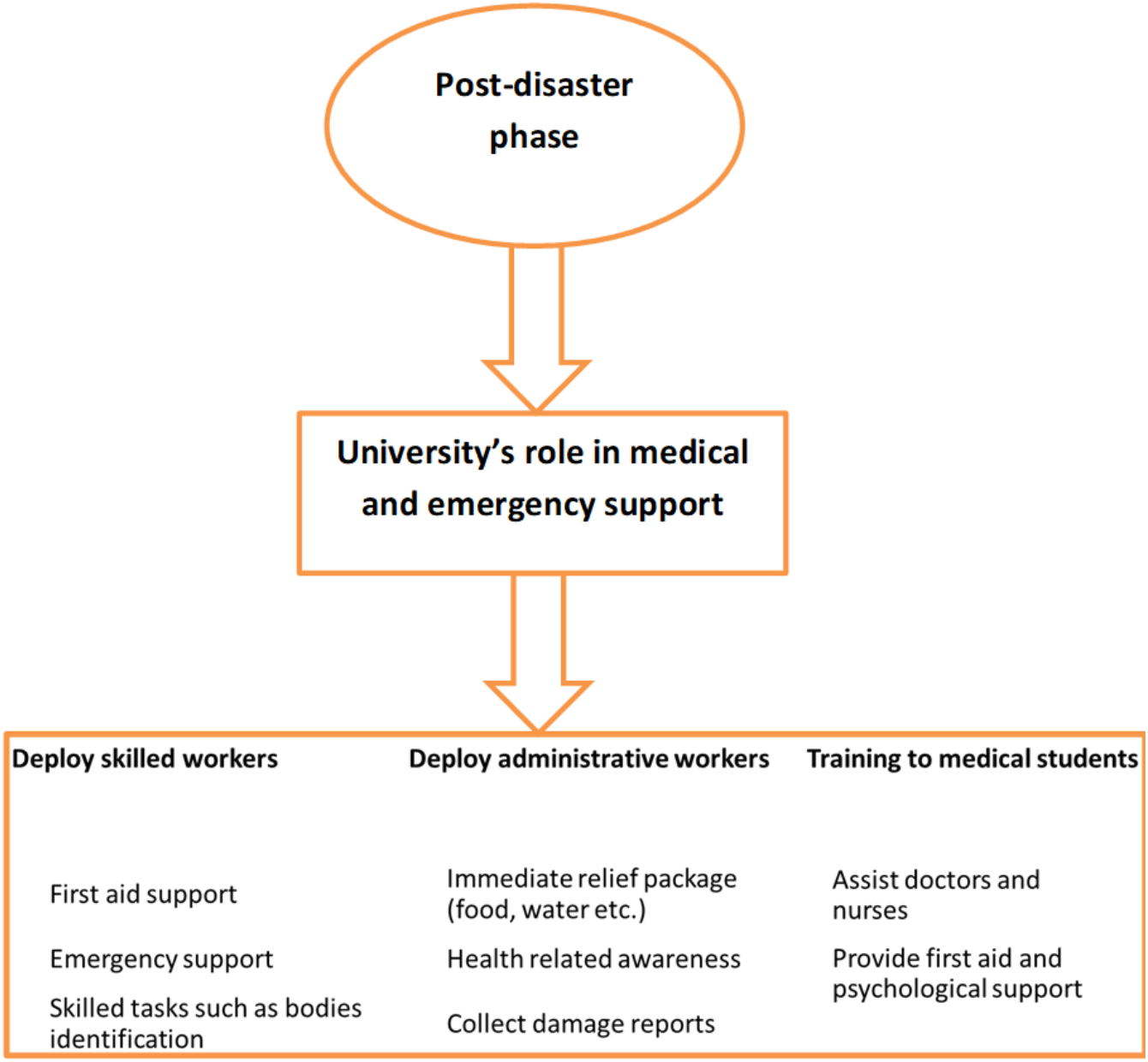

Figure 8: Different roles (scientific and medical) that universities can play in the post-disaster phase.

3.3.3. University's role in technical support (damage assessment, safety assessment, reconstruction)

As introduced earlier, disasters can be of many types and they can have a direct impact on public and private properties. Damage of public buildings such as educational institutes, hospitals, government offices, as well as private houses are among the most serious impacts

of natural disasters on society. Hence, depending on the type and nature of the disaster, technical support is another key element of the post-disaster phase management. Here, technical support is referred mainly to engineering support and technical and staffing support during recovery phase to post-disaster mitigation project management.

The Institute of Engineering of the university during the post-disaster phase can actively get involved by providing its skilled forces, expertise and tools in rapid assessment of the property damage, estimate the damage done by the disaster and implement rescue plans accordingly. In fact, the role of this Faculty is critical during all phases of a natural disaster, from limiting the damage to damage assessment and reconstruction (Singh & Wilkinson, 2008). Here, I will mainly discuss about the role of this Faculty during the post-disaster phase giving some examples.

After a disaster takes place, several technical issues need to be addressed immediately. Some of which include- building emergency and temporary shelters for people whose houses have been severely damaged, damage assessment to identify if the affected building is fit to use and repair of moderately affected buildings. However, to address these issues a country requires a large number of skilled manpower. Developing countries in particular, may not have the ability to employ enough skilled forces in such tasks. As an alternative, universities can deploy its technical staffs and students such as engineers and engineering students to fulfill the immediate needs. These are individually discussed below.

Role of university (department of engineering and its students) in building disaster relief shelters

Disaster relief shelters are most basic needs after a disaster has struck as they have a significant impact on human survival during the initial stages of a disaster. These are also an important element of disaster response and recovery. Temporary shelters will provide affected people who have lost their houses in the disaster with a private and secure place to live until the time of reconstruction. The value of temporary shelter is not just limited to this but it also helps victims to recover from the trauma they have undergone and provides a basis to restart a normal life (Bashawri, Garrity, & Moodley, 2014). Building disaster relief shelters can be a daunting task as it requires careful planning and designing. These shelters need to be appropriately roofed to protect from heat, rain and cold, secure and must be hygienic.

Furthermore, the shelters should be built in such a way that they can be used until the period when people could safely move back to their permanent shelters. The shelters if built appropriately can be dismantled and stored for future use (Arsalan & Cosgun, 2007).

Shelters are generally classified into four categories: emergency shelters, temporary shelters, temporary housing and permanent housing (Arsalan & Cosgun, 2007). The most important type of shelters that are needed during initial phases of a disaster are the emergency and temporary shelters (Bashawri et al., 2014). Emergency shelters are the basic type of shelters built with a purpose to provide life-saving support to disaster victims and can only be used for a short period of time (from single to a few days). These types of shelters ensure people's safety during the time of disaster emergency where it might be unsafe for people to remain inside their permanent shelters (Quarantelli, 1991).

For example, this type of shelter is commonly built during the time of an earthquake where several aftershocks are quite common, and it may be safer for people to stay outside in an open place. Temporary shelter is another type of shelter built for short-term use during the time of disaster. This type of shelter can be used longer than emergency shelters; however, the duration of stay in this type of shelter is limited to a few weeks.

Since emergency and temporary shelters can only be used for a short period of time, limiting cost while building these types of shelters should be given a major priority. Moreover, several environmental, economic, technical, social and cultural issues are required to be considered while designing shelters for disaster victims. Environmental issues such as choosing the right location, climatic conditions, risk of pollution, nearby toilet facilitates, are some of the key aspects that need to be addressed by designers and engineers while building the shelters. Similarly, economic issues such cost of building shelters and the cost of basic infrastructures needed in the shelter (electricity, sanitation, cooking facilities etc.) should be planned and discussed by the experts in the field. Technical issues are another major hurdle while building disaster relief shelters. These may include lack of space, planning and shelter designing that require highly skilled workers and kits. Other technical issues such as lifespan of the shelter built, sizes and maintenance are to be carefully considered. Lastly, social and cultural issues that are directly associated with the lifestyle of people, such as cultural differences among the victims of the same community people, gender and religious issues, inequality among

survivors, communication issues etc. are also needed to be considered while building temporary relief shelters for the victims (Bashawri et al., 2014).

Thus, considering several economic, technical and social issues, skilled and trained individuals should be employed while constructing disaster relief shelters, which will also help to minimize cost, overcome social and technical issues, and speed up the process (Quarantelli, 1991).

Universities in this setting could take part in this type of relief effort by providing its skilled staff such as final years engineering students, designers and other skilled technical supervisors by giving them a short effective training and deploying them in the affected areas. Moreover, universities can train and educate locals to overcome the social issues that may also require careful consideration.

Role of university (department of engineering and its students) in damage assessment and estimation

Following a disaster, people living in the disaster affected areas can become anxious for proper evaluation and rehabilitation of their private structures and establishments regarding the damage done. Although ordinary citizens can spot check for the visible damage done on their structures, only after safety evaluation and examination by trained inspectors, it can be determined if the disaster affected buildings are safe enough to be reoccupied. Several questions related to the safety of the buildings are raised among the public. These questions may include: What should I do if I think my building has been damaged? How do I know if my building is safe? What do engineers want to see changed after the disaster? If a building is damaged in a disaster, does it make it more susceptible to other ones? Hence, it is crucial to address the questions that the public faces regarding the safety issues of their private houses. However, these questions are too technical for everybody to answer and require skilled and trained manpower (safety evaluation personnel, municipal engineers and civil/structural engineers) of the country (Ellingwood & Kinali, 2009). To precisely quantify the effects of a disaster on the structural strength of components, it requires engineering analysis for determination of the damage mode and severity of the components. This process of damage evaluation and estimation although is very informative, it is highly technical and requires experts in the computational and engineering field. Another recent approach to evaluate the

seismic damage assessment is building-information-modeling based (geometric, topological, and structural information of the building) approach which is found much better than any other approaches (Anil, Akinci, Kurc, & Garrett, 2015) (figure 9). However, this approach also requires skilled engineers and data scientist that developing countries may be lacking.

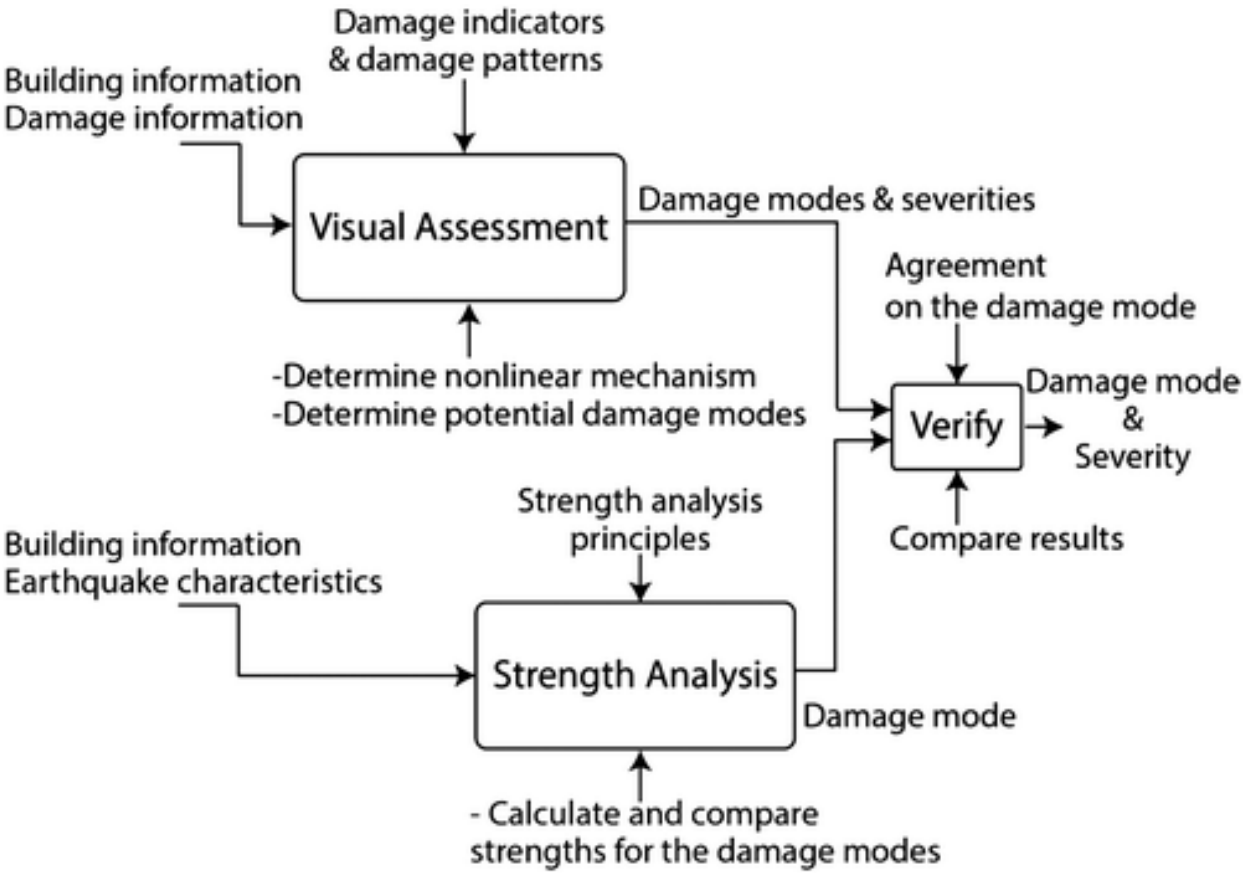

Figure 9: Building information modelling based of damage evaluation.

Systematic and scientific approaches developed through research and findings need to be employed when evaluating seismic damages. This approach is building information based modeling approach that is found more efficient, quick and cost-effective in evaluating seismic damages (Anil et al., 2015).

In large-scale natural disasters like earthquakes where the extent of damage is large, it may be difficult for the nation to deploy its skilled workers for damage assessment and estimation to each and every corner of the disaster affected places and the whole process might take some time. Universities, mainly the department of engineering, can have a significant role in handling this chaotic situation.

Civil and structural engineers can be deployed by the university to perform rapid visual building assessment in the disaster affected places (Mangione, Capuano, Orciuoli, & Ritrovato, 2013). Students should be provided guidelines to refer to, for example, for the presence of cracks on the foundation of the building, types of cracks, tilting of the building, damage on the walls and ceilings etc., in order to identify if the building affected can re reoccupied (Kamat & El-Tawil, 2007).

3.3.4. University's role in post-disaster phase awareness programs and research to predict and mitigate such risks in the future

Natural disasters are highly unpredictable and can occur at any time. Thus, the countries with high risk of natural disasters should always be prepared for the worst-case scenario that may occur in the near future. This will help in timely response and to speed-up the recovery and rescue efforts during an event of a disaster. However, disaster preparedness largely depends on the available information gathered through research and studies done on previous disasters.

Once the disaster has occurred, the local engineering and architectural experts have a key role to play in developing the knowledge, technical abilities and cost-effectiveness analysis to mitigate and prevent future events (De Ville de Goyet, 2001). It is important that standard technical guidelines that fit the local culture, conditions and infrastructures are followed while establishing the mitigation priorities (Sundnes & Birnbaum, 2003). Moreover, apart from training skilled personnel, public training in various disaster response and mitigation strategies should be initiated at the local level (Ahmad, 2007). Since these are the key aspects of a post-disaster management and planning, universities could play a big hand in implementing programs and planning through coordination at the political and social level. In fact, universities have the important role to play in running the post-disaster awareness programs, research related activities with internal and international collaboration and design mitigation strategies to reduce damages of the disaster or any future events. Here we discuss the role of the university in some of the key disaster-planning activities that need to be addressed following a disaster.

University's role in post-disaster awareness campaigns and programs

One of the best approaches to tackling natural disasters is through public awareness and education programs. People fear disasters and would therefore be willing to attend awareness and educational programs about lifesaving techniques, evacuating techniques, emergency medicine, importance of disaster preparedness, etc., if provided locally.

It is evident that community awareness regarding disaster response is growing with an increase in the number of natural events like earthquake and floods (Dilley, 2005). However, the concept that the public itself can work as a major human resource during the time of disaster is still not clearly understood (Ahmad, 2007). Universities in this setting can take a big step in educating the public about this notion by running public education and awareness programs incorporated with trainings in emergency medicine and response. Furthermore, as an education institution, universities may include comprehensive educational programs related to disaster management and planning in their curriculum and encourage more and more people to attend such programs.

Basic but lifesaving information such as evacuation procedures during the time of an earthquake and where to go and whom to contact in a disastrous event, need to be circulated among the public through these programs (Davis, Hosseini, & Izadkhah, 2003). Moreover, information provided to the public must be easily understood and such programs also have to be short and cost-effective (Ahmad, 2007). There have been cases in the past where false information such as fake rumors about the future likelihood of the similar event attributed to organizations such NASA, national and international media have become viral, which further spread panic among the affected people. Furthermore, misleading information without much credibility about the emergency response during the time of a disaster has been provided to the public by various media sources (information taken from posts and comments from different social media). The public believes that the university is the most authentic information provider; therefore, these programs should be conducted by experts and academicians of the institution to ensure any information provided to people is accurate and scientifically validated.

University's role in research related activities following a disaster

Disaster-based research is one of the main components of disaster management or mitigation (Kennedy & Ressler, 2009). Once a disaster strikes a place, it is critical to understand and gather knowledge about what caused the disaster, what are the future likelihoods of occurrence of the same type of disaster, what can be done to minimize future damages in events of such disasters and how can the public be made more aware of such events that may occur in the future (Dynes & Drabek, 1994). The major objectives of conducing disaster research and answering these questions are to limit the damages in case the disaster occurs again in the future and to stay well prepared in the case of reoccurrence.

Historically, disaster research has been greatly focused on emergency response and recovery leaving behind other integral aspects of disasters, like predictions of societal hazards and the disaster associated risks including the vulnerability of people residing in hazard-prone areas. Thus, to meaningfully convert and apply the information from hazard and disaster studies, more systematic and interdisciplinary research needs to be conducted. Interdisciplinary disaster research in this context means the research focus from all core areas; social sciences, natural sciences, engineering and computer sciences, which includes a panel of social scientists, natural scientists, engineers and computer scientists. Integrating findings from these core research areas, for instance, using the findings from natural sciences to predict its impact in society and further use this knowledge to design computational models for engineers to predict, hypothesize and tailor codes and conducts that are suitable in a particular place or society (National academies press of sciences, engineering and medicine, 2006). Figure 10 shows the overview of the disaster and hazard research benefits in disaster preparedness.

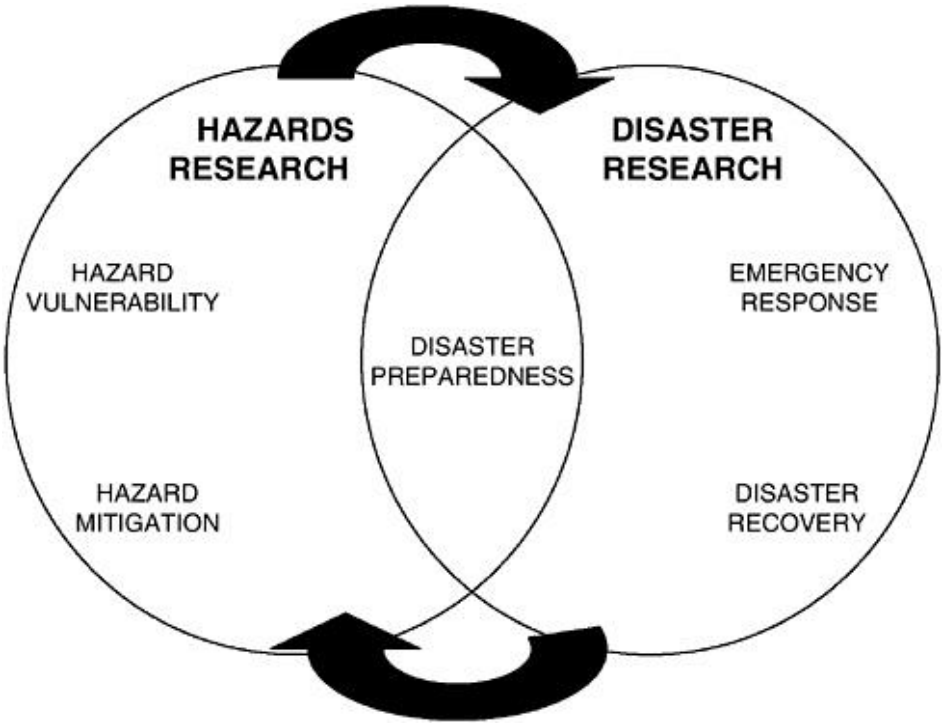

Figure 10: Hazard research and disaster research importance in disaster preparedness (National academies press of sciences, engineering and medicine, 2006).

Despite it is well clear that studying disasters through scientific and rationale approaches will undoubtedly provide insights into better planning and management of such future events, it is the area in disaster management that is often given the least priority as a strategy to tackle future disasters especially in developing nations (Mechler, 2004). Mostly in developing countries, the study of a disastrous event is limited to damage report, for example, the number of lives lost, number of casualties, number of buildings destroyed, and the overall evaluation of the property. However, collecting only this information may not reveal the bigger picture of the disaster and often requires researchers and scientists to conduct studies about the disaster itself (Kennedy & Ressler, 2009). Several factors, including lack of funds, lack of tools and expertise, and lack of international collaboration are associated with a lack of disaster related research activities in developing nations (Mechler, 2004). Nonetheless, in developed countries, universities are playing an upper hand in combating disasters and their damages.

The network of research community in developed countries is gaining importance with the realization that universities have the capacity to educate, research and bring stakeholders

together to share information and knowledge about the past or the future disaster and contribute to improved decision-making for policy and practice (Abedin & Shaw, 2015).

Universities are places that house researchers with substantial research experiences in disaster management and planning and they are the ones who can pinpoint the key areas that should be the focus of research once a disaster occurs at a place (Ahmad, 2007). Research in these areas will unravel information that could help a great deal in making management policies, safety, policies and response policies for the disaster of the same type. Without such efforts, the vital information and knowledge about the occurred disaster might go unnoted (der Heide, 2006).

Thus, experimental studies about the type, nature and effects of disasters occurred are fundamental to designing and implementing interventions in the case of such future events. Universities, in particular, should step-up to take the responsibility to conduct research in the case of any disastrous event that has affected the country in a large scale. Such research will contribute to the understanding of weaknesses that could be strengthened by better mitigation, preparedness, response and recovery practices.

4. Research Methodology

This section describes the research strategy, literature review strategy, research design, sampling procedure and selection criteria, measures of data collection, tools of data collection and data analysis method, limitations of the study, and the issues of validity and reliability. Where possible, evidence from the literature is provided to justify the use of a particular approach in this study. In addition, a short description on potential ethical considerations and issues is also presented.

4.1. Research strategy

To achieve the exploratory and descriptive purpose of this study, I have adopted a qualitative research approach in the sense that it deals with a subjective assessment of attitudes, opinions and behaviors. Since the researcher's insights and impressions play a key role in qualitative research (Kothari, 2004), and this approach provides an understanding of the meaning people have constructed (Merriam, 2009); I have made an attempt to better understand and investigate TU's role in the aftermath of the 2015 Nepal earthquake. To be specific, an attempt has been made to explore the phenomenon in a natural setting, that is, to analyze how and in what ways the TU stakeholders (as mentioned in sampling) made sense on the role of TU after the 2015 Nepal earthquake. I have used semi-structured interviews as the main data sources, and document analysis and field notes as the supporting ones.

4.2. Literature search strategy

The literature search was conducted in national and international databases in order to make comparisons with studies that were done in other parts of the world. These databases were searched for relevant literature that was extensively reviewed to create a study context.

Firstly, the relevant literature was searched in reputed databases, such as google scholar using the keywords. In addition to the literature on roles of university, mainly two articles, Oliver (1991) and Olsen (2007) were considered for the analytical framework of the study. All other articles and studies used were filtered in line with their relevance to research topic. The key words for the literature search were the university in disaster management, post-disaster crisis and medical students, post disaster crisis and engineering students, management of post-

earthquake phases, disaster preparedness, disaster research and the role of the university in disaster research. In addition, google search was carried out to look for the evidence from government published documents and reports, including scientific and statistical studies on the role of universities in post-disastrous crises which were extensively searched.

4.3. Research design

Keeping in mind the nature of the topic and the research questions, this study has applied a case study approach which is believed to provide an in-depth description of one specific case in analyzing the roles of TU in handling the 2015 disaster induced crisis. Moreover, the case study is suitable for answering subjective questions that start with 'why' and 'how' and it is best suited for investigating events that are occurring in a contemporary phenomenon with some real life context (Yin, 1984). In addition, the strength of a case study design is that it deals with full variety of evidence-documents, artifacts, interviews, and observations (Yin, 1984). In this regard, the case study approach employed in this research has implied varying data sources to increase its reliability.

4.4. Tools of data collection

While determining the tools for data collection in my study, I had a thought that besides the semi-structured interviews, I would also analyze documents relating to TU and its functions to Nepalese society. But I had to merely depend on interviews as the primary source of data since I could not get the documents I was looking for. Even from my visit to TU in person, what I got was simply the Tribhuwan University Act, 2049, a formal press release made after the earthquake, and some university related journals. However, the University website provided me with plenty of information.

4.4.1 Interview

Interview is one of the common tools for data collection in qualitative research. According to Bryman (2008), a qualitative interview is useful to obtain rich and detailed answers. Since there is much flexibility, I have conducted semi-structured interviews in order to gather reliable information from respondents. To cover specific topics and also for an interview to go smoother, I prepared an interview guide. Interviewees in this research were the internal

stakeholders from TU, viz. Vice Chancellor, Deans from the Faculty of Education (FoE), Institute of Engineering (IoE) and Institute of Medicine (IoM). In addition, an expert from IoE was also interviewed.

My personal experience in course of collecting data was not very easy. Firstly, I had to travel a long way from Oslo to Nepal. Secondly, it was very difficult to manage appointments with the interviewees. The reason is that the time I was in the field, TU appointed new Deans in some Faculties, and initially they were not ready for my interview. However, I managed to conduct interview with all the respondents I had purposively sampled.

4.4.2 Field notes

Field notes also play an important role for data gathering in a qualitative research project. They are normally the written records of the experience that the interviewer achieves while he is in the actual field. They include the actions, activities, reflections and experience of both the interviewer and interviewees, and help to understand the true perspectives of the subject matter being studied and present findings in order to address the research questions (Bryman 2012). Therefore, taking these into consideration, I prepared some field notes while I was in the field. The notes were developed right after conducting each interview covering the actual experience.

4.4.3 Document analysis

As mentioned, the documents were not the major source of data in this study. However, they have been especially used to address the questions that arose after I got the responses from the informants. This helped me fill the gaps and validate the information. The documents used in this study provided basic information and guidelines, which contributed to investigate the role of TU in Nepalese society in general. In particular, they assisted me into the wider perspective on the formal structure of TU, formation of different councils, functions, duties and power of TU, etc.

The main documents used in this study were Tribhuwan University Act, 1992, UGC's Education Management Information System (EMIS) report on HE, formal press release of TU after the 2015 earthquake, and university related journals.

4.5 Sampling procedure

Earlier, I planned to use snowball sampling in order to select my interviewees. But after I interviewed the VC, he suggested some names that were not directly the internal stakeholders of the university; but were rather out of the limitation of my study. Therefore, I had to change my sampling procedure. In this study, I have used purposive sampling in order to get the appropriate informants. This sampling is useful for my study as it involves choosing informants and cases based on characteristics and experiences that relate directly to the research questions or field of interest (Matthews & Ross, 2014). In addition, purposive sampling enables the researcher to gather a multitude of viewpoints on the issue being studied (Manning, 2006). I speculated that the purposively selected sampling units had specialist knowledge of the research issue, or capacity and willingness to participate in the research.

To address the specific research questions of this study, the sampling included one Faculty out of four; and two technical institutions out of five that TU consists of. The reason for selecting the FoE among four Faculties is through my assumption that this Faculty has something more to do in the aftermath of the earthquake than the Faculties of Law, Humanities and Management. In the same way, I purposively selected the VC among the employees in their leading position, and Deans from the FoE, IoE and IoM to represent their Faculties. In addition, to cover the gaps from the interviews taken, one expert from IoE working under disaster management was also purposively selected. These respondents were purposively selected according to their availability. All of these university actors were interviewed in order to investigate their involvement in supporting the government's effort in handling the crisis in 2015 earthquake affected areas. I analyzed how different internal stakeholders within TU contributed in the 2015 post–earthquake situation. As mentioned above, semi-structured interviews were conducted in order to get an in-depth understanding of their experiences.

Ideally, I would have selected and interviewed more people for my study. But this is a Master thesis that allowed me limited time and resources. The selection of the VC, Deans and an expert was based on this limitation.

An overview of respondents			**Nos.**
Leadership	Vice Chancellor		1
Faculty/Institutes	Education	Dean	1
	Medicine	Dean	1
	Engineering	Dean	1
Teaching staff/Expert	One representative		1
Total number of respondents			5

Table 5: An overview of the respondents in this study

4.6 Limitations of the study

This research is a case study of TU, the largest and oldest university of Nepal. Thus, the study is limited to the roles of TU and its affiliated campuses throughout the country in general. In particular, it is limited to the roles of institutional leadership in TU, and the roles of the FoE, IoE and IoM in TU in the aftermath of the 2015 earthquake in Nepal. It would have been interesting to study the roles of other national universities in Nepal during the 2015 post-earthquake phase; nonetheless, the scope of this study was only to assess and evaluate the roles of TU as country's biggest public university.

Although this research is limited to the context of Nepal; its findings, however, are relevant to any other developing countries that suffer natural crisis of the similar type. For instance, I have used studies done in many different countries that explored the role of universities in facing disastrous crises in my literature review section. Similarly, this study will provide insights into understanding different roles that universities can play during the time of crisis in the global context.

4.7 Validity and reliability

The issues of validity and reliability are considered to be central concepts for qualitative research (Bryman, 2004). They are the two important elements which any qualitative research should consider while designing a research, analyzing the result and judging the quality of the

study (Patton, 2005). Validity, defined as the ability of a scale or instrument to measure what is required to measure (Bryman, 2004), requires reliability which refers to the consistency of that measure. Researchers' understanding of these two concepts helps maintaining the reliability of generated data and provides reliable descriptions of particular aspects of the social world.

In an attempt to maintain the validity, this study looked at the variety of methodological procedures and sources of data collection methods (interviews, document analysis), and also the choice of respondents from various categories (university leadership, Faculty head, and professor/expert). Furthermore, cross-checking of information and conclusion was done to enhance validity and reliability of the findings.

Similarly, I took careful consideration of the reliability, the concept concerned with the question of whether the result of the research was repeatable as described by Bryman (2012). Since the study processes and procedures are sufficiently described in a convincing way by taking into account the specific research questions, it will help other researchers to repeat the finding for further advancement and thus, helps to achieve reliability. In addition, to ensure the reliability of this research, I sent interview transcripts and draft reports of this study to all the respondents.

4.8 Potential ethical issues

According to Russell (2000), 'the biggest problem in conduct of human behavior is not in selecting the right sample size or making the right measurement – it is doing those things ethically'. Therefore, I have tried my best to carefully consider the ethical issues associated with this study by being aware on the rights and independency of the participants. I respected the respondents and their busy schedule. Keeping this in mind, appointment with them was fixed in advance. Participants were informed on how they would benefit from the findings of the research. They were not sampled depending on the relations; rather they were selected depending on who could provide the best information. I took responsibility to secure the actual permission and interest of all those involved in the study. I also sought consent from the interviewees to tape the interviews. Furthermore, I made them aware that the data gathered would be used for research purpose only. I made a determination towards my duty to protect the rights of people as well as their privacy and sensitivity. For this, the purpose of the

study was explained to the respondents. The participants were ensured that their information would be used only for this study and not for any another purposes. The respondents' names and identities were anonymized.

5. Presentation and Analysis of Data

The main objective of this study was to explore the role of TU in the handling of the 2015 post-earthquake crisis in Nepal. Since the role of TU in post-disaster management remains a largely unstudied research topic, I wanted to cover this research area by exploring a case of the 2015 Nepal earthquake through a qualitative research approach. In particular, I looked at the varied roles that TU played in relation to the 2015 Nepal earthquake. Through interviews with the VC, Deans and expert from several university Faculties/Institutes (medicine, engineering and education), I collected information regarding TU's response activities during the 2015 post-earthquake phase. Particularly, I explored how TU as a formal or informal organization responded in handling the effects of earthquake actively or passively.

The findings of the study were then interpreted through the use of the analytical framework of the study to answer research questions of the study. This was mainly done to identify whether TU's response during the time of crisis was formal/informal and active/passive, and how TU played the role as an institution in handling the crisis. Furthermore, it was evident that TU went one step ahead from the traditional functions of university. Besides teaching, research and services; TU performed several functions in the aftermath of 2015 Nepal earthquake. However, this varied as per the nature of the Faculties/Institutions in the case of TU. TU's technical Institutes IoM and IoE seemed to have remained active, whereas, Faculty of Education seemed to have remained rather passive in its response to the earthquake.

5.1 Tribhuvan University Vice-Chancellor's response during 2015 post-earthquake phase

To determine what leadership and immediate roles TU played during the 2015 post-earthquake phase, I interviewed the Vice-Chancellor of the university. In response to the first question on the function of the university, he responded with a comprehensive and broad concept saying the university is the major institution of the nation that selflessly works for the development of the country by producing skilled and intellectual human resources, developers and thinkers.

As a continuation of the interview, I further inquired whether there were any formal plans in place during the time of the earthquake, to which he answered by saying that the need for

formal plans was only realized after the earthquake hit the country. He added, Nepal had not faced the crisis of that level for a long time (since 1933) and hence was not prepared at all to handle the devastating effects of the earthquake.

However, he said that the 2015 earthquake made people aware about the importance of risk management and knowledge to negotiate the effects of the disaster of such type. He added, had people been aware of facing the situation, the life and property damage could have been reduced significantly. Furthermore, TU itself has learned lessons through this devastating earthquake and has already started plans and policies of disaster management, as well as initiated disaster-related research activities in collaboration with foreign universities. The VC further added that these approaches were largely underestimated before the occurrence of the earthquake.

On a question related to the university's role in preparing people to face the effects of the disaster of such type, he admitted TU's weakness for being passive over the years although the disaster of such scale was predicted in the country soon. However, he also criticized the government and policy makers for not giving attention to disaster preparedness. He expressed his opinion saying specific lifesaving trainings and basic skills could have been very useful in limiting the damage.

When asked whether TU's response was formal or informal, the VC responded that the response from TU was immediate and did not involve any kind of formal setting. Furthermore, experts who appeared on national televisions and newspapers were mostly the experts from TU who worked independently and were not under any sort of institutional pressure. He added, formal reports of the damage done at the university properties (libraries, offices and university campuses) were produced after evaluation by the experts (Faculty of Engineering) from TU. However, this was not done under the leadership of the VC, suggesting there was not a significant leadership influence in the management of the 2015 post-earthquake situation. Instead, a committee was spontaneously formed by the university that carried out a survey on the damage done at the university and the reconstruction plan.

The VC also informed that university experts such as earthquake engineers, scientists and researchers were invited by different national and international media to report about the damage done by the earthquake and share knowledge and ideas on the nature of the

earthquake that hit the country. Moreover, they were invited by the government to carry out surveys, damage assessments and reassuring people who feared to reoccupy their properties.

In addition, the experts spoke about how to be safe from the ongoing aftershocks and future tremors, which helped people to prepare and reoccupy their shelters. This indeed helped a great deal in controlling the chaotic situation after the earthquake.

Another important issue that experts were heavily involved in was producing overall damage reports in collaboration with national and international agencies. According to the VC, it was of utmost importance that experts from TU worked closely with the government, as well as independently at the time of the earthquake. The damage reports produced by experts were later used to invite international donors and fundraisers to help Nepal to handle the impacts of the earthquake.

A question was also raised whether TU had to wait for the request from the higher level (national administrative level) for its response during the post-earthquake phase. In answer to this the VC clarified there wasn't a need for a request from the administrative level since the country was in great crisis and needed immediate relief and response efforts from whichever possible way. According to him, immediately after the earthquake, people associated with TU were mobilized and deployed to provide emergency assistance such as first aid support to injured victims, rescue efforts to save people trapped in the rubble and provide immediate support to pregnant women and children that were affected during the earthquake.

The VC also revealed that there was no formal or internal agreement among the governing body and the university about the post-disaster rescue plans and efforts. Nevertheless, he stated that TU being a government university that always functioned for the welfare of the society and nation; it was its responsibility to support the government during the time of crisis. After the emergency response efforts, however, TU was asked by the government to get involved in disaster management activities. All in all, the VC indicated that TU did not require or waited for any formal request from the administrative level during the 2015 post-earthquake crisis.

The VC was also asked to address the issues such as leadership (what was the leadership role in initiating the immediate response?), strategies (did the leadership have any pre-arranged strategy to deal with such crisis?), and planning and institutional pressures (was the leadership's response influenced by institutional or other bottom-up pressures?). From his

answers it became clear that the university did not have any leadership pressure to different Faculties/Institutes in their response during the post-earthquake phase. The response efforts of different Faculties/Institutes were carried out to support the government in activities like fundraising, technical support, workshops and meetings organizations to invite international agencies and charities to visit Nepal and provide their help and support.

According to the VC, there was no bottom-up pressure on the university for the Emergency Response and most post-disaster recovery works were carried out on an individual basis and not on an institutional basis.

According to the VC, the university's engagement in the post-disaster phase was initiated by the internal leadership body of the university. He mentioned that the internal leadership of the university requested its Institute of Engineering to carry out the damage assessment and undertake a survey, and produce a report for the university based on that.

The VC was asked about what would be the leadership body's functions if the disaster of the same type or scale would occur in the future; to which he replied that the university should organize activities, awareness programs and offer courses as measures for dealing with such situations in a better way. He said it is also important that Faculties within TU have internal institutional collaboration and deal with any large-scale disastrous situation combined or working side by side. Finally, the VC said a strong link between the TU leadership and staff members is required to make disaster management plans and polices better and more effective. Furthermore, he opined, support from international collaborators could be sought to design disaster preparedness models.

Overall, it seems TU's leadership roles during the time of 2015 post-earthquake was not very influential as most of the recovery works carried out by the university was done on an individual basis without any formal plans and agreements

The roles played by TU after the 2015 earthquake correlate with the findings proposed by Ahmad (2007). Ahmad (2007) studied how universities could offer their support in different stages of a large-scale disaster. These included providing medical support to the disaster victims, building temporary shelters for people who have lost their homes, and provide input in research studies for the better management of such disasters in the future. The VC's interview suggests that almost all of these proposed roles of the university during the time of crisis were fulfilled by TU after the 2015 earthquake.

5.2 Tribhuvan University Institute of Medicine Dean's response to the 2015 post-earthquake phase

The questions to the dean of the Faculty of Medicine were asked mainly on the immediate and emergency response of his Institute during the 2015 post-earthquake phase. The dean made it clear that his Faculty played a critical role in providing emergency medical support and treatments to victims affected by the earthquake. He informed that doctors were immediately deployed in the earthquake-affected areas to provide first aid to minorly injured victims and emergency medical treatments to those who suffered serious injuries. Medical students and other medical and technical assistants were also deployed at earthquake-affected places to help senior doctors and nurses. When asked if the doctors and student volunteers were specifically trained in emergency and disaster medicine, the dean admitted that no such trainings were given because of the time constraint. He suggested that pre-preparedness for emergency crisis is essential in dealing with disasters of such scale and the TU Faculty of Medicine has learned a lesson from it and is working to prepare and train its students for such inevitable crisis in the future where medical support remains at the forefront of everything.

On a question about leadership influence and institutional pressures, he revealed that the Faculty of Medicine worked rather independently after the earthquake. He added, there was no time to wait for the response from the administrative and the government level, and thus, the Faculty acted spontaneously to carry out the response efforts. He also revealed that no formal plans were in place for such crisis, and hence the standard procedures set by the Faculty in dealing with emergency medical crisis were followed. He informed that due to the risk of infectious diseases and epidemics, free health campaigns were set at different places to provide treatments to the victims of the earthquake. Doctors and nurses were also deployed at temporary shelters to provide medical support to the vulnerable children and elderlies. Healthcare professionals were asked to educate people about the importance of personal hygiene and care at the time of crisis to prevent secondary consequences such as disease outbreaks that are associated with the lack of hygiene.

To conclude, the Faculty of Medicine seems to have played an important role in providing medical support and other health and safety supports to vulnerable people after the 2015 earthquake. When comparing their work to health priorities after an earthquake proposed by De Ville de Goyet (2001), it seems TU's Institute of Medicine worked on almost all the

suggestions described in the paper. However, this may not have been done as systematically as proposed by De Ville de Goyet (2001). Comparing the findings with the analytical framework of the study presented in chapter 3, it appears that most relief associated activities carried out by the Faculty of Medicine could be considered as strategic or active responses. For instance, in the absence of formal plans and procedures, deployment of doctors and nurses in the earthquake affected areas for emergency medical support was spontaneously done, and thus was therefore one of the active responses of TU Faculty of Medicine after the earthquake. Out of five strategic responses presented in the analytical framework of the study, this example fits the category of avoidance since TU as an organization ruled out the option of conforming to institutional pressure to meet societal demands by escaping the set rules, as well as loosening its academic institutional attachment and making itself available to handle the crisis. Furthermore, it also acted to alter its academic goals and activities for the time being, suggesting a strong indication of strategic or active response.

5.3 Tribhuvan University Institute of Engineering Dean's response to the 2015 post-earthquake phase

The Institute of Engineering's dean was contacted to gather information on the Faculty's role in the 2015 post-earthquake phase. Questions were asked about the plans and policies, codes and conducts made by the Faculty of Engineering on disaster management, the specific role the Faculty played immediately after the 2015 earthquake and what could be done in the future in dealing with natural disasters like earthquakes.

When asked if former plans were in place to deal with natural disasters, the dean clarified that no formal plans or policies were set before the 2015 earthquake. It was only after the earthquake, the need for formal plans and policies regarding disasters and disaster management was realized. According to the dean, the Institute of Engineering (IOE) was immediately alerted for response after the earthquake without any formal orders, suggesting an active response (defy)—by dismissing and ignoring explicit norms and values set for the university—of the Faculty right after the earthquake. The very first thing after the earthquake that the Faculty actively initiated was the damage assessment by deploying its faculty experts and technicians, which again is an evidence of active response as the university unit independently took decision to get involved in the response and recovery work, dominating

university's institutional constituents and processes. However, the response of the university was informal and was carried out independently without any command from the administrative level.

After the initial evaluation of the damage done by the earthquake, the Faculty realized that the extent of damage was higher than initially predicted, and thus decided to form a committee to train and recruit engineering student volunteers, and deploy them in earthquake affected areas to perform damage reports and surveys. This in fact, fits with the context of the analytical framework of the study regarding university as an instrument and institution. In this response, the university seems to have functioned as an institution making long-term plans and policies of training and recruiting engineers and student volunteers by forming a committee, thus justifying the role as an institution. Nonetheless, the dean clarified that there was no pressure from the administrative level in any of their responses; hence, it is difficult to predict how the university would have responded had there been any formal pressures from the TU leadership. The Institute's action under the influence of leadership pressures would have given a clearer picture about the type of response in this setting.

The dean added, the Institute played a critical role in assuring people about the safety of their buildings and properties. The volunteers of the Faculty also assessed damage in public properties and buildings like hospitals, schools and universities and government offices.

When asked if there was any collaboration work carried out between the Faculty of Engineering and other TU Faculties, for instance, the Faculty of Medicine, he clarified that the Faculty of Engineering did not get involved in relief related work and thus did not feel the need for liaising with other Faculties and departments. Furthermore, the dean revealed that the Faculty of Engineering provided training to student volunteers and divided them in groups to voluntarily carry out surveys and damage assessments in rural villages outside the Kathmandu valley. Training and workshop programs about the disaster risks and management and in particular, earthquake related awareness programs were extensively run.

The dean also mentioned that after the earthquake's initial recovery phase, the Faculty got actively involved in reconstruction work in collaboration with the IOE, suggesting the university's role as an institution as outlined in the analytical frame of this study. They recruited expert engineers associated with the Faculty, technicians and engineering students from various national universities in reconstruction work such as building and designing

temporary shelters, repairing and retrofitting of the damaged properties and monitoring construction work at public buildings such as hospitals and universities. Moreover, they provided their expert opinions in revising the building codes and policies as a measure to prevent and limit such damages in the future. These responses of the Faculty can be clearly linked with institutional function of the university as TU after the earthquake followed a set of rules in an organized manner. It made new goals and objectives in the reconstruction phase after the earthquake and is still on going, thus fulfilling another institutional responsibility.

5.4 Tribhuvan University Faculty of Education Dean's response to the 2015 post-earthquake phase

The dean of the Faculty of Education was interviewed to know what roles the Faculty played in the 2015 post-earthquake phase. However, the response from the dean was rather surprising to my concern as he mentioned the Faculty did not play any significant role in the aftermath. He instead commented that it was the role of the technical Institutes, that is, the Institutes of Medicine and Engineering, to step-up for the relief and response efforts.

When asked whether the formal plans and policies were in place in the time of the earthquake, he said there were no plans at the national level for handling the disaster because of the lack of fund and political issues. According to the Faculty dean, the only role the Faculty of Education got involved in was in providing psychological counselling support to the disaster affected victims. The dean also revealed that there was not any leadership pressure on this Faculty to take any responsibility in the aftermath. Nonetheless, volunteering support was provided by the Faculty staff members and students.

Thus, it seems that the TU Faculty of Education, despite being the university's largest Faculty, did not play any active role in the 2015 post-earthquake phase. Interpreting the Faculty's response through the analytical framework of the study, it seems evident that the response of the Faculty in the aftermath was passive as they did not go against the set rules and practices to meet the society's demand. That is, they denied changes to meet the exogenous demands.

5.5 Response of the expert (associate professor of engineering) associated with Tribhuvan University in the 2015 post-earthquake phase

To further collect information on TU's response during the 2015 post-earthquake phase, an associate professor at TU's Faculty of Engineering was interviewed. His post at the university at the time of the interview was senior lecturer and he delivered lectures on technical and engineering topics. He also served as the coordinator and director of the Centre for Disaster Management Studies at TU. His primary roles at the university were to raise disaster management awareness, provide disaster emergency training and perform studies to integrate disaster knowledge and formal education and course run by the university. The aims and objectives of this organization match with what has been described by Quarantelli (1991) on the importance of skilled and trained individuals in disaster management.

He was asked about the university leadership's influence on his organization, general roles and responsibilities of his organization, whether policies and planning were in place to deal with disasters of large scale before the 2015 earthquake, and what sort of response efforts they were involved in after 2015 earthquake. In general, he said that the organization works closely with the government and local society to provide technical knowledge and education to students and locals, which can be interpreted as an institutional function of the university. When asked whether the organization has any influence on the TU's governing body, he mentioned the organization works mainly independently and does not get involved in formal disaster relief efforts. However, it deploys its own graduates and student volunteers if needed during a disaster, suggesting that the organization may be involved in some active response in the time of crisis. For instance, after the 2015 earthquake, their work mainly involved data collection, rapid visual damage assessment, and perform surveys in disaster affected places. These were perhaps some of the active responses in the absence of formal plans and policies since the organization avoided to follow set rules and opted to digress from its original academic function to meet the immediate societal demands in the time of crisis. According to Ellingwood and Kinali (2009), these tasks require highly skilled and trained manpower (safety evaluation personnel, municipal engineers and civil/structural engineers) of the country. However, the organization risked using its available but untrained workforces giving

them a short training in the response work that may have been against the established practices. This example, according to the analytical framework of this study is an active or strategic response under defy strategy (the organization ignored explicit norms and values). He claimed that volunteers from his organization were among the most trusted workforces and were highly praised by the government for their work during the 2015 post-earthquake phase.

Furthermore, he mentioned policies and plans for disaster management were not made formally at the national level, but rather they were realized later after the earthquake when coordination and collaboration was required between the government, the university ‘s Centre for Disaster Studies, and other governmental and non-governmental organizations. After the earthquake, the university realized the importance of skilled forces such as especially trained individuals in disaster management, disaster management technicians and earthquake technicians and thus has requested the Centre for Disaster Studies to produce this manpower for the future. Interpreting this by using the analytical framework of the study, it would be reasonable to link it with the institutional perspective of the university. There is ample evidence in this case that TU made certain goals and objectives (producing more manpower to effectively handle such crisis in the future) that it aimed to achieve in the years to come. Furthermore, working with the Centre for Disaster Studies, TU decided to emphasize a long-term social commitment as an institution.

The expert mentioned that constructive plans are still lacking although the country suffers several natural disasters every year. In fact, he revealed that more focus should be given to natural disasters other than earthquakes because the country suffers significantly more damages from disasters like flood and landslides in rural areas. He suggested that formal and informal programs of disaster management should be launched in these areas. At the same time, in the urban areas like Kathmandu, focus should be given to natural disasters like earthquakes because of the high vulnerability of the city to suffer damages. Thus, according to him, disaster management plans and polices should be tailored according to the geographical nature of that place. Moreover, he said that his organization is working closely with the government about this issue. He added that to his understanding, the university had no formal plans in place to deal with the large-scale disasters like earthquakes until 2015.

Another revealing information he gave was that despite some effective policies having been proposed by experts, these are not yet implemented in practice due to political and administrative passivity. However, after the earthquake, the importance of pre-planning was clearly understood, and his organization is working actively together with the government and the university in this matter. Nonetheless, he said that even though the Centre for Disaster Studies is affiliated with TU, the university is still not willing to support the organisation financially or in any other ways, and shows no confidence in the potential of the organization in dealing with disasters. This suggests that the Centre for Disaster Studies and TU are lacking coordination from the administrative level which could be hindering the implementation of effective plans and policies related to disaster management.

During the 2015 post-earthquake phase, he emphasized that the role his organization played was very central and significant. He mentioned, although the volunteers from the organization were not deployed to provide emergency relief to the victims of the earthquake, the technical role that the organization played was critical considering the circumstances. According to him, they deployed trained volunteers to perform rapid visual damage assessments in all affected sixteen districts of the country. They even trained student volunteers in collaboration with the Nepal engineering association because of the need for a large number of trained volunteers for technical roles. Once the early damage assessment and survey work was completed, his organization deployed student volunteers and expert technicians to monitor reconstruction work after the earthquake. In addition, the volunteers of the Centre for Disaster Studies assisted in other technical works, such as minor repairs and retrofitting (a technique used to strengthen a structure to satisfy the requirements of the current codes for seismic design)- (Naeim & Kelly, 1999).

The question was asked on the initiation of the organization's involvement in the response. He made it clear that the response initiated without any influence from anybody and was solely started as a social responsibility. Volunteers in the organization became active during the time of crisis and more and more student volunteers, experts and technicians got involved. Later, a committee was formed by the organization which liaised with another committee formed by TU to continue the recovery efforts.

The expert added that several other disaster-related informal and formal activities were performed after the earthquake. Some informal programs run by the organization included

disaster awareness programs at the local community, demonstration of evacuation and other life-saving techniques during the time of disaster, make people understand the importance of building codes and conducts. Moreover, the Centre organized talk programs involving local community members, engineering students, professors, teachers and technicians to help people overcome their fears and scepticism about the future risk of such disaster. It seems that the organization also actively got involved in research related activities after the earthquake by establishing collaborations with foreign universities and researchers to study seismic hazard in Nepal. Although he agreed that coordination is lacking between his organization and TU, he said that they are aiming to work together in research related activities maintaining a close relationship with TU and its geology and geography department.

When asked if there was any formal proposal from TU leadership to the government for help after the earthquake, he elaborated that initially TU did not consider the Centre for Disaster Studies for help in performing post-earthquake response activities, and left the response work for the local municipality. In fact, the university was ambiguous about how to deal with the 2015 aftermath as it was not the university's assigned responsibility by the government. However, when it was later realized that the response activities could not be handled by the local municipality solely, the Centre for Disaster Studies stepped up to take some responsibilities from the government, suggesting another active response of the TU in the 2015 aftermath. TU although not responsible for handling the crisis, changed its original goals and activities, which according to the analytical framework of the study, is an active response under avoid strategy. The university also avoided institutional pressure by lessening its institutional attachments and working independently.

The expert informed us that soon after the earthquake, the concept of organisational disaster preparedness (ODP) has been prioritized and disaster related works under this plan are ongoing. ODP includes planning on different aspects of disaster preparedness such as refining training resources and manuals, developing, revising and amending standard disaster handling protocols and contingency planning on addressing disaster damages at regional level (Comfort, 2005).

Regarding the initiation of the response work carried out by the organisation after the earthquake, he said that the initiation was taken by himself as the coordinator of the Centre. He was the first person to come up with the response related proposal; however, he received

complete support from Nepal engineering association and TU. In addition, he said that TU leadership solely cannot handle all disaster related activities in the country and therefore, it is the role of organisations such as the Centre for Disaster Studies to actively get involved in disaster related programs and response activities. In fact, he added that stakeholders highly appreciated their work during the post-earthquake period and hence have agreed to provide grants for the students associated with the Centre for Disaster Studies to take part in their research work.

Through this interview I also tried to gather information regarding how other Faculties and departments of TU participated in the 2015 post-earthquake response work. To this question, he mentioned that the Centre for Environmental Studies and the Department of Geology also played a role in recovery and research related work after the earthquake. He revealed that TU along with the Centre for Disaster Studies, the Centre for Environmental Studies and the Department of Geology have started earthquake engineering and disaster management related projects in collaboration with the Chinese government and their national universities. However, one concerning information I obtained was that still, different closely related departments and experts in physical sciences, geological science and meteorological sciences at TU are lacking coordination and collaboration. According to him, to fulfil this gap, multidisciplinary educational exchange programs and research placements for students of engineering sciences and other sciences within the university have been started.

In summary, according to the expert of the Centre for Disaster Studies, the organisation played a critical role during the 2015 post-earthquake phase. The organisation worked independently with support from the Nepal engineering association and TU volunteers and experts to carry out various types of activities during the earthquake, suggesting the active response of the organization. Their main work involved training and deploying student volunteers and experts in rapid visual damage assessment, awareness and trainings to people about and risks associated disasters and lifesaving skills, carry out disaster related research work in collaboration with the different departments of TU, as well as foreign universities. However, most of the active responses of the organization were informal and independent of any leadership pressure. From the interview, it was conclusive that TU did not have influence on the organization's response in the time of crisis.

6. Discussion of the findings

In this chapter, discussion is carried out by addressing the research questions and themes of importance emerging from the analyzed data. Here, an attempt has been made to present a brief summary of the major findings by answering each research question, and elaborating them in relation to the reviewed literature. The first research question addresses the extent to which TU had a plan for its operation in the aftermath of the 2015 Nepal earthquake. The second and third questions are used in order to discuss whether the responses of the Faculties/Institutions at TU in managing the post-earthquake situation were formal or informal, and active or passive. Finally, the fourth research question discusses and interprets the functioning of TU in the post disaster phase of the 2015 earthquake.

6.1 To what extent did TU have a plan for its operation in 2015 post-earthquake situation in Nepal?

As per the data collected through the interviews, the study observed that TU did not have any kind of formal plan for its operation in the 2015 Nepal earthquake. The need for formal plans was only realized after the earthquake hit the country. Here, I will present brief findings on the formal plans of TU for its operation in 2015 post-earthquake situation in Nepal on the basis of the responses of the interviewees of this study.

Vice Chancellor's responses:

After the analysis of VC's interview, the findings indicated that TU had no any formal plan for its operation in the 2015 Nepal earthquake. However, the leadership realized the need for formal plans only after the earthquake hit the country.

> *….people just talked about this, but there was no formal organization. There was no formal plan and formally set activities that would be required when some kind of natural disasters like the present earthquake take place… (Interview: VC)*

The main reason for why TU had no formal plans of any kind in dealing with the post-disastrous phase in the country was that Nepal had not faced the crisis of that level for a long time (since 1933) and hence TU was not prepared at all to handle the devastating effects of the earthquake.

However, it was found that TU leadership produced a formal press release appealing national and international donor agencies to support the government in dealing with the effects of the disaster. In addition, as indicated by the VC, the Institute of Engineering produced a formal report about the damage caused by the quake. The leadership also made no formal or internal agreement among the governing body and the university about the post-disaster rescue plans and efforts. Nevertheless, professors, teachers, and students got involved voluntarily in disaster management activities. There was nothing like top-down and bottom-up pressure in/from the university to involve in disaster management.

> *… I think people were supporting all these activities on individual basis; there was no formal setting, not an institutional one… (Interview: VC).*

As data indicated, the technical institutes of TU played a greater role in order to address the immediate effects of the earthquake.

> *…our professors working in the Institute of Engineering have a lot of ideas, knowledge about the earthquake. They were invited as experts by the government and they were involved in surveys, they were involved in suggesting people, they were involved in making people aware of, and developing reports, and they were also played a vital role in inviting international donor agencies to support Nepal (Interview: VC).*

Except for the course in the Institute of Engineering related to disaster management, TU was found lacking any kind of formal plans and programs to deal with all the stages of disaster cycles. However, after the devastating effects faced by the university itself, TU has initiated establishing research institutions, and has been working with the possible ways of disaster management.

As per the data, it was found that there was neither a formal emergency plan that had already been agreed upon between TU and the government in handling the situation in the aftermath of the earthquake. This indicates that there was a gap in the understanding of what each other's roles could be. However, TU was found trying to deliver their services as government expected.

> *…there was not that kind of emergency and formal plan. We are government university and our duty is to support them whenever government needs us… we get*

engaged into it… we don't need any formal request… whatever the government expected from us, we delivered it (Interview: VC).

As data indicated, TU did not require or waited for any formal request from the administrative level during the 2015 post-earthquake crisis. Nevertheless, TU itself has learned lessons through this devastating earthquake and has already started plans and policies of disaster management.

As mentioned in the literature earlier, university with its diverse knowledge and expertise,can contribute significantly in all phases of disaster cycles: pre-disaster preparedness, disaster response, and disaster recovery. University's technical programmes can be of great assets in all the phases of disaster cycles. For example, the data in this study indicated that the Faculty of Education did not see role for itself had nothing in the aftermath of earthquake.

… the main function of this faculty is academic one, i. e. how to give quality education to students, how to fulfil needs of the nation… technical institutions provide service during disasters… (Interview: Dean/Education).

In this study, it was found that TU played a significant role in handling the 2015 earthquake aftermath. It seemed evident that TU's technical institutes (i. e. IoE and IoM) were actively involved in the response and relief efforts right after the 2015 earthquake in comparison to the Faculty of Education which was not involved. Data indicated that although there were no formal plans and policies in place at the time of the earthquake, TU's technical institutes acted independently and spontaneously in the response work even without leadership or administrative pressure.

I think it was not a formal setting, but after the earthquake, most of the experts that appeared on TV, that appeared in disaster management, that appeared on supporting people were our university professors, university people, and our Institute of Engineering and Medicine (Interview: VC).

Although disaster pre-preparedness and risk management were regarded as of great importance after the 2015 earthquake, and people have become extremely aware of natural disasters like earthquake and are following measures to be safe from such disasters in the future; TU is still lacking strong leadership, funding, skilled workforces, integration and

collaboration with other faculties and national and international universities, in dealing with large scale disasters.

Data also indicated that TU's leadership roles during the time of 2015 post-earthquake were not very influential as most of the recovery works carried out by the university was done on an individual basis without any formal plans and agreements.

Institute of Engineering Dean's response:

It was evident from the data that IoE also was found with no formal plans or policies set before the 2015 earthquake. It was only after the earthquake, the need for formal plans and policies regarding disasters and disaster management was realized. This institute on itself was immediately alerted for response after the earthquake without any formal orders. In fact, IoE provided an active response by dismissing and ignoring explicit norms and values set for the university—of the Faculty right after the earthquake. All the activities, for e.g. assessing the damage of the earthquake, recruiting engineering student volunteers, and deploying them in earthquake affected areas to perform damage reports and surveys, collaborating with national and international organizations in the aftermath of the earthquake, etc. took place in their informal setting. It was revealed from the Faculty Dean's interview that their response in the aftermath of the earthquake was informal which was carried out independently without any command from the administrative level.

Institute of Medicine Dean's response:

The data revealed that the IoM, even without any kind of formal plan, and without being told by the university and the government to involve, played a significant role in the aftermath of 2015 Nepal earthquake. IoM's roles like providing emergency medical support and treatments to the victims affected by the earthquake; deploying doctors, in the earthquake-affected areas to provide first aid to minor injured victims and emergency medical treatments to those who suffered serious injuries, etc. were done without any formal plan. Not only the doctors but the medical students and other medical and technical assistants were also deployed at earthquake-affected places to help senior doctors and nurses. However, they were not specifically trained in emergency and disaster medicine since there was no readymade formal plan to handle the post-earthquake situation.

> *We have realized that the pre-preparedness for emergency crisis is essential in dealing with disasters of such scale and we have learned a lesson from it and are working to prepare and train our students for such inevitable crisis in the future where medical support remains at the forefront of everything (Interview: Dean/Medicine).*

The data revealed that the IoM worked rather independently after the earthquake. There was no time to wait for the response from the administrative and the government level, and thus, this Institute acted spontaneously to carry out the response efforts. Although there was no formal plans were in place for such crisis, the standard procedures set by the Institution in dealing with emergency medical crisis were followed.

> *We deployed doctors and nurses in the affected areas for emergency medical support spontaneously in the absence of any kind of formal plans and procedures… there was no time to wait for anything… (Interview: Dean/Medicine).*

Faculty of Education Dean's response:

The Faculty of Education is the largest unit of TU in terms of student enrolment. However, the data revealed that this Faculty had very little to do when the country was hit by a natural catastrophe. From planning to implementation on managing the effects of the 2015 Nepal earthquake, FoE remained very passive. It was found from the analysis of the Dean's interview of this Faculty that there were no formal plans to get involved in handling the disaster because of the lack of fund and political issues. According to the Faculty dean, the only role the Faculty of Education could get involved in was in providing psychological counselling support to the disaster affected victims (but this did not happen). Linking this to the analytical framework, the response of the Faculty of Education to the earthquake aftermath was typically acquiescing, in the sense that they adhered to their original function and took the original functions for granted. They made their own understanding of what they were. For them, there were other Faculties and Institutes who could do better through their expertise.

Expert's Response:

The data indicated that the organization the expert was involved in worked independently. It deployed its own graduates and student volunteers during the disaster, suggesting that the organization was involved in some active response in the time of crisis. However, as per the

expert's interview, policies and plans for disaster management were not made formally at the national level, but rather they were realized later after the earthquake when coordination and collaboration were required between the government, the university 's Centre for Disaster Studies and other governmental and non-governmental organizations. This was the same in case of TU as a whole. But after the earthquake, the university and its units realized the importance of skilled forces such as especially trained individuals in disaster management, disaster management technicians and earthquake technicians.

> *The university had no formal plans in place to deal with the large-scale disasters like earthquake until 2015… in fact, the university is lacking constructive plans although we suffer several natural disasters every year… disaster management plans and polices should be tailored according to the geographical nature of that place (Interview: Expert).*

6.2 Were TU's responses after the 2015 earthquake active or passive?

Overall, it seems TU's leadership roles during the time of 2015 post-earthquake was not very influential as most of the recovery works carried out by the university was done on an individual basis without any formal plans and agreements. Looking at this qualitative data and comparing it with the analytical framework of this study presented in chapter 3, it was identified that TU's response during the time of 2015 post-disaster phase was active. This is because, according to Oliver (1991), what makes an organizational response passive or active is not whether an organization conforms to or resists exogenous constrains or demands. Instead, it is determined by whether the organizational response attempts to alter or recreate the meaning of exogenous demands. Thus, according to Oliver, strategic responses are active responses. For instance, one of the most active responses to institutional pressures is avoidance. Having stated this theory, and comparing it with the analytical framework of the study, that is, with Oliver's 5 strategic responses—acquiesce, compromise, avoid, defy and manipulation, it seems most of TU's responses in the 2015 post-earthquake phase were active or strategic. To elaborate, through my findings, it is evident that some of TU's responses, such as the decision of deploying its student volunteers to provide emergency and medical support, carry out damage assessments and build temporary disaster relief shelters, were made

to meet the exogenous (society's) demands and thus can be considered as active responses. Below are some interview pieces which support the discussion on TU's active role.

> *....immediately after the earthquake, people associated with TU were mobilized and deployed to provide emergency assistance such as first aid support to injured victims, rescue efforts to save people trapped in the rubble and provide immediate support to pregnant women and children that were affected during the earthquake (Interview: VC).*
>
> *...doctors were immediately deployed in the earthquake-affected areas to provide first aid to minorly injured victims and emergency medical treatments to those who suffered serious injuries ... medical students and other medical and technical assistants were also deployed at earthquake-affected places to help senior doctors and nurses (Interview: Dean/Medicicne).*
>
> *...due to the risk of infectious diseases and epidemics, free health campaigns were set at different places to provide treatments to the victims of the earthquake. Doctors and nurses were also deployed at temporary shelters to provide medical support to the vulnerable children and elderlies. Healthcare professionals were asked to educate people about the importance of personal hygiene and care at the time of crisis to prevent secondary consequences such as disease outbreaks that are associated with the lack of hygiene (Interview: Dean/Medicine).*

Although TU was not formally responsible for its response during the 2015 post earthquake phase, it did not adhere to its original function but rather stepped up to offer help when society was in need. Linking this to the analytical framework of this study, TU as an organization resisted from its set goals and functions (presented in 2.1) and attempted to avoid the set rules in order to meet society's expectations.

Comparing the findings with the analytical framework of the study presented in chapter 3, it appears that most relief associated activities carried out by the Institute of Medicine and Institute of Engineering could be considered as strategic or active responses. For instance, in the absence of formal plans and procedures, IoM and IoE spontaneously deployed professionals in the earthquake affected areas for emergency medical support and for assessing the damage respectively. This can be therefore considered as one of the active responses of IoM and IoE after the earthquake. Out of five strategic responses presented in the

analytical framework of the study, this example fits the category of avoidance since TU as an organization ruled out the option of conforming to institutional pressure to meet societal demands by escaping the set rules, as well as loosening its academic institutional attachment and making itself available to handle the crisis. Furthermore, it also acted to alter its academic goals and activities for the time being, suggesting a strong indication of strategic or active response. However, the TU Faculty of Education, despite being the university's largest Faculty, did not play any active role in the 2015 post-earthquake phase. Interpreting the Faculty's response through the analytical framework of the study, it seems evident that the response of the Faculty in the aftermath was passive as they did not go against the set rules and practices to meet the society's demand. That is, they denied changes to meet the exogenous demands.

To conclude, although TU was not under direct organizational pressure for its response, it worked individually to meet the exogenous demands that the country was facing during the time of crisis. Hence, in this study, my attempt to apply Oliver's conceptualizations to Tribhuvan University's role as an organization in its responses to institutional pressures after 2015 Nepal earthquake is largely justified since TU as an organization adapted active responses to enhance organizational effectiveness during the time of crisis.

During the 2015 Nepal earthquake aftermath, a Stanford Blume Earthquake Centre's engineers team made an attempt to estimate the earthquake's impact on the region of epicenter by building a model based on cloud computing, which was used to plan recovery by the rescue teams (Binns, 2016). Indeed, such models that are quickly produced following a disaster could serve as vital information tools in the management of an aftermath. This may help rescue teams in early decision-making while carrying out rescue searches and bodies recovery (Chen, Sun, Chen, & Zhong, 2013). Disasters such as earthquake can affect every large area and therefore it might be difficult and time-consuming to have an exact idea of the damage done (magnitude of the earthquake, expected losses), where and how to implement the rescue efforts. Thus, in such scenarios, the tools and models designed scientifically by experts could facilitate the rescue efforts.

6.3 To what extent did TU respond formally and informally to the 2015 earthquake?

As discussed earlier, TU as a whole and its units did not make any formal plan in dealing with the earthquake aftermath. However, the response of TU to the post-earthquake phase was independent and spontaneous. Through my findings, it is evident that some of the responses of TU, such as the decision of deploying its student volunteers to provide emergency and medical support, carry out damage assessments and build temporary disaster relief shelters, were made to meet the exogenous (society's) demands and thus can be considered active, but not as formal obligation.

Although TU was not formally responsible for its response during the 2015 post earthquake phase, it did not adhere to its original function but rather stepped up to offer help when society was in need. Linking this to the analytical framework of this study, TU's technical institutes namely, IoM and IoE resisted from their set goals and functions (presented in 2.1) and attempted to avoid the set rules in order to meet society's expectations.

The data revealed that the Faculties/Institutes at TU did not face top-down/bottom-up pressure for their response, they worked individually to meet the exogenous demands that the country was facing during the time of crisis. TU as an organization adapted active responses to enhance organizational effectiveness during the time of crisis.

In addition, university has an 'element of formality of knowledge' or 'knowledge status' that determines who from one Institute/Faculty of university can involve in disaster aftermath. The knowledge status of university expects that not everyone could be involved in judging how much damage a building has, and not everyone could go to the earthquake hit area and provide medical support. It is IoE and IoM who are the ones to play the mentioned roles respectively, since the former's formal knowledge status allows providing support on engineering related work, and the latter is bound to medicinal support. Therefore, the knowledge status in itself can be referred to as the element of formality. The element of formality of knowledge at TU was found determining the roles of the Institutes/Faculties in the earthquake aftermath. Within those formal elements, the Institutes (IoE and IoM) performed voluntary tasks, without being invited or without being told to go to the earthquake affected area; and hence acting informally. Concluding remark is that TU's informal

responses in the earthquake aftermath were possible even without top-down pressure because of its formal knowledge status.

6.4 How can the functioning of TU in the post-disaster phase of the 2015 earthquake be interpreted?

Since its establishment, TU's core functions have been teaching and research. As mentioned in Chapter 2, TU is committed to prepare capable human resources required for the overall development of Nepal, to impart standard higher education, to protect and develop national culture and tradition, and to involve in extensive, empirical and timely creation of knowledge and research in the fields of arts, science, technology and vocation. These functions of TU in fact correlate with Trow and Castells' functions of university which focus on the universities' roles as transmitting ideology, selection and formation of elite, production of new knowledge, mobility, and training of skilled labour force. However, these functions are not directly related to universities' response to society when a country is hit by a natural disaster.

Most of the functions of TU correlate with the functions of universities as presented by Trow and Castells. However, in addition to these functions, it was found that TU, although being not formally responsible for its response during the 2015 post earthquake phase, it did not adhere to its original functions of teaching and research but rather stepped up to offer help when society was in need. Linking this to the analytical framework of this study, TU as an organization moved away from its set goals and functions and attempted to avoid the set rules in order to meet society's expectations.

TU in fact played additional roles than the university roles discussed by Trow and Castells. The roles played by TU after the 2015 earthquake include providing medical support to the disaster victims, building temporary shelters for people who have lost their homes and provide input in research studies for the better management of such disasters in the future, etc.

7. Summary, conclusions and recommendations

This chapter provides an overall summary of the study and presents conclusion drawn from the findings. In addition, an attempt has been made to provide some possible recommendations and further research in the area opted.

7.1 Overview of the study

Globalization pressure has undisputedly influenced the worldwide transformation of higher education over the last few decades. Considering the societal needs and demands, more dynamic changes have been adapted and implemented that have affected the overall objectives and functions of the university. Modern days universities functions are not solely confined within academia. In fact, they have realized the importance of dynamic roles that universities should play in society. As educational institutes, universities are trusted sources of information and evidence, and thus, are expected to fulfill more versatile roles in society. This may include, in addition to teaching and research, roles in working for the welfare of society, raising public awareness about the threats and dangers associated with society and actively taking part in government's social campaigns. In this study, I focused on the role of the university in a time of crisis. In particular, looking at the case of TU's response after the 2015 Nepal earthquake, I tried to analyze and assess how universities can address society's specific and immediate expectation as one of its objectives. To carry out this study, I assumed that the role of university is imperative to contributing to the national government's effort in handling disaster associated crises.

The main aim of this study was to examine the role of TU in 2015 post-earthquake situation as a case, with an objective to develop more conceptual knowledge on the functions of universities in the time of crisis. The study was a qualitative study specifically done to assess TU's different Faculties' responses to society's expectation in the aftermath of the devastating 2015 Nepal earthquake. Data was collected through interviews with the VC and the deans of three Institutes/Faculties, who provided detailed information on leadership and institutional pressures in the 2015 earthquake response work and specific relief and response efforts that faculty was involved in after the earthquake.

7.2 Conclusion of the findings

Through this study I found that TU played a significant role in handling the 2015 earthquake aftermath. It seemed evident that TU's Institutes of Engineering and Medicine were actively involved in the response and relief efforts right after the 2015 earthquake. According to the VC, deans of the Institutes of Medicine and Engineering, and an expert of the university, although there were no formal plans and policies in place at the time of the earthquake, TU acted independently and spontaneously in the response work. From the VC's interview it also became clear that no leadership or administrative pressure influenced TU's response during the earthquake. The importance of disaster pre-preparedness and risk management was realized as of great importance after the 2015 earthquake. Indeed, the VC was convinced that people have become extremely aware of natural disasters like earthquake and are following measures to be safe from such disasters in the future. However, the TU is still lacking strong leadership, funding, skilled workforces, integration and collaboration with other faculties and national and international universities, in dealing with large scale disasters. More research related work and scientific planning may be required for better management of such disasters in the future.

The TU's Institute of Medicine's role mainly involved the relief efforts immediately after the earthquake. These included providing medical supports to the disaster victims, health and hygiene awareness about the risk of disease outbreaks, and trainings in emergency and disaster medicine for junior doctors and other healthcare professionals. While the role of the Institute of Medicine and its volunteers was appreciable during after the 2015 earthquake, it would have more effective if the Institute had set formal plans and procedures in dealing with such situations. Since the doctors and nurses were not educated and trained specifically in handling disaster associated injuries after the earthquake, it took time for them to be trained and deployed at the disaster affected areas. This could be something the faculty might want to include in their teaching curriculum.

Similarly, according to the dean and experts from the Institute of Engineering, TU was actively involved in the response effort after the 2015 earthquake. Major work carried out by this Institute included rapid visual damage assessment, building temporary shelters, reassuring people about the future earthquake events and monitoring and support in the reconstruction phase. Moreover, the Institute got involved in attracting international agencies for donations

and other necessary assistance. Nonetheless, like the Institute of Medicine, the work carried out by this faculty was independent of any institutional and leadership pressures.

Comparing the findings with the analytical framework of the study, it seems evident that TU's Institutes of Medicine and Engineering's responses during the 2015 aftermath were active as they avoided and defied their set goals and practices to meet the exogenous (society's demand).

7.3. Recommendations and suggestions

This study explored the role played by TU in the 2015 post-earthquake phase. Since this is a Master thesis which was done in a limited time and resources, the study did not look at the roles of universities in other settings. And it was also not possible to study and compare the roles of other universities of Nepal in this setting. In the sections that follow, I would like to make some recommendations for possible further studies in this particular area, followed by policy recommendations for the country/university.

7.3.1 Direction for further research

Firstly, as mentioned, this study is confined to the roles of TU in Nepal, and it did not include any other universities in its study. Another major university in Nepal, the Kathmandu University, might also have played a crucial role during the post-earthquake phase. It would be interesting to find out the influence of leadership and what specific roles the Kathmandu University played after the earthquake. Another interesting study could be the comparative study on the role of all universities in Nepal during the time of crisis.

Secondly, this study has come to the conclusion that universities can potentially play important roles in all the phases of disaster cycles, and can take a leading role among other organizations in disaster response by mobilizing its diverse knowledge and expertise. However, it is not easy for the university to work on its own. The University's roles in the aftermath of disasters would come to fruition if a university could work in collaboration with the government, military personnel, emergency rescue teams, Red Cross officials, etc. Besides, it is necessary for the university to integrate the work of one department with the other in the aftermath of disasters in order to enhance collaboration and cooperation.

Thirdly, it is better for the university to modify its roles according to societal needs. As IoM and IoE have remained active in the earthquake aftermath accepting new and immediate responsibilities of serving the disaster victims, other Faculties/ Departments of university should also be able to adapt themselves to the immediate societal needs and respond accordingly. It is recommended that TU should not only stick to their traditional roles, they should rather modify themselves as per the societal needs and address immediate challenges. An in-depth study on changing roles of university on all the phases of a natural crisis is recommended.

Lastly, this study was carried out on a surface level, and it could be more interesting to make an in-depth study of university roles in all the phases of disaster cycles. Since there is little research done to explore the roles of university in relation to natural disasters, it is recommended for more research in this particular area. It would also be better to note that effects of crisis can vary in terms of places they occur in. So, conclusions drawn from the study of role of universities in developed countries might not be relevant in the context of developing countries.

7.3.2 Policy recommendations

Firstly, since the nature of crisis varies from one place to another and from one crisis to another, it is very difficult to conceptualize and generalize the roles of university in natural disasters. In this study, it was found that the concerned authorities were highlighting the harm caused by the earthquake only. However, Nepal experiences several other disasters like floods, landslides, fire outbreaks, avalanche, etc. in the rural areas, but no one was talking about these. It is an advantage for TU that it has a Centre for Disaster Studies established within the IoE to deal with the natural disasters that occur in the country. It is recommended that many other permanent centres like CDS should be established in the ways in which university is trying to operationalize and interpret and strengthen its functions in relation to the issue natural crisis.

Secondly, although TU has an influential role in the aftermath of 2015 earthquake, it was lacking formal plans and policies for its involvement. All the responses were spontaneous, and everyone acted on individual basis. It is recommended that TU should make formal and strategic plans on how and in what manner university expertise, knowledge, resources and capacities can best be mobilized in order to reduce the harm caused by natural disasters.

Thirdly, it is the fact that hundreds of people lose their lives in Nepal during the disasters of one kind or other. It has been a challenge for the government to address this problem. It is not possible for the government to work alone on this. Therefore, it is recommended that the government makes a clear and specific work plan and works hand-in-hand with other organizations. Even in the 2015 Nepal earthquake, the university personnel were not sure what the government actually wanted from them, and what they could actually work with. Therefore, the government should give clear instructions to all the organizations working for disaster management and integrate their roles.

References

Abedin, M. A., & Shaw, R. (2015). The role of university networks in disaster risk reduction: Perspective from coastal Bangladesh. *International journal of disaster risk reduction, 13*, 381-389.

Ahmad, R. (2007). Roles of the University in Disaster Management. *The Malaysian journal of medical sciences: MJMS, 14*(2), 1.

Altbach, P. G. (2008). The complex roles of universities in the period of globalization.

Anderson, R. M., & Robins, L. S. (1998). How do we know? Reflections on qualitative research in diabetes: Am Diabetes Assoc.

Anil, E. B., Akinci, B., Kurc, O., & Garrett, J. H. (2015). Building-Information-Modeling–Based Earthquake Damage Assessment for Reinforced Concrete Walls. *Journal of computing in civil engineering, 30*(4), 04015076.

Arsalan, H., & Cosgun, N. (2007). *The evaluation of temporary earthquake houses dismantling process in the context of building waste management.* Paper presented at the International earthquake symposium. Kocaeli, Turkey.

Ayo, C., Adeboye, A., & Gbadeyan, J. (2011). Application Of ICT TO Resource And Disaster Mamagement. *Journal of "Sustainable Development and Environmental Protection, 1*(1), 77-86.

Bashawri, A., Garrity, S., & Moodley, K. (2014). An overview of the design of disaster relief shelters. *Procedia Economics and Finance, 18*, 924-931.

Ben-David, J. (1977). Centers of Learning. Britain, France, Germany, United States. An Essay Prepared for the Carnegie Commission on Higher Education.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative research journal, 9*(2), 27-40.

Brennan, J., King, R., & Lebeau, Y. (2004). The role of universities in the transformation of societies. *Synthesis Report. Centre for Higher Education Research and Information/Association of Commonwealth Universities, UK*.

Bryman, A. (2012). Expert voices: Alan Bryman. *How many qualitative interviews is enough: Expert voices and early career reflections on sampling and cases in qualitative research,* 18-20.

Castells, M. (2015). *Networks of outrage and hope: Social movements in the Internet age*: John Wiley & Sons.

Castells, M (2001). Universities as dynamic systems of contradictory functions. In: J Muller,

N. Cloete & S. Badat (eds), *Challenges of Globalisation: South African Debates with Manuel Castells*. Cape Town: Maskew Miller Longman.

Chaulagain, H., Rodrigues, H., Silva, V., Spacone, E., & Varum, H. (2015). Seismic risk assessment and hazard mapping in Nepal. *Natural Hazards, 78*(1), 583-602.

Chen, H., Sun, B., Chen, X., & Zhong, Y. (2013). Research on China earthquake loss estimation system based on cloud computing. *Dizhen Gongcheng yu Gongcheng Zhendong(Earthquake Engineering and Engineering Vibration), 33*(1), 198-203.

Chiaro, G., Kiyota, T., Pokhrel, R. M., Goda, K., Katagiri, T., & Sharma, K. (2015). Reconnaissance report on geotechnical and structural damage caused by the 2015 Gorkha Earthquake, Nepal. *Soils and Foundations, 55*(5), 1030-1043.

Chongbang, K. B., & Campus, M. R. (2014). Comparative Study of Semester System and Annual System of Faculty of Education Mini–research Report.

Clark, B. (2004). *Sustaining change in universities*: McGraw-Hill Education (UK).

Comfort, L. K. (2005). Risk, security, and disaster management. *Annu. Rev. Polit. Sci., 8*, 335-356.

Davis, I., Hosseini, M., & Izadkhah, Y. O. (2003). *Public awareness and the development of a safety culture: key elements in disaster risk reduction.* Paper presented at the Proceedings of the 4th International Conference on Seismology and Earthquake Engineering (SEE 4), IIEES, Tehran, Iran.

De Ville de Goyet, C. (2001). Earthquakes in El Salvador. *Revista panamericana de salud publica= Pan American journal of public health, 9*(2), 107-113.

der Heide, E. A. (2006). The importance of evidence-based disaster planning. *Annals of emergency medicine, 47*(1), 34-49.

Dilley, M. (2005). *Natural disaster hotspots: a global risk analysis* (Vol. 5): World Bank Publications.

Drori, G. S., Meyer, J. W., & Hwang, H. (2006). *Globalization and organization: World society and organizational change*: Oxford University Press.

Dynes, R. R., & Drabek, T. E. (1994). The structure of disaster research: Its policy and disciplinary implications.

Ellingwood, B. R., & Kinali, K. (2009). Quantifying and communicating uncertainty in seismic risk assessment. *Structural Safety, 31*(2), 179-187.

Enders, J. (2005). Border crossings: Research training, knowledge dissemination and the transformation of academic work. *Higher Education, 49*(1), 119-133.

Flick, U. (2006). *Qualitative Evaluationsforschung: Konzepte-Methoden-Umsetzung* (Vol. 55674): Rowohlt-Taschenbuch-Verlag.

Geiger, R. L. (2004). *Knowledge and money: Research universities and the paradox of the marketplace*: Stanford University Press.

Goda, K., Kiyota, T., Pokhrel, R. M., Chiaro, G., Katagiri, T., Sharma, K., & Wilkinson, S. (2015). The 2015 Gorkha Nepal earthquake: insights from earthquake damage survey. *Frontiers in Built Environment, 1*, 8.

Jigyasu, R. (2002). Reducing Disaster Vulnerability through Local Knowledge and Capacity. The Cace of Earthquake Prone Rural Communities in India and Nepal.

Kamat, V. R., & El-Tawil, S. (2007). Evaluation of augmented reality for rapid assessment of earthquake-induced building damage. *Journal of computing in civil engineering, 21*(5), 303-310.

Karki, C. B. (2015). *Academic Freedom for Faculty Members and Students: A Case Study of the Faculty of Education at Tribhuvan University in Nepal.*

Kennedy, P., & Ressler, E. (2009). *Handbook of disaster research*: Springer Science & Business Media.

Kothari, C. (2004). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. *New Age International. New Delhi*, 12-15.

Krin, C. S., Giannou, C., Seppelt, I. M., Walker, S., Mattox, K. L., Wigle, R. L., & Crippen, D. (2010). Appropriate response to humanitarian crises. *BMJ: British Medical Journal (Online), 340*.

Ladds, E. (2010). What can I do? *Student BMJ, 18*.

Mangione, G. R., Capuano, N., Orciuoli, F., & Ritrovato, P. (2013). Disaster Education: a narrative-based approach to support learning, motivation and students' engagement. *Journal of e-Learning and Knowledge Society, 9*(2).

Manning, J. F. (2006). What Divides Textualists from Purposivists? *Columbia Law Review*, 70-111.

Mathema, K. B. (2007). Crisis in education and future challenges for Nepal. *European Bulletin of Himalayan Research, 31*, 46-66.

Matthews, B., & Ross, L. (2014). *Research methods*: Pearson Higher Ed.

Mechler, R. (2004). *Natural disaster risk management and financing disaster losses in developing countries.* Karlsruhe, Univ., Diss., 2003.

Merriam, S. B. (2009). Qualitative case study research. *Qualitative research: A guide to design and implementation*, 39-54.

Naeim, F., & Kelly, J. M. (1999). *Design of seismic isolated structures: from theory to practice*: John Wiley & Sons.

Oliver, C. (1991). Strategic responses to institutional processes. *Academy of management review, 16*(1), 145-179.

Olsen, J. P. (2007). The institutional dynamics of the European university. *University dynamics and European integration*, 25-54.

Patton, M. Q. (2005). *Qualitative research*: Wiley Online Library.

Paudyal, S. (2016). *Higher Education Academic Standard in Nepal: A Comparative Study on Public and Private Higher Education Institutions of Tribhuvan University.*

Peduzzi, P., Dao, H., Herold, C., & Mouton, F. (2009). Assessing global exposure and vulnerability towards natural hazards: the Disaster Risk Index. *Natural Hazards and Earth System Sciences, 9*(4), 1149-1159.

Pourhosseini, S. S., Ardalan, A., & Mehrolhassani, M. H. (2015). Key aspects of providing healthcare services in disaster response stage. *Iranian journal of public health, 44*(1), 111.

Quarantelli, E. L. (1991). Patterns of sheltering and housing in American disasters.

Roy, B., Sathian, B., & Banerjee, I. (2015). Nepal earthquake 2015–an overview. *Journal of Biomedical Sciences, 2*(1), 1-2.

Russell, R. (2000). Ethical bodies. *The body, culture and society: An introduction*, 101-116.

Sabri, A. A., & Qayyum, M. A. (2006). Why medical students should be trained in disaster management: our experience of the Kashmir earthquake. *PLoS medicine, 3*(9), e382.

Shaw, R. (2006). Indian Ocean tsunami and aftermath: need for environment-disaster synergy in the reconstruction process. *Disaster Prevention and Management: An International Journal, 15*(1), 5-20.

Shrestha, S. S., Sosin, D. M., & Meltzer, M. I. (2012). Planning for baseline medical care needs of a displaced population after a disaster. *Disaster medicine and public health preparedness, 6*(4), 335-341.

Singh, B., & Wilkinson, S. (2008). Post-disaster resource availability following a Wellington earthquake: Aggregates, concrete and cement. *I-Rec 2008 Building Resilience: Achieving Effective Post-Disaster Reconstruction*.

Starr, I. (1976). Influenza in 1918: recollections of the epidemic in Philadelphia. *Annals of Internal Medicine*, *85*(4), 516-518.

Stein, C. H., Vickio, C. J., Fogo, W. R., & Abraham, K. M. (2007). Making connections: A network approach to university disaster preparedness. *Journal of college student development*, *48*(3), 331-343.

Sundnes, K. O., & Birnbaum, M. L. (2003). Health disaster management: Guidelines for evaluation and research in the Utstein style. *Prehospital and Disaster Medicine*, *17*(Supplement 3).

Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, *30*(3), 167-186.

Trubuhovich, R. (2003). The 1952-1953 Danish epidemic of poliomyelitis and Bjorn Ibsen.-letter. *Critical Care and Resuscitation*, *5*(4), 312.

Weick, K. E. (1976). Educational organizations as loosely coupled systems. *Administrative science quarterly*, 1-19.

Wisner, B. (2006). A review of the role of education and knowledge in disaster risk reduction.

Yin, R. K. (1984). Applied social research methods series Case study research: Design and methods.

UNDP in Nepal. (2018). *After-Action Review of the Nepal Earthquake Response: Final Report*. [online] Available at: http://www.np.undp.org/content/nepal/en/home/library/crisis_prevention_and_recovery/after-action-review-of-nepal-earthquake-response-final-report.html [Accessed 26 Jan. 2018].

Seismonepal.gov.np. (2015). *National Seismological Centre*. [online] Available at: https://www.seismonepal.gov.np/ [Accessed 26 Jan. 2018].

Npc.gov.np. (2015). *Other Major Reports: National Planning Commission*. [online] Available at: http://www.npc.gov.np/en/category/other_major_reports[Accessed 26 Jan. 2018].

Universityworldnews.com. (2015). *Earthquake destroys university and school buildings – University World News*. [online] Available at: http://www.universityworldnews.com/article.php?story=20150429122217633 [Accessed 26 Jan. 2018].

Tribhuvan-university.edu.np. (2018). *Office of TU Academic Council | Tribhuvan University*

of Nepal. [online] Available at: http://tribhuvan-university.edu.np/office-of-tu-academic-council/ [Accessed 26 Jan. 2018].

Ministry of Education Nepal (2016). *Nepal Education in Figure 2016*. [online] Ministry of Education Nepal. Available at: http://www.moe.gov.np/article/711/nepal-education-in-figure-2016.html [Accessed 26 Jan. 2018].

Appendixes

Appendix 1: Interview Guide

Name of the interview:
Organization/ Institute:

Current position:

Telephone:

E-mail:

Past Involvement and Experience:

General Section:

1. Could you please introduce yourself with your position at this organization?
2. How long have you been involved in this field?
3. As being in this position, what are your main responsibilities?
4. What do you think are the major roles of a university for society?
5. Do you think the largest public organization like a university has something to do in the post disastrous situation? If yes, in what ways?
6. Have you ever experienced any situation of disaster where TU has actively involved for handling the crisis? If yes, please give some evidences.

Specific Section:

Interview Guide for TU Leadership (VC/Rector/Regristar)

1. Was there any kind of external invitation (i. e. from Government or any other political/economic actors) for TU to play a specific role for handling the effects of the Great Earthquake? If yes, how did that happen?
2. Did TU know about the National Task Force (eg. Punarnirman Pradhikaran) for organizing the handling of the earthquake? Was the university involved into it?
3. In the decisions made by authorities, where does the university fit, if at all?

4. Did the university wait for authorities or any other actors to purpose? Do you have any evidences?
5. Was there any kind of formal/informal agreement among the main actors in the country, with respect to roles of each actor, in handling the earthquake? Was that already known to the university what it was supposed to do?
6. Did the university themselves get active to lead in the development of infrastructure? Did the university leadership develop any strategic plan to actively involve in the addressing of the earthquake? To what extent?
7. Was there any bottom up pressure from the university's deans or professors or students on the leadership to do something? Could you explain it?
8. Normally, the government develops an emergency plan for possible disasters; and university might or might not be involved in it. Is there any emergency plan that has already agreed upon so that everyone knows what they are supposed to do and what the role of university is?
9. Do the university themselves have developed their own emergency plan for any kind of crisis the country might face? How effective is it?

Interview Guide for TU Deans/Professors/Lecturers

1. Do you know any activities where any faculties, departments, colleges or units were involved in handling the earthquake? How did that happen?
2. Was there any formal proposal from the leadership to get involved into the handling of the earthquake? If yes, can you give some evidences?
3. Who took the initiative to get involved?
4. Do you remember any department or faculties or units in TU that developed any action plan for handling the earthquake? If yes, what kind of plan did they make?
5. Was the expertise available in the university useful in the post disaster? What kind of expertise was more useful? How?
6. Did the faculties from different departments integrate with each other? To what extent? Or they worked separately?
7. Was there any bottom up strategies or action plan within these units agreed upon? Is there any evidence that these units pressurized the leadership to get involved into the handling the disaster?

8. Was there any voluntary group of professors/teachers/experts for addressing the effects of earthquake? Are there any evidences?