Disaster Risk Reduction (DRR) Education from Social Disciplinary Theoretical Perspectives

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Abstract

Disaster is a social phenomenon. The occurrence and impacts of disasters including the education sector can be studied through a social problem lens. This paper draws meaning and understanding of DRR education using the sociological disciplinary framework in a detailed qualitative case study of three schools as they responded to the devastating Gorakha earthquake in 2015 and other disasters in Nepal. This paper considers the three sub-disciplines of sociology: the sociology of disaster, the sociology of education and the sociology of education governance in a development context. These sub-disciplines are nested together to analyse social, political and historical factors and their relationships which are helpful to identify risks and vulnerabilities in the education sector in Nepal. These are the major areas to explore the disaster context and needs of context-specific education acts (hereafter DRR education) to minimise the potential risks of disasters. The article concludes that the social disciplinary framework is significantly useful to analyse DRR education provisions and implications of education governance to mobilise school in disaster preparedness, response and recovery.

1. Introduction

Scholars, practitioners, government officials and private sectors are involved in the disaster study area, and their contribution to this field is crucial in shaping disaster study as a multidisciplinary subject [1]. This study attempts to understand DRR education from sociological perspectives, provision and practices at

various levels in a disaster-prone context. The theoretical perspective is adopted to provide a broad understanding of how various stakeholders at various levels perceive and experience DRR education provision and practices within the changing social and political context of Nepal. This study is located in the disaster-prone, developing and changing social and political context of Nepal, the influence of globalisation and neo-liberalisation in education governance also comprises a part of the theoretical framework. It allows us to share the influence of the socio-political factors on DRR education inputs aimed at reducing social vulnerability and raising social resilience to natural hazards.

Disasters and their impacts can be viewed from various perspectives. Disaster sociologists believe that disasters are the product of social, political, economic, and historical factors in the territory. Places and hazards, unequal access and opportunities due to class, gender, social systems, power relationships, political, economic and environmental forces all interact in a disaster situation [2] [3] [4] [5]. Weichselgartner and Bertens [6] explain that disasters are characterised by complex relationships and interactions between physical hazards and society. Disasters are not a one-off phenomenon rather these are socially constructed events [7]. The sociology of disaster looks at the basic reasons and causes of injustices and human vulnerability to hazards in society. Research has shown that disasters are not neutral in their impact and more severely affect the most vulnerable groups, especially the poor and marginalised, children and the elderly [8].

Since we cannot fully prevent natural disasters, there is a need for relevant mitigation measures to reduce the effects of disasters. Petal [9] states that the impacts disasters have can be mitigated with knowledge and planning, physical and environmental protection measures, and response and preparedness. Such vulnerabilities need to be addressed properly through relevant and participatory disaster risk identification, risk reduction, preparedness and response measures [10]. Disaster risk reduction and disaster management, as used in this study, are not limited to sustaining normality; they also deal with addressing the local context and vulnerability to establish a disaster-resilient community. Schools in particular are well placed to assist children in developing knowledge, skills and resilient attitudes which will enable them to cope with future disasters [11]. The work carried out by United Nations agencies, bilateral and multilateral organisations, various scholars and education practitioners in the area of disaster management has contributed much to the development of a wider theoretical understanding of DRR. The Hyogo Framework of Action [12] and Sendai Framework [13] have given a higher value to DRR. UNISDR [13] highlights the use of knowledge, innovation and education to build a culture of safety and resilience at all levels. It further identifies activities such as information management, education and training, research, and public awareness which play a crucial role in reducing vulnerability and increasing resilience to disaster.

Theoretical understanding of disaster's risk and vulnerability is crucial to carrying out meaningful educational interventions including research. Merriam [14]

states that the theoretical framework for any discipline and research study is derived from the orientation or stance that the researcher brings to the study. This study focuses on disaster risk reduction (DRR) in education and argues that a sociological disciplinary framework allows us to analyse the disaster context and its vulnerability in the education sector. Sociology allows us to see the world in a particular way, and the use of social science approaches in disaster research helps in exploring the disaster circumstances, including people, in disaster contexts [15] [16]. Social constructivism perspectives view that the world is socially, culturally, politically and historically constructed. Therefore, using a sociological perspective framework in disaster research contributes significantly to exploring the social phenomenon of disaster events. In order to explore the disaster risk reduction in the education context in more depth, three sub-disciplines of sociology: the sociology of disaster, the sociology of education and the sociology of education governance in development contexts help to analyse multidimensional aspects. Since these three disciplines are concerned with the study of disasters and consequences, DRR sits at the intersection of these three ideas. Furthermore, this framework also uses the sociological concepts of vulnerability, hazards and risks in DRR and disaster management. The purpose of this study is to explore stakeholders' perspectives on provisions, practices and effectiveness of DRR education school curricula to reduce social vulnerability and disaster risks in Nepal.

2. Context

Nepal is a landlocked, mountainous country located between India and China, with an area of 147,181 square kilometres and a population of over 29 million [17]. Nepal has a diverse topographical landscape, ranging from lowland areas 60 metres above sea level to places more than 8800 metres above sea level. Within this elevation, about 86% of the total area is covered by hills and high mountains and the remaining 14% of the land is the plain area adjoined to India in the south. The plains region is the southernmost part of Nepal. This has relatively low, flat and fertile land. Roughly more than 50% of the population lives in the plains [17]. The mountain region consists of river valleys, tectonic basins, glaciers, and rocky slopes.

Nepal is a disaster-prone country because of its geography. The country is highly vulnerable to droughts, floods, earthquakes, landslides, forest fires, storms and hailstorms, avalanches, glacial lake outbursts, floods and the effect of global warming [18] [19] [20]. Similarly, the Ministry of Home Affairs and United Nations Development Programme [21] state that Nepal has recently experienced increased intensity of floods, landslides, and longer droughts. Furthermore, people mainly from ethnic minority groups and lower castes, including women and children of these regions, are the most vulnerable to disasters [22] [23] [24]. Factors such as widespread poverty, lack of food, low levels of health and hygiene, low levels of education and unequal distribution of resources among so-

cial groups play pivotal roles in raising vulnerability to disasters.

The social context of the country has rendered some parts of the population much more prone to being vulnerable to disasters than others. There are a number of social problems which result in social stratification and discrimination. A caste system is still widely accepted in Nepal which represents a traditional system of social stratification of Nepal [25]. A caste system is a class structure of a group of people with a common bloodline, heredity or occupational area. There are four major occupational classes: *Brahmin (top rank)*, *Chhetri*, *Vaishya*, and *Sudra/Dalits (bottom rank)* [26]. Caste-based discrimination became illegal in 1963. However, the lower castes still face exclusion and marginalisation in society [27]. The World Bank Report [28] states that the caste system is an institutionalised process of exclusion in the social system. This study argues that socio-economic, political and geographical marginalisation exacerbates the exclusion of vulnerable communities in DRR and disaster management decision-making processes in Nepal. A poor Dalit family, socially discriminated against as an untouchable group, did not have access to a safe place to live, and did not have enough resources to survive and, therefore, they were more vulnerable than others.

Social, political, historical and cultural aspects of society contribute to disaster vulnerability and disaster risks [29]. Social inequalities, traditions, power relationships, social norms and values are interlinked with disaster consequences and vulnerability. In the context of Nepal, because of deeply-rooted social inequalities and caste-based discrimination, certain social groups are more vulnerable to disasters. The unstable political situation also contributes to creating risk and vulnerabilities. Social, political, historical and cultural factors also influence the education system. Because of social inequality, gaps between poor and rich, caste-based or gender-based discrimination and many other social issues, poor and marginalised groups have limited access to education. Since education plays a pivotal role in disaster risk reduction [30] [31] [32] [33], poor and marginalised communities become more vulnerable because of not having access to DRR education. Thus, the perceptions, skills and abilities of individuals and communities, and the provision of a social system to minimise the risks and impacts of a disaster, play a crucial role in DRR and disaster management.

Moreover, the 2015 earthquake, the 2023 Jajarkot Earthquake and the prevalence of other natural hazards, including floods and landslides, continue to challenge social, political, and economic developments of the country. Due to political instability (the product of conflict), the state has not been able to equitably reduce vulnerability for all and has focused development on the centre at the expense of the peripheral areas of the country. The disaster-prone context has also created and continues to create problems for education in the country. For example, a lack of proper resources for rebuilding and the possibility of political instability affect access to, and quality of, education.

Disaster incidents affect students, teachers, school leaders and parents psy-

chologically and physically [12] [34] [35] [36] [37]. Children face stress and anxiety with a loss of motivation and confidence [35]. Moreover, disasters can cause destruction to school facilities and can disturb the academic calendar and the teaching and learning process [38] [9]. Severe disaster incidents sometimes force communities to leave their homes, therefore, the displacement of families can have a severe negative impact on children's learning [35]. Disaster recovery and rebuilding, especially in the case of severe disasters, normally takes a long time and more resources, hence the education sector faces long-term impacts and challenges after disasters [38].

Most of the schools in Nepal are vulnerable in the context of disasters. This situation is because of improper school construction, a lack of disaster preparedness and response plans, and limited provision of DRR content in the school curriculum, all leading to the education system being extremely vulnerable in the face of adversity [39] [40] [41] [42].

After adopting the Hyogo Framework of Action, DRR was mainstreamed into the Nepalese government's National Development Plan in 2007. Realising the importance of the role of education in DRR, the National Disaster Management Plan 2010-2014 suggests the need for the implementation of disaster preparedness, such as the development of school safety plans and the implementation of DRR education in schools. This is reinforced by the Hyogo Framework for Action [12] which strongly advocates for the provision of disaster education in establishing a culture of disaster prevention. Aligned with the government plan and policies, organisations such as Plan Nepal, UNICEF, Save the Children, Nepal Society of Earthquake Technology and the Red Cross engaged in DRR education in some selected areas of the country. These DRR education activities aimed to strengthen schools' preparedness for, awareness of, and ability to respond to disasters through training for teachers and students, the production of new resources, and support for safer school construction. The coverage of such interventions, however, was very limited and only a few hundred schools benefited from this initiative. There remains a lack of a comprehensive approach to school DRR intervention [43], as well as a lack of appropriate coordination and collaboration action among relevant stakeholders [42]. Nepal is a multi-hazard-prone country. The social, political, historical and cultural aspects of disaster create disaster vulnerability and risks. Such vulnerability and risks are not manageable with the resources that the country has.

3. Literature Review

3.1. Sociology of Disaster

Sociology relates to the study of society, social behaviours, social groups and their problems [44] [45]. Since disasters and their consequences are associated with these aspects of societies, disasters are taken as social problems. In response to the increasing trend of disasters, disaster research has become even wider [15]. The sociology of disaster aims to explore the surroundings of disasters and

the people in the disaster context [46]. Furthermore, Uekusa [47] suggests that in the case of the development of disaster research, sociology contributes "to revealing unarticulated human and social aspects and knowledge of disaster risks and hazards" (p.8). Sociological research on disasters introduced a wider and new concept of social vulnerability and disaster risks [29] [48] [49] [50] [51]. Schutt [52] states that sociologists study disasters in order to identify the significance of social factors and their influence to determine the origins, course and outcomes of natural disasters. The increasing trend of poverty and economic inequality globally contributes to raising vulnerability. It is important to increase disaster resilience with improvement in the social conditions and living standards of people. Social research in disaster also relates to risk, social vulnerability and social resilience in policy discourse. Scholars point out that until the late 1940s, there was a lack of organised studies about disasters and how the public responds to disasters [53]. Quarantelli [54] studied how the community remains cohesive, maintains social control and remains active after disasters.

The nature and scope of the study of disasters mean that disciplines such as engineering science, psychiatry, natural science, sociology and geography are interlinked with disasters [55]. Among these fields, the sociology and geography disciplines aim to contextualise natural processes and the factors of disasters from the social, political and historical perspectives [56] [57]. These disciplines bring together the social aspects with scientific ideas of disasters. Furthermore, a sociological lens to disasters helps to understand how disasters are mediated and influenced by factors like politics, history, culture/values and society. In addition, a socio-ecological lens is also useful in analysing DRR education provision and practices from social, historical and political dimensions at various levels. The socio-ecological framework allows exploration of the dynamic interrelations among various factors at different levels of the social system [58]. In the case of DRR, the roles of household, community, social structures and groups, and social values, customs and cultures are significant to the translation of relevant and context-specific knowledge and skills to individuals. Moreover, influences of historical changes in social beliefs, technologies and social circumstances are also crucial in developing required DRR abilities and resilience capacities in individuals. Although there is still a lack of understanding about disaster resilience in the disaster discourse [59] [60], it is linked with the ability to cope with hazards [50].

This situation comes about not only because of the high impact of a natural disaster, but also because of the failure to develop and distribute essential services and the disruption of social networks which enable social actors to operate effectively during and after a disaster [3]. Because of the possibility of severe consequences of disasters, the restoration of these services and systems is beyond the household and community capacity [61]. Therefore, recovery interventions are the attempts to re-establish social networks through the collaborative actions of community groups and other organisations [3] [61] [62] [63].

The social, political and historical perspectives of disaster are concerned with

how the social structures shape the dynamics of households and community for DRR and disaster management. Disasters are also constructed culturally (Hewitt, 1983, in [64]) therefore, cultural perspectives play a crucial role in defining disasters and risks. The social context, values, and culture are linked with the sociological concept of disaster. Oliver-Smith and Hoffman [64] explain disasters from the perspective of "objectively identifiable phenomena" or "subjective socially constructed process" (p.22). A disaster and its consequences on an individual, family or community are based upon preparedness and previous awareness initiatives. For example, the influence of social inequity, associated with race, gender, age and class, determines the intensity of the impact of disaster in certain places. In the context of Nepal, the role and consequences of social inequality on the basis of gender, economic status, caste and remoteness are influential in disasters [22]. These determinants play a crucial role in the ability of a community to respond to disasters and their consequences. Wisner *et al.* [50] state that disasters impact normal social functioning and therefore effective response and recovery help society to return to normal.

The impacts and consequences of a disaster event need to be addressed properly. Panic, looting or other anti-social behaviours may take place during and after a disaster [65]. In the case of the Gorakha Earthquake, 2015 in Nepal, some cases of looting were reported. Moreover, during the response and recovery phase several stories related to corruption were published in a national newspaper [66]. Similarly, because of a lack of access to systematic disaster education, it was noticed that people were afraid as a result of disaster-related rumours. The media in disaster situations plays an important role [60] [67]. Moreover, the proper use of media is crucial for disseminating useful information for recovery and immediate response [68]. For example, in the context of the Gorakha earthquake, radios, televisions and newspapers played an important role in disseminating relevant DRR information. From the sociological perspective, how social groups are affected by disasters and how they respond to disasters are important questions for them [61] [69] [70] [71].

Disaster sociologists are also concerned about the provision of structure, organisations and roles in disaster situations. The influence of emergent disaster-relevant networks and other relevant organisations in a disaster context play an important role in developing the thoughts and behaviours of individuals [72]. Other areas of interest to disaster sociologists are pre-disaster social structure, bureaucratic or governmental response mechanisms in a disaster and participation of people in disaster response and recovery [63]. Cutter *et al.* [68] mention that provision and practices of involvement in the social system help to determine the social causes and consequences of disaster. The pre-existing social structure determines the cooperation and coordination in a disaster context. Small social gaps and inequalities contribute to a feeling of belonging and unity during and after disasters and emergencies, whereas wider social gaps create a lack of trust and isolation. Similarly, a decentralised bureaucratic system can play a

crucial role in disaster response. Active and cooperative bureaucratic leaders take a supportive role in carrying out these actions [70]. Thus, analysis of disaster and disaster management practices and provision can be carried out by using social, political and historical perspectives [3].

3.1.1. Social Vulnerability

Social vulnerability is one of several worthy concepts for further elaboration within disaster sociology. The social vulnerability approach to disaster sees natural disasters as the trigger for risk that has built up over time. It aligns with the social construction of disasters. Since risks are there, vulnerability to potential risk is there. Access to safe buildings, resources for long-term mitigation and self-protective measures, are socially structured capacities which influence suffering and recovery capability [62]. Cutter [71] explains that minimising social vulnerability is a crucial part of lessening impacts of disasters in the future.

Disasters occur in a specific situation when there is a hazard and vulnerability. Morrow [66] and McCoy and Dash [72] explore the issue that socially powerless groups have limited resource options and therefore tend to live in vulnerable areas, and so these groups comparatively suffer more than others. Cutter *et al.* [68] point out that social/demographic factors play a significant role in generating social vulnerability to disasters for certain vulnerable groups. Therefore, social power relationships and differential disaster suffering are interlinked.

Schutt [52] states that socially created vulnerabilities are largely ignored in the hazards and disaster literature because they are so hard to measure and quantify. However, disaster sociologists consider qualitative factors such as ethnicity, gender, age, disability, social capital (network, connections and ability to protect oneself against disasters), and socio-economic status relevant to assessing social vulnerability to disasters [73]. In addition, wealthy people live in well-built houses, whereas the poor may live in an unstable building, therefore poor people will suffer the greatest disaster losses and have limited access to recovery mechanisms [8] [60]. The social vulnerability involves the basic provision of health care, the liveability of places, overall indicators of quality of life, and accessibility to lifelines (goods, services, and emergency response personnel), capital, and political representation. In the context of Nepal, issues such as conflict-affected families, single mothers, landless families, unemployment, physical landscape, and the landscape of social inequality have increased the division between rich and poor.

Vulnerability is seen as a socially-mediated concept. Vulnerability consists of environmental, economic, political, and demographic factors that help to determine the ability of the individual to cope with disasters [50] [74]. Disaster sociologists have developed various indicators to rate social vulnerability and mapping which helps to reveal the vulnerable social situation. Vulnerability assessment is understood as a major action for reducing disaster losses and strengthening a culture of disaster resilience [75] [76] [77] [78]. Such assessment is carried out on the basis of income, age, ethnicity, housing, health, disability, gender

and family structure [79].

In the context of a natural disaster people become vulnerable based on their position in society and their relationships within society [62] [80]. Aksha *et al.* [22] note that the political and socio-cultural caste system and associated marginalisation, gender division in society, exclusion in decision-making processes, and lack of empowerment also determine the level of vulnerability. Similarly, the physical vulnerability of places such as areas near coasts, rivers, mountains and hills also determines the social vulnerability of that location [22] [81]. Sites of ecological and environmental vulnerability are more prone to the destruction of buildings and infrastructure. Environmental sources of vulnerability, how the buildings are built, the existence of old weak buildings, and overcrowded places, also increase loss in disasters. Similarly, unplanned and informal settlements on hillsides and at the edge of rivers and slum areas also increase social vulnerability to disasters [82] [83] [84].

Vulnerability reduction requires knowledge about the social, economic, and political context that influences vulnerability [7] [68] [84]. Similarly, a lack of access to information contributes to vulnerability. It is argued that socio-economic, political and geographical marginalisation exacerbates the exclusion of vulnerable communities in DRR and disaster management decision-making processes in Nepal. A poor Dalit family, socially discriminated again as an untouchable group, did not have access to a safe place to live nor enough resources to survive, and therefore was more vulnerable than others [85].

3.1.2. Hazards and Risk

A hazard is a "process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. Hazards may be natural, anthropogenic or socio-natural in origin" [86]. The conception of risk is interlinked with risk perception and its cultural understanding [87]. Douglas [88] writes that risk is not a thing, it is a "way of thinking" (p. 46). Risk refers to broader cultural narratives, and therefore disaster risk reduction and management based on this conception help to address various social issues. Douglas and Aaron [89] argue that risk is a collective construct of society and individuals develop their beliefs and perceptions within a specific social and cultural environment. Douglas [88] further explains the connections between risk and culture with respect to a disaster event, risk reduction and the politicisation of risk. Schutt [52] also notes that culture shapes the societal interpretation of, and response to, disaster.

Risk perception plays a pivotal role in disaster risk management. Poor and disadvantaged people experience disasters on the basis of their risk perception [90]. Preparedness response and recovery actions depend upon cultural understanding and values. Risk perceptions also shape disaster preparedness and management actions at the governmental, institutional and household levels. With the recognition that many factors shape risk perception, how can the sociology of disaster provide the guiding theory for DRR education provision and

practices in Nepal? It may be able to do so by providing answers to questions regarding subjective perceptions: what is considered a risk, and by whom, and what are their roles in successfully implementing DRR interventions? Non-Governmental Organisations (NGOs)' involvement in DRR education in Nepal relates to some of these discussions on risk perception. However, education programmes can still face significant limitations based on their approach to different concepts of risk [87].

The effectiveness of DRR education intervention relies on the understanding and discussion of risk. Teachers and trained human resources personnel play a crucial role in risk communication. Wolfe [91] describes risk communication as a formal process for transferring technical information about potentially hazardous events effectively. NGOs assisting schools to carry out DRR education could emphasize two-way risk communication in formal and informal ways.

Collins [92] points out that factors such as loss mitigation, the capacity to minimise hazards and vulnerability, and the capacity for sustainable development are associated with societal contributions to minimise disaster risk. Thus, the sociology of disaster and development are interlinked to address disasters in development and development in disasters. Collins [93] notes the role of social relations in mediating disaster and development. Social relations and systems of meaning both influence disaster and development outcomes, as do social networks—social capital, communication, accountability, responsibility, emotional ties and dependencies. Collins explains that disaster and development outcomes are mediated by these factors: power and structure, technology and education, and human behaviour.

The absence of early warning systems and technology in DRR also increases disaster risk for the people. Moreover, human behaviour, for example, deforestation, has negative effects on environmental sustainability. Thus, it is important to engage people in DRR to extend their knowledge and culture (social origin, agency, tradition), empower them for their roles and responsibilities, and to engage in environmentally friendly action. Considering the development of resilience within a broader social change agenda, Shah [94] suggests long-term structural programmatic interventions in the education sector. Furthermore, he suggests that DRR actors move beyond the language of returning to normalcy. Thus, the sociology of disasters may also raise questions about power, exclusion and inequality. So, it is hard to talk about resilience without realising the broader sense of engagement and empowerment. Therefore, the provision of formal, informal and non-formal education is important in order to raise the DRR capability of individuals, households and communities and minimise disaster risks.

3.2. The Sociology of Education

Education is the means of passing on social culture, values and knowledge to future generations [95]. It can interrupt existing norms, inequalities and structures in society. The sociology of education considers that education plays a cru-

cial role in transferring social values, norms and culture which are essential for developing an individual as a social being. In a wider sense, education empowers and uplifts people, and it can also be viewed as a means of social justice. Education also contributes to reducing structural inequality and bias [96]. One of the major functions of education is economic development and liberation. Education enhances social interactions to reduce social gaps [97]. Furthermore, the sociology of education helps to reveal social structures and processes that influence students' learning and social development [98]. Therefore, education has a bearing on people's vulnerability and resilience.

Issues are thus linked to social systems and structures, and the sociology of education aims to study educational issues through a sociological perspective. The long-standing issues in the sociology of education are around knowledge, power and equity [99]. In terms of the sociology of education, the idea of knowledge in DRR relates to the provision of access and relevant content in education which influences vulnerability and risks. There is ongoing debate among sociologists on some educational issues. For example, there is a discussion about access to powerful knowledge and contextual knowledge and the role of the education system in promoting inequality and hierarchy. Thus, knowledge of the powerful and powerful knowledge are the great debates in the sociological field [100] [101].

The social construction of knowledge takes place in ways that reproduce existing social relations of power and inequalities. To address these issues, questions of knowledge and curriculum, therefore, are centre stage of education policy and debate [102]. Nepal has a diversified social context, therefore one of the major issues relating to access and content in education for minorities and ethnic communities in education is the curriculum. Relevant and comprehensive curricula address the needs of the diversified societies and geographical contexts [85]. Curtis [103] notes that, due to its general nature, the existing school curriculum is not contextualised to address the local context and cultural practices of the diversified communities.

Education and development are interrelated. Education is a means of human resource development, of improving the total qualities of individuals and committed citizens [104]. It also contributes to reducing inequality, and promoting economic competitiveness, peace and stability in society. Education plays a crucial role in reducing the unproductive values and practices in family and community. It also helps individuals to increase their upward mobility in society. Educated communities play a significant role in owning the development initiatives taking place in their locality. Without quality education, it is challenging to make and sustain positive changes in society.

Nepal exhibits great demographic diversity, which influences social vulnerability [22]. The practices of caste and creed systems have had negative consequences on educational, political, social, and economic reform [105]. Koirala [25] points out that because of the discriminatory practices in wider society,

Dalits, females, ethnic groups and other deprived communities were left behind in education. Bista [106] states that lack of education and widespread illiteracy forced these groups to become voiceless in the community. The longstanding political, economic and social exclusion contributed to a decade-long conflict and war. Therefore, discriminatory practices in the political, economic, socio-cultural and educational areas influenced their risk and vulnerability status. In other words, the level of literacy, illiteracy and political participation are also interlinked with risk and vulnerability.

The historical, social and political changes and their influences on education are crucial to analyse the capacity of people, power and policies. It is argued that the delivery of contextualised DRR knowledge will help to empower individuals and the wider community in reducing risks and vulnerability. In the case of DRR education, basic knowledge and skills related to preparedness, mitigation, response and recovery are considered powerful knowledge that will empower individuals, families and communities in DRR and disaster management. Moreover, it assumes that knowledge has to be local to be powerful. Young [100] maintains that there is a body of knowledge that everybody needs to know. For example, literacy and numeracy skills are essential to deliver such an important body of knowledge. Therefore, accessibility to education is important in raising such relevant and contextualised knowledge for all. Hence, it is important to analyse how access to, the relevance of, delivery of, and participation in such knowledge applies specifically to the people who are vulnerable and at greater risk.

The Government of Nepal has made efforts to reform the education system of the country, however, there are various challenges to raising the quality of, and access to, education [20]. Factors such as discrimination, inequality and poverty influence the education system. Limited participation of the deprived groups in educational decision-making processes also hinders their access to quality education. Moreover, limited educational and employment opportunities, political instability, social inequality and poverty led to negative consequences for the social condition of the country, especially following the devastating earthquakes in 2015 and floods in 2016 [87].

A disaster victim's attributes, such as social class, caste, ethnicity, gender and age, are important and are associated with the recovery process and outcomes [4]. Long-term recovery functions after a high-impact disaster play an important role in re-building and rehabilitation. Education, as a social process, plays a pivotal role in addressing these issues, for example, by addressing the issue of structural safety to make a strong and safe place, and education plays a key role in mediating risk and vulnerability [107]. Moreover, education helps to empower people by reducing vulnerability and disaster risks through enhancing their resilience capacity. It also contributes to overcoming disaster stressors that may place individuals at risk of emotional and physical ill health. The amount of exposure to disasters, for example, more than four hundred aftershocks equal to or greater than four on the Richter scale after the Gorakha earthquake, can cause

lasting stress and trauma specifically to the poor and vulnerable people [87]. Mainstreaming disaster education in each education subsector, including pre-school, and restoring education provision in the aftermath of a disaster context [107] is helpful in addressing these issues.

In the context of Nepal, a "one size fits all" concept in education does not address the social needs of a geographically and socially diversified context. Singh [108] argues that the deprivation of children to learn about their own ethnic identities, local context and socio-cultural practices reduces the chance of development of their potentialities. According to Banks [109], a school curriculum ignoring the cultural norms, values and knowledge of deprived communities distracts learners from the learning process. It raises absence and dropout rates that lead to poor education which hinders the upward mobility of deprived children. These children need extra support to make progress in their learning. Without a resilient education system, children do not feel safe in schools [38] [107]. Thus, the education system also needs to address issues of inequality.

3.3. Sociology of Development

The study of development is one of the fundamental areas within a broader field of sociology. In general, the sociology of development aims to explore social relationships among the individuals and society in terms of various social factors such as inequality, poverty and economic growth and development. Thomas [110] portrays development as a vision desirable by society and as an historical process. The World Bank [104] states that development is an economic, social and political process that raises the living standard of people and communities. Thus, development sociology deals with the causes and consequences of social, economic, technical and political changes in society. It represents a transformative process with changes in society. People's perceptions and conceptions of development are pivotal in order to influence planned social changes [111]. Development studies have long been engaged in debates about development for whom and development for what/ what ends. A range of theories and ideas have sought to address this idea and this thesis also attempts to answer this central question in development.

During the twentieth century there have been two main schools of thought. The *'modernisation'* theory represents common features of development and social change on the basis of the analysis made by Durkheim and Weber [111]. Kiely [112] states that this school of thought saw development as a succession of stages through which all societies/nations must pass on their way to "modernity" (p.2). This theory states that economic growth and economic development may take place only when social changes occur in society. Similarly, the *'underdevelopment'* theory draws on ideas of economic development on the basis of the analysis of social conflict among the social groups [111]. This school of thought, known as dependency theory, is grounded in Marxist ideas [112]. It argues that underdevelopment is a result of inequalities existing in society.

Development aims to make positive changes to fulfil modern living standards of individuals [104]. These changes enforce the development of capacities of individuals, empowering people to claim their rights and obey their responsibilities. Development requires resources, time and effort. As development is a social process, social norms, values, beliefs and traditions also affect the process. Webster [111] points out the importance of the expansion of improving literacy and overall level of skills in the population, specifically in developing countries. However, as developing countries have very limited resources, international aid agencies play a crucial role in filling the gaps. Aid dependency creates several negative impacts on a country. Webster [111] mentions that aid-dependent poverty reduction initiatives and any other development interventions in developing countries create more problems than they solve. Poverty, political instability, inequality, traditional beliefs, tough geographical landscape, problems related to water and sanitation, and lack of educational opportunity are major challenges to development in Nepal [113]. To address these considerable problems, Nepal has also endorsed sustainable development goals in its development plan and policies. However, it will take time to reduce such issues, specifically in the context of the lack of political stability.

Nepal is ranked as one of the least developed countries in Asia, at 143 out of 189 countries, in a recent Human Development Index report [114]. The total adult literacy rate is 71.15 percent, with a female literacy rate of 69.4 per cent. The population growth rate of the country is more than 2 per cent per annum [17]. The Asian Development Bank report states that in 2010/2011 about 25 per cent of the population had less than USD 1 per day. Due to unemployment, about 30 per cent of households have at least one member outside of Nepal [17]. This poses tremendous challenges for the socio-economic development of the country. Social economic disparity, traditional social practices, illiteracy, environmental degradation, monsoon-dependent agriculture, unemployment, political instability and the geographical landscape challenge development interventions in Nepal [87]. Moreover, the disaster-prone context of the country is also another challenge to development. For example, according to the Asian Development Bank [115], the two devastating earthquakes (April and May 2015) have pushed a further 3 percent of the population below the poverty line.

The interrelationship between local disasters and development is very close. UNISDR [13] states that disaster risks need to be addressed properly while conducting development initiatives at local, national and global levels. However, it is challenging in the absence of the required resources, especially in the developing countries, which are mainly dependent upon aid assistance [104]. Recent studies also show that disasters and aid delivery programmes have long-term consequences in developing countries [87]. The top-down approach in development and disaster management is insufficient for addressing the social issues. The social issues, such as the level of impact of disaster on individuals, are different; damage and destruction of homes and properties may occur at different levels

and disaster victims may not receive the same level of response and recovery assistance from respective stakeholders. In the context of Nepal, analysis of the social, political and historical impacts of natural disasters on poor and deprived communities has not yet been carried out. Therefore, this study focuses on provision and practices of DRR education to explore the social, historical and political aspects of risk and vulnerabilities of deprived communities.

As discussed earlier, various actors may influence the development initiatives in developing countries. As developing countries have limited resources, subnational and supranational organisations come to fill the gaps and play an influential role. The influences of these organisations in power and decision-making put pressure on governments to address their development agenda. Gaillard and Cadag [116] argue that the dominant humanitarianism approach influenced by Western ideologies and the top-down approach bypasses local expertise, existing networks, local knowledge and needs, and inhibits potential resilience. Global level actors without having enough knowledge of the vulnerable communities and local context create problems while contributing to handle emergency situations.

It is important to analyse the notion of scale and level of engagement of actors in development initiatives. There needs to be analysis of probing questions, such as: who set the agendas of development plans or initiatives and who is driving these in the developing country? As a developing country, Nepal is also vulnerable and is gradually becoming more of an aid-dependent country [117] [118] However, due to political instability, lack of good governance practices and corruption, development aid and investment appear ineffective. The notion of power and social hierarchy has significant influences on access to development. Lack of economic resources, existing social discrimination and unstable political context create challenges in development and DRR [21] [22]. The recent earthquakes and consequences reflect challenges of disaster risks and vulnerability. As discussed earlier, since education is a sociological concept, the education system of the country is influenced by disasters and development and vice versa. In the context of Nepal, hazards, risk and vulnerabilities are socially constructed concepts within education. Moreover, the vulnerability and risk are associated with historical, social and political relationships. To establish Nepal as a safer place, there is the need to add more resources for sustainable development and DRR interventions. There are actually pluri-scalar governance structures in education and society in Nepal. Because of the social, political and historical relationships, they compound and mitigate risk and vulnerabilities.

Specific to education, Dale's framework is useful for understanding development for what ends over a range of different levels and scales, which is important in the era of globalisation and neo-liberalism. Dale *et al*. [119] notes that the state is the main funder and regulator of education and development, and the major provider of education services. In the context of developing countries, various actors also come and make their space of engagement in developmental interventions. Since these stakeholders control resources, they can influence the

funding, regulation, ownership and provisions actions of education governance. Such influence has major consequences at various levels. Since Nepal has been receiving development aid from various actors and is still struggling to achieve its developmental objectives, my theoretical framework uses Dale's pluri-scalar governance ideas to analyse the influences of development actors in education in Nepal. In this study, this model helps to identify major issues in the education sector in general, and DRR education in particular.

Moreover, the policy development process influences the rising impact of globalisation. The power of government, therefore, has been transferred to the supranational level and manifested in the form of structures and mechanism international organisation to establish "governance without government" [120]. Dale [121] argues that supranational organisations such as IMF, the OECD, the World Bank, EU, the Asian Development Bank are all attempting to install such virtual governance above the level of nation state. Realising the importance of the roles of various actors in disaster management, Forino *et al.* [122] also discuss the need of a hybrid governance framework to address issues related to climate change adaptation and disaster risk reduction in the context of Australia.

Supranational organisations such as the World Bank, USAID, UNESCO, European Union and others are crucial in education development, DRR, and shaping the education governance mechanism in developing countries. Rhoten [123] states that these organisations also impose new forms of political conditionality by tying development assistance to the meeting of specific norms and conditions. The World Bank provides loans to developing countries only after they accept the loan conditions of the bank. Therefore, the World Bank, known as the "conditionality bank", influences education reform in developing countries [121]. UNESCO and USAID provide constructive support to the World Bank's approach to education governance [124]. The Education for All forum for Dakar in 2000 formally endorsed decentralisation of education governance in the Framework of Action. These pieces of evidence show that the movement towards reformation of education governance is a significant global phenomenon. It is a result of the market-driven approach in industrialised countries, whereas educational reforms in developing countries put first the issues related to access, efficiency, quality and equity in education [125].

Dale's pluri-scalar governance model allows us to explore various dimensions of the existence of the pluri-scalar nature of governance in education and other sectors in Nepal. This model also allows to analyse impacts of neo-liberal and globalisation movements in education and development at various levels.

3.4. Pluri-Scalar Education Governance

Education governance implies coordination and collaboration actions carried out by stakeholders to establish an effective and efficient education system. Dale [120] states that education governance activities might include funding, ownership, provision and regulation. To carry out these actions there are several actors

including the state, the market, the community and households that need to co-ordinate in order to establish good education governance. Dale *et al.* [119] presented a pluri-scalar governance of education model. They argue that governance consists of multiple dimensions, actors and scales. This model covers three dimensions: three scales of governance—the supranational, national and subnational; four institutions of governance—the state, market, community, and household; and four governance activities consisting of funding, ownership, provision and regulation. The pluri-scalar model is represented by a cube, as shown in Figure 1, in which governance can be seen through different activities and operated in various scales.

Considering the pluri-scalar governance of education, Dale presents the subnational, the national and the supranational layers in three scales of education governance. These scales are constructs that take place at different levels. There is the possibility of conflict between the actors at any level within a scale. Since the state is not always an independent nation, various actors may influence the governance mechanism directly or indirectly. As discussed earlier, because of globalisation, education governance-related interventions occur at levels above and below the level of the state. According to Dale [120], pluri-scalar governance associates with the actions of the actors to construct and deliver education. It also describes power relations engaged in implementation of relevant activities.
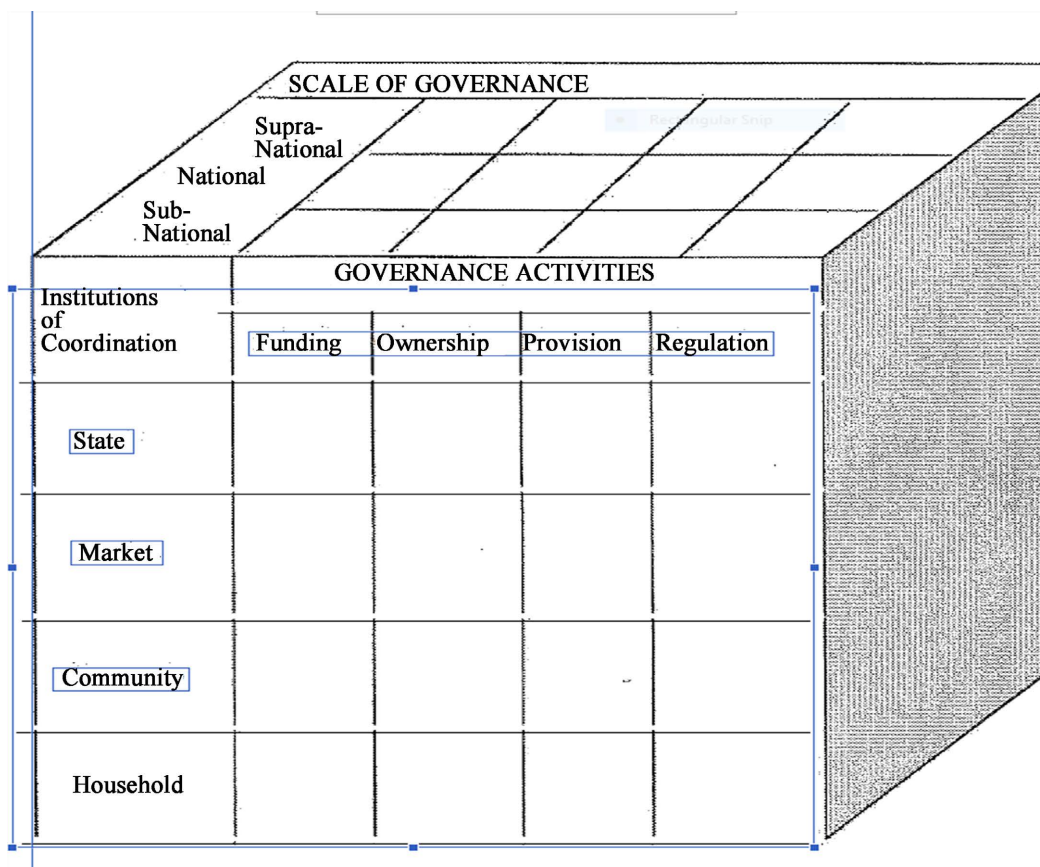

Figure 1. Pluri-scalar governance of education (Source: Dale *et al.* [119], p. 478).

Dale notes that the role of sub-regional, national and supranational actors and their strategic actions are important for managing education and achieving its purposes. Therefore, it is important that the state should establish a more coordinating and collaborating governance mechanism to engage all the actors effectively.

The model stresses the importance of the analysis of educational issues on the basis of pluri-scalar characteristics of education governance. In the context of Nepal, this multi-scalar framework helps to understand local, national and global level governance practices that influenced education policy development and implementation. Considering these scales and the above-mentioned dimensions, the pluri-scalar model allows us to discuss the findings of the study. Furthermore, pluri-scalar education governance model is helpful for articulating the discussion in a comprehensive way. Various scholars such as [126] [127] [128] state that economic forces (neo-liberalism), globalisation (role of donor agencies and development partners) and politics (human rights, democratisation) play a pivotal role in reforming education. This pluri-scalar cube model helps when analysing governance activities with respect to the influence of globalisation and neo-liberalism in education. This model is useful for highlighting some of the challenges of the mode of governance that exists in Nepalese education at present. The model resonates with what other scholars have already said. It allows us to analyse the situation, highlight the challenges and theorise the nature of the problem.

This framework allows us to track education development through historical, sociological and political analysis. As pluri-scalar governance places emphasis on social justice issues and sociology of disasters addresses social issues related to disasters, they are interrelated. It is argued that risk and vulnerability are socially constructed, therefore Dale's governance framework helps to analyse social context to establish disaster resilient community. Similarly, the pluri-scalar governance model and sociology of education are interrelated. Because of the wide range of functions of education being driven above and below the state, there is less capacity for education to serve an important role in helping communities and individuals to interrupt their cycles of vulnerability and exposure to risk.

The pluri-scalar theoretical model for education governance in development also allows us to explore the role of globalisation and neo-liberalism in education reform. In this study context, it gives an opportunity to identify supranational organisations and their roles in DRR education. Moreover, use of this framework helps to contribute further to the fields of sociology of education and sociology of disasters. Kelly [129] notes the importance of theory in designing and analysing the data. This theoretical framework allows us to understand the DRR education provision in school education, the influence of various actors at different levels, and the DRR education practices in the public schools comprising the case studies. As presented in Figure 2 below, the use of social, political and historical concepts in this study help for interpreting the extent of influence of
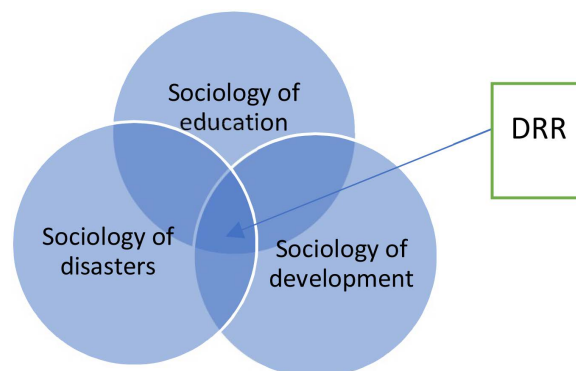
Figure 2. Addressing DRR from sociological perspectives (Author).

these areas in disasters, DRR and disaster management.

4. Methodology

This paper forms part of a larger research project that analyses DRR education theory to practices from Nepal. This study was carried out in the post-disaster context when the schools and communities were struggling with rebuilding and rehabilitation. The study focuses on DRR education provisions and practices which are more crucial after the Gorakha earthquake. The work was carried out in the Bhaktpur district which was majorly affected by the disaster and followed a qualitative inquiry process [14] [130]. Constructivism paradigm allows us to interact and discuss with various actors to generate an understanding of disasters as a social phenomenon. Of the attributes highlighted by Stake [131], several areas—the focus on human affairs from various perspectives, detailed description of the context, valuing experiences of the participants, and research-participant interaction are closely related to study DRR education.

Disasters are noteworthy events and therefore use of the case study approach to DRR provides an opportunity to explore the historical, political and social changes in disasters. This study is a multiple-case study Yin [130] which explores differences within and between cases. Three public secondary schools representing different disaster-prone contexts of the study district were the cases for study. These cases sought to explore the provision and practices of DRR education initiations at the local level. Local, district and national level stakeholders have put forward their views on DRR education provisions and practices at various levels through interviews and focus groups. To understand stakeholders' views and experiences of DRR education at various levels, face to face interactions were carried out. Interview, document analysis and focus group methods were used to collect relevant information. The following Table 1 shows the details of the data collection process.

Institutional ethics approval was obtained from the University of Auckland in New Zealand. The interviews and focus group discussion were recorded, transcribed and translated and analysis was undertaken using thematic analysis to identify the major themes from the interview data.

Table 1. Details of data collection tools administered at various levels.

Level	Data collection tools
School level	Head Teachers (3 interviews)
School 1, 2 and 3	Teachers (primary, lower secondary and secondary) and community representatives including School Management Committee/Parents Teacher Association in each school (12 focus groups)
District level	District Education Officer, DRR Focal Person, Educational Training Centre trainer, Local NGO Actor (4 interviews)
	Resource Personnel (1 focus group)
National level	Officer from Department of Education
	Officer from Curriculum Development Centre
	Officer from National Centre for Education Development
	Representatives from INGO and Association of International non-government organisations (6 interviews)

5. Discussion

The sociological theoretical framework helps to analyse the provision and practices of DRR in education settings. Dale *et al.*'s [119] framework is used to explain and summarise the findings relating to how various stakeholders address the need, importance and current practices of DRR education under the major governance activities carried out by various actors at different levels.

5.1. Funding

Funding is one of the important functions of education governance. Adequate funding is essential for carrying out educational intervention at any level. Education governance actors play crucial roles in order to raise funds for carrying out education interventions properly. This study has shown that a school's financial constraints affect the ability of governing actors to address local needs and expectations. Because of a lack of systematic and long-term vision for funding in the education system, schools rely instead on short-term support coming from either the community or international donors. This also tells us that the state has little commitment on its own to supporting DRR education interventions at various levels. To fill this gap, other actors, such as local NGOs, International Organisations and other community welfare groups contributed significantly in areas where the state's role was found to be limited in funding DRR actions at local levels. Moreover, other non-state actors are also engaged in providing funding for carrying out DRR education initiations. Funding for DRR education from these actors is mostly focused on carrying out DRR awareness education interventions in schools and communities, however it is still not enough to address the issues. In the context of Nepal, DRR is made possible in the absence of the state in a way that reproduces rather than interrupts patterns of marginalisa-

tion and inequality.

The community's role in fundraising initiatives for school development is crucial. Donations in the form of cash and kindness by community people help schools to solve some of the problems, such as teacher management and improvement and maintenance of physical facilities. To fulfil the requirements of a funding organisation, a school needs to raise a certain amount of money to get funding for constructing a building/block as a community contribution. Therefore, every household in the catchment area needs to contribute to the school development. It is noted that the level of education, the socio-economic status, and the school culture play a crucial role in involving local people in school development. It is, therefore, challenging to generate funds, especially in poor and less educated communities. It was interesting to see that schools raised funds for physical facility improvement but spent it on locally-managed teacher's salaries. Labour and cash donations, management of uniforms and other educational materials for their children are major funding actions carried out by households. In line with this finding, [118] states community contributions were the major source of school development initiations before 1990. However, due to donor-based funding and the presence of other actors in education governance and school development, the essence of community participation in school development is decreasing in Nepalese schools.

This study has also revealed that in existing budgeting practices, schools do not receive any DRR-specific funds for addressing disaster issues. Because of financial constraints, schools lack safe school facilities and do not have enough learning opportunities or materials. Also, the study results show that funding for DRR in schools and communities is mostly donor-based. Moreover, priority given to administrative functions can prevent the ability of schools to carry out DRR and disaster management interventions. For example, with the help of the European Union, the Department of Education has been conducting the European Union's Disaster Preparedness Project in some selected schools in six districts. The project interventions are more administrative and focused on training and awareness raising. These interventions do not address the current needs such as rebuilding the earthquake-damaged school buildings and classrooms [65]. After the Gorakha earthquake, the government requested that their development partners provide support mainly for rebuilding and rehabilitation, however, original activities were carried out because of the nature of the agreed programmes and commitment to the donors. Political influences and pressure have negative consequences on budget allocation and sometimes create tensions between the government and donors. This conflict between the government and development partners can have negative consequences at the local level. For example, earthquake victims of very rural and poor parts of the country waited for a long time to get the first instalment of money for the rebuilding scheme. This was because the government took a long time to prepare the rules and regulations to support Gorakha earthquake-affected people. Such situations create frustration for school leaders, teachers and community people at the local level.

Access to funding to better protect schools and learners from risk is potentially a product of social networks and opportunities. To address these gaps, local NGOs attempt to get funding from supranational organisations to carry out identified activities in some selected schools and communities. As the local NGOs handle the project, they dictate the budget and decide accordingly. Findings revealed that the involvement of local NGOs in DRR interventions at a local level plays a significant role in disaster preparedness and management. Their support helps with DRR awareness raising, retrofitting, construction of earthquake-resistant buildings, emergency education, learning resource development, capacity development-related training and exposure. However, access to such funding was noted as one of the challenges at a local level. School leaders with good networks and political connections were found to be more successful in raising more funding from the relevant funding agencies. At the local level, due to a lack of a proper financial management system, local NGOs are criticised for not maintaining their transparency. It shows that school leadership, including the local NGO staff and management, were not aware of financial governance. Due to a lack of understanding about financial management, school management committees were also criticised for corruption and misuse of funds available from the state and non-state actors.

Problems related to inadequate financial resources were also noted as a big challenge in addressing local issues. The involvement of local actors such as NGOs to assist schools in carrying out the DRR education interventions enhanced the relationships between schools and the community. However, projects based on short-term interventions lack sustainability. The lack of a proper financial system raises the issue of transparency and may create conflict among governance actors. In the case of school DRR interventions, since a local NGO holds the funds, the school and community people raised questions about financial transparency. Moreover, the similar nature of interventions from like-minded organisations caused duplication and raised the question of the utilisation of available resources.

Considering the scales discussed by Dale *et al.* [119], it is clear that supranational organisations play a dominant role in funding educational activities in Nepal. These organisations assist the state and non-state actors in carrying out relevant educational governance activities at various levels. Because of their influential role in funding, supranational organisations can also determine the development of policies and plans. These findings concur with those of [117] who conclude that the development and implementation of most of the educational plans and policies of the country are influenced by donor agencies.

5.2. Ownership

Lack of ownership around education governance has negative consequences on educational management. Without local ownership, schools (or any other educational institutions) may experience various problems in delivering proper education at a local level. This study has shown that since DRR governance structures

were not in place, schools were not actively carrying out DRR interventions. Failure to decentralise DRR education provisions from national to local levels leads to low participation, responsibility and accountability of the actors. For example, isolating school leadership from the curriculum development process demotivated them in regard to its implementation. Because of the centralised curriculum, education governance is also unable to address the contexts of the three ecological belts: plains, hills and mountains. Furthermore, since the school curriculum has been developed by subject experts and national level policy people, the curriculum and textbooks are not comprehensive enough to address local needs.

The strength of participation depends on whether it happens at the national or local level. It appears to be successful where the activities consider the local context and are inclusive, collaborative and purposeful. The tokenistic and non-participatory decision-making practices in education governance have negative consequences for the education system. Without a sense of ownership from the education actors, the governance activities never meet the needs and standards of education. Although Nepal has already drafted a National Safe School policy, endorsed the Comprehensive School Safety framework, introduced DRR indicators for the School Improvement Plan and developed National DRR strategies, these centrally developed national policies and plans also have negative effects on developing local ownership. From the findings it is clear that the influence of the notion of policy-borrowing practices in the education sector [132] in Nepal decreased the feeling of ownership of the local stakeholders towards public education.

This study shows that formal and informal participation in the education decision-making process contributes to widening DRR knowledge and skills in schools and the community if DRR is addressed properly. Active and meaningful participation is a crucial area of the curriculum decision-making process that contributes positively to addressing local needs and raising ownership for its effective implementation. However, there were many negative comments on this aspect. Local-level people felt that due to centralised curriculum development practices, local issues are not addressed properly in the existing curriculum. For example, most of the teachers claimed that since they were isolated from the curriculum development process, they did not feel any ownership of the school curriculum. Similarly, one-off acts of support from other local actors for schools to carry out certain interventions hinder an organised planning process. In addition, exercising political power in schools, such as in teacher recruitment and participating in training/exposure, also creates tensions among school leadership and personnel and decreases ownership of school development [133].

The state's ownership of education governance seems weak because of political instability, a decade-long armed conflict, too much bureaucracy, poor documentation, poor monitoring, fewer participatory and centralised decision-making processes. These factors also have an influence on ownership and lead to a failure of decentralisation reforms to take effect in the country. Findings reveal that

the state has shown its commitment towards DRR conventions, however it is not deemed serious enough to incorporate commitments into its plan and policies. Limited participation of the government institutions in DRR actions and lack of coordination and collaboration among the relevant line agencies are also challenges to addressing local disaster issues.

DRR-related policies mention the establishment of DRR and disaster management structures at various levels. These structures are new in the context of the recently established federal system in the country, and because of a lack of resources, capacity and plans, their regular actions and activities are not occurring in a well-organised manner.

As discussed above, the involvement of local NGOs in education awareness raising, capacity development, resource development and information sharing can play a significant role in addressing local needs and issues. The study findings revealed that DRR interventions carried out by local NGOs can empower students, the school family and the wider communities. However, since their interventions are for short periods of time and lack wider participation, it is observed that schools and communities lack ownership of these interventions carried out at a local level. Furthermore, since the role of local NGOs is dominant and mostly carried out by their own staff, the feeling of ownership by local people can be limited. As a result, after the completion of the NGO project, nobody is continuing these interventions.

Because of the existing funding dynamics, national level ownership for DRR is somewhat lacking and more a product of global agendas. International organisations working in the field of education assist their local partner organisations to initiate networks and alliances at a national and local level. These networks are found helpful in generating a feeling of ownership by the network members towards educational interventions. Such initiations in some places established a learning and resource sharing culture among the state and non-state actors. However, because of the lack of proper coordination among the actors on issues such as organisational interest, leadership and sustainability, such issues may also create conflict and become passive later.

Ownership of DRR policies, practices and procedures leads to better preparation to cope with possible disasters and emergencies. Such ownership benefits the school and community in the long run. Education plans and policies, if aligned with global DRR commitments and implemented properly, contribute significantly to establishing a culture of safety [13]. Similarly, to address this post disaster context, education authorities must make continuity plans to ensure that school operations continue in case of natural hazards disrupting the school calendar. Baseline information plays a crucial role in developing and implementing such plans to prepare for and respond to expected disasters or crises. This information is helpful for assessing the possible impacts of disasters, the assessment of available facilities and equipment at schools, the identification of vulnerable students and communities and other areas which are useful for proper planning to cope with the situation in practice. For example, providing school-

based emergency and disaster management committees and holding regular meetings are helpful for guiding school disaster management effectively [13] [33]. The findings revealed that since the policies are developed at a central level, there are gaps in addressing the local contexts and policy implementation is very weak. For example, the officer from the Department of Education explained that because there was no separate structure to oversee school disaster management actions, and little DRR-related baseline information, schools still do not include DRR interventions in their school development plans. A lack of disaster management structure in schools and educational authorities, and a lack of sharing DRR ideas with School Management Committees and Parent Teacher Association members adversely affects the ability of schools to conduct disaster drills and other required DRR interventions regularly [33] [39].

A teacher's pedagogic knowledge, wider understanding of DRR areas and proactive roles in the school and community help to raise the quality of education and strengthen school community relationships and feelings of ownership. However, poor teacher management, a lack of the required number of teachers and poor professional development opportunities at schools hinder the effective running of DRR education activities.

Limited participation in DRR activities at a local level and the influence of global supranational organisations have added pressure on the Government of Nepal to amend existing policy provisions. A lack of ownership of policy and plans affects their implementation, which in turn affects the rebuilding plan in the earthquake-affected area. In summary, considering the scales discussed by Dale *et al.* [119], it is clear that a lack of active and meaningful participation practices by government agencies and the dominating role of supranational organisations in education decision-making processes create a low level of ownership.

5.3. Regulation

Rules and directives help authorities to establish good governance practices in education. The Constitution of Nepal assigned disaster risk management as a concurrent responsibility of different tiers of government, particularly the local government [134]. The Disaster Risk Reduction and Management Act proposed a multi-tier institutional structure of disaster risk management with a provision of a Disaster Management Fund at all levels. The Local Government Operation Act provides DRM authority to local-level units. Findings suggest that the state has agreed to various global conventions and shown its commitment to incorporate these in national legal documents, plans and policies, however the implementation aspect of these was found to be weak. The education governance structures are formed at the local level, however a lack of proper communication and coordination among various actors hinders the establishment of proper education governance. Furthermore, the centralised nature of the governance mechanism increased coordination and communication gaps among stakeholders. Non-state actors have carried out advocacy initiatives for the effective imple-

mentation of these plans and policies. As a result, the state has revised the existing act and regulations to address the commitments made in the global forum. As an example, as discussed in Chapter 2, the relief-based disaster act was replaced by the risk reduction approach-based DRR act recently.

Findings suggest that governance is multi-layered at local, national and global levels and the layers are inter-linked and interact with each other in the development of relevant policies and plans ensuring funding to carry out education-related interventions locally. For example, a key lesson learnt from the interviews and focus groups with study participants is that DRR education provision in the school curriculum is shaped because of the advocacy initiations carried out at a local and national level by various actors and government commitments to the HFA (2005-2015) and the Sendai Framework of Action (2015-2030). However, it is revealed that because of weak regulation mechanism the progress made in DRR education is not yet satisfactory.

Lack of political commitment and will to implement the developed provisions is another challenge which shapes education governance at various levels. Similarly, looking closely at the interpretation of governance, it has become evident that policy level actors are the key people for developing relevant policies and plans. The notion of power plays a crucial role in the development and implementation of education plans and policies [135]. The devolution of authority from the state to the lower level administration is found effective for resource distribution [122]. The top-down nature of the decision-making process does not address local voices and issues, and hence a participatory governance mechanism creates a favourable environment for decision making. Moreover, the establishment of relevant structures and networks in an inclusive manner at a local level can provide platforms to help empower local people and address local issues in education.

This study has noted that the centralised nature of the decision-making process and poor resource allocation practices in DRR areas have negative consequences at the school level for DRR interventions. For example, local community leaders, schools management committee members, teachers and head teachers of the study schools agreed that because of a lack of resources at the local level, schools are still struggling to develop and implement the school DRR plan, including rebuilding collapsed property. This example reflects that schools themselves need to take the initiative, such as approaching INGOs and other potential actors, to find resources to carry out the required DRR education interventions. Due to a lack of coordination, higher level education governance mechanisms are not aware of local contexts and hence schools struggle to fix the problems themselves.

Good governance practices need functional policies and their effective implementation. As discussed earlier, global actors heavily influence the policy development process, and this creates challenges for policy ownership. Moreover, global actors tend to replicate their practices from other countries and create pressure

on the government to incorporate their agenda into policies and plans. For example, the World Bank-funded community school project was modified several times to address local needs in Nepal. Effective regulation is essential for managing education governance activities properly.

This study found that successful DRR education initiatives need participatory governance practices; thus, a decentralised governance mechanism is seen to be a more effective mechanism than centralised. In the context of Nepal, decentralisation in education governance initiatives is driven by the World Bank. Considering DRR initiatives in education, because of a lack of decentralisation awareness and empowerment at the community level, this study has noted that the decentralisation concept in education governance has been perceived differently by various actors. Community people pointed out that the school principal and School Management Committee chair hold power and authority, therefore most of the decisions made at the local level were influenced by their power. Policy level people, however, observed that decentralisation practices at the local level depend upon socioeconomic status, so poverty and illiteracy are barriers to participation and education governance and in such a context these people struggle with various challenges. Some of the teachers perceived that decentralisation in education is not a wise idea for improving the quality of education. It is revealed that pushing decentralisation and shifting responsibility from a higher to a lower level is not working well in all places. Such practices in some places create problems such as internal conflict, corruption and misuse of authority. Moreover, findings revealed that schools need proper assistance in managing these issues, otherwise there is a danger that the community has no ownership, nor is there funding for all.

Good governance practice is based upon functional policies, rules, regulations and their effective implementation. In the context of Nepal, it is noted that political instability and crises have negative consequences on the implementation of rules and regulations. For example, the findings show that in the post-disaster context, to carry out education in an emergency situation, various actors bypassed the state, policy and provisions. Without informing the state, local authorities and local people, these organisations carried out humanitarian work straight away. This creates problems at a local level [136].

A lack of policy awareness also contributes to its poor implementation. The findings show that most of the local level education governance actors are unaware of existing education rules, regulations, DRR plans and policies. For example, community representatives pointed out that they are not aware enough of the roles of disaster management structures at the local level. Also, School Management Committee representatives pointed out that most of the committee members are unaware of disaster management, DRR strategies, education policies and plans. These findings are supported by [137] who note that although Nepal has made certain policy amendments in recent years to embrace decentralisation and devolve authority to school management committees, in practice

these amendments did not address the real situation. There is a huge need for awareness initiatives of education rules and regulations, policies and plans to make people aware of their roles and current policies at a grass roots level. Similar to this, participants at the local level were also found to be unaware of DRR education policies and plans. In this context of limited knowledge of legal frameworks, awareness, human resources, poor implementation of developed plans and policies, overlapping regulations, and a lack of clarity about the allocation of roles and responsibilities, confusion is created between central, regional and local level governance [138]. For example, the officer from the Department of Education shared that since DRR is a relatively new concept and recently introduced into the education sector, there are still policy gaps in mainstreaming DRR in education plans and policies at a local level.

This study revealed that due to a lack of a proper regulation system, the NGOs working with schools are more concerned with achieving their project targets than contributing to a sustainable change in the schools' education system. For example, the provision of one-off disaster drills in schools and DRR training opportunities for a selected teacher were not enough to develop required preparedness skills and capacity in students and teachers. Similarly, NGOs have provided some DRR-related learning resources to schools. However, due to a lack of follow-up on the progress and conducting of relevant training for all teachers, the materials provided became useless and were stored inappropriately. Similar to this finding [33] also find limited numbers of disaster drills and capacity development activities at the local level.

District level officials interpreted curriculum governance mechanisms as based on power and authority. For example, interviews and focus groups with district level officials suggest that the District Education Office plays a facilitator role in implementing DRR education interventions in schools, however, it is not engaged in DRR curriculum development and other policy development processes. Due to limited resources and exposure, regulation of legal provisions at the local level is also affected. Some of the district officials were also unaware of their authority and accountability for establishing a safe school environment in the district, which implies that local disaster governance is still dependent upon the national officials to initiate needs-based DRR education interventions in the district. It needs wider participation, coordination and collaboration amongst actors to regulate designed actions. These initiatives also guide the development and implementation process of national and local level DRR education plans and policies. For example, the endorsement of sustainable development goals in the educational sector shows the government's concern for raising the quality of education through the establishment of a safe, child-centred, inclusive and non-violent learning environment for all children in each community [139].

This study also noted that not only at the district level, but also at the school level, regulations of the education act and rules are not transparent. Some of the teachers believed that school leadership seemed biased in providing opportuni-

ties to teachers for their professional development. It was pointed out that school leadership needs to follow the rules and regulations appropriately to manage the school effectively. Contract-based and temporary teachers perceive that they are less valued by school leadership and permanent teachers. However, the school principals argue that schools provide equal opportunities to all teachers for their further development. It was observed that the political belief of the teachers, the financial condition of the school and a teacher's performance are also influential factors in gaining training and other exposure opportunities at a local level.

This study also assessed the need for contextualised DRR policies and their effective implementation through the provision of decentralised education governance mechanisms at various levels. This requires resources and long-term commitment to achieve defined milestones. For example, the school headteachers shared that the Government of Nepal developed enough policies at a central level but the problem is in the implementation, which is very poor at each level. Supranational organisations such as UN agencies, USAID, DFID and others have been assisting the like-minded governmental and non-governmental organisations to develop and implement DRR plans and policies for a long time; however, the outcomes of their inputs are not satisfactory. Ratiani *et al*. [140] find that in the context of Nepal, the provision of national level DRR policies is in place; however, because of poor implementation and a lack of local level DRR policies in the changed political structure, the disaster governance mechanism seems passive.

5.4. Provision

Provision of structures, support mechanisms, resources and other dynamics help in establishing effective governance. Dale's governance framework suggests that governance actors from the household to the global level play important roles in providing quality services in education.

This study noted that with the help of a local NGO, all three study schools have carried out vulnerability mapping and sketched school vulnerability maps, an evacuation plan and exit signs on the wall of their school buildings. However, most of the teachers and School Management Committee members were unaware of the process and messages that these maps portray. Moreover, the development and review of a School Improvement Plan in most of the schools still looks like a formality. For example, school leadership nominates an individual or a few teachers to develop the School Improvement Plan and therefore, since the planning is still not participatory, such a School Improvement Plan is unable to address real educational issues. Furthermore, it is noted that none of the study schools either identified or incorporated any DRR interventions in their School Improvement Plan. DRR activities carried out at local level are unplanned and mostly depend upon the interest and motivation of the actors.

With the help of global actors, the state has developed education plans and policies, however, the implementation part is lacking because of the absence of

support from the state. For example, providing primary education in the mother tongue provision is there, but, due to a lack of resources, schools are struggling to manage relevant learning resources and teacher training. Findings also revealed that provision is very ad hoc and not coordinated. In addition, it is clear that the provision of resources very much depends on the interests and activities of actors other than the state. Most of the schools have poor physical infrastructure, but they do not have enough resources to address these issues alone and it is not the priority of other actors either. Therefore, schools are struggling to find relevant institutions that can meet their needs. As discussed in previous chapters, teacher training provision, curriculum development and textbook provision, and scholarship provision for the poor and marginalised groups' students do not seem to be coordinated, and therefore the outcome of education is still low.

Similarly, it is interesting that this study highlights that after the Gorakha earthquake, without informing the District Education Office nor having any agreed plan with schools, several organisations carried out activities such as psychological counselling training for teachers and students, support for emergency education such as construction of Temporary Learning Centres, and the distribution of learning materials in schools. School teachers, principals and students were asked to participate in these events, and these practices created duplication and misuse of resources. Realising this gap, the District Education Office organised district level network meetings for the relevant stakeholders to respond to the needs of schools in an organised and coordinated manner. This misuse of resources was not only related to post-disaster issues, but also to distributing scholarships, conducting non-formal education classes in communities, teacher training and conducting enrolment campaigns in communities.

The provision of celebrations, such as Education Day and International Day for Disaster Risk Reduction at schools, was found helpful to raise awareness and strengthen community and school relationships. Similarly, the provision of progress cards for students allowed parents to visit schools frequently. It's also found that the provision of progress cards and parent visits helped to enhance trust and relationships among teachers and parents. Such relationships contributed positively to addressing issues related to crises and school development.

This study revealed that education governance requires structural, technical and financial assistance from like-minded actors to carry out effective and relevant education initiatives at the local level. Findings show that poor infrastructure and the lack of relevant learning resources at schools adversely affected the fulfillment of the learning needs of students and communities. School personnel, School Management Committee and Parent Teacher Association representatives and those from communities interpreted the value of education governance in the sense of managing physical and emotional safety at schools.

The provision of technical assistance to incorporate DRR content in the national curriculum and the development of a local curriculum to address local needs were highly valued by most of the research participants. As education

plays a significant role in reducing risks of potential natural hazards and developing the coping capacities of individuals, it is revealed that the provision of relevant and contextualised DRR content and national school safety policies and procedures can help local education authorities to incorporate DRR effectively in the curriculum. These provisions are also found helpful in identifying curriculum needs and integration [139]. Furthermore, this study has noted the importance of the development of a local curriculum and learning resources in a multi-disaster-prone context. For example, the officer from the Curriculum Development Centre shared that with the assistance of some I/NGOs, quite a few local DRR curriculum development initiatives were developed in some schools, however the course effectiveness study has still not been carried out. As teachers do not have the required skills and confidence in curriculum development, school leadership needs to explore suitable opportunities at the local level. This example represents the need for technical assistance to address DRR education as an emerging area through public education from like-minded governance actors.

This study also found that the formally established disaster management committees, DRR networks, and other platforms such as the Education Cluster, Consortium, and Education Task Force, that conduct regular meetings and interactions at central and local levels, are helpful for increasing collaboration and sharing learning and challenges among government and other actors. However, it is noted that the level of participation of the member organisations is based upon their funding which influences their feeling of ownership and engagement in interventions. For example, the officer from the Department of Education pointed out that the contributions of the national and district level Education Clusters and DRR networks and platforms are helpful for enhancing collaboration among like-minded DRR actors. This is supported by Tierney [141] who describes that governance through networking helps put effort into flexibility, adaptability and capability to mobilise valuable resources effectively. Push and pull factors in the education system play significant roles in activating and motivating such networks in education governance. Effective mobilisation of such networks and platforms depends upon the attributes of the leadership. Moreover, at a local level, their participation varies based on the availability of capacity development opportunities, exposure and quality of leadership. As discussed earlier, the level of education, financial well-being and exposure of the community members encourage the joining of these structures. These networks are seen to be actively participating in education and other areas such as DRR interventions in schools and communities.

The involvement of local NGOs, the market, development partners, communities and households in education interventions determines effective and efficient governance provision. Since these actors still lack a clear understanding of their roles and do not have a concrete plan of action to contribute to schools, most of the school leaders are struggling to get support from a subnational level. The government, with the help of supranational organisations, has put its efforts

into strengthening education governance from time to time at various levels; however various factors such as interest, motivation, and level of understanding of the governance actors played a significant role in carrying out well-planned governance interventions in the education sector. Technical and financial support from supranational organisations assists the state and non-state actors in carrying out relevant educational governance activities at various levels. In the case of DRR education provision, various actors have contributed to mainstreaming DRR in education; however, these contributions were still not enough to address social vulnerability and risks.

The following table (Table 2) highlights the key findings based on the four domains.

6. Implications

This study suggests that sociological disciplinary framework is quite relevant and applicable to analyse DRR education provisions and practices. This study suggests that education governance at various levels play crucial roles on implications for policy. This research found that with the help of development partners, the Government of Nepal initiated some actions for mainstreaming DRR in education policies and plans in line with the Hyogo Framework of Action and the Sendai Framework of Action. However, because of various reasons these policies and plans have not been fully implemented in local schools effectively.

Table 2. Summary of the existing governance actions.

Funding	Ownership	Regulation	Provision
State relies on donor funding to carry out major education governance action including DRR education activities. Short term funding by Development Partners is not enough to address the education issues in a sustainable manner. It also reproduces rather than interrupts patterns of marginalisation and inequality. Financial constraints affect overall management of educational institution and therefore, raise social vulnerability and disaster risks. Contribution from the community and other local actors in cash and kind help to improve physical facilities and the learning environment of school.	Centralised state initiations in governance limit public ownership towards education. Because of the funding dynamics, national level ownership for DRR is lacking. The state's ownership towards education governance seems weak because of political instability, a decade-long armed conflict, and bureaucratic governance, poor documentation, poor monitoring, and fewer monitoring participatory and centralised decision-making processes. Participation is successful where the activities consider the local context and is inclusive, collaborative and purposeful.	The state has agreed to various global conventions and shown its commitment to incorporate these in national legal documents, plans and policies, however the implementation aspect of these was found to be weak. Lack of proper communication and coordination among various actors hinders establishing proper education governance. Governance is multi-layered at local, national and global levels and the layers are inter-linked and interact with each other in the development of relevant policies and plans ensuring funding to carry out education related interventions locally.	Influence of donor organisations in initiating DRR interventions at various levels neglected the local need and choice. The state has developed structures and legal provisions to ensure good education governance, however poor implementation of policies and plans were noted as significant concerns. Teachers and parents give less priority to DRR education.

There was a huge gap between policy development and local level implementation. Thus, the Government of Nepal could revise the existing education policies, plans and curricula in line with global DRR frameworks and the constitution of Nepal. The DRR-sensitive education policies, plans and curricula could be better communicated, enacted and implemented effectively at national, provincial, district, village and school level.

This study found that social disparities are the main causes of social vulnerability. DRR education interventions promote greater inclusivity and participation while delivering relevant knowledge and skills in a friendly environment to address the social inequalities and discrimination. Lack of resources including the trained teachers was significant barriers to address DRR in education. Teachers' capability and capacity development in DRR can be enhanced through including DRR content in teacher education courses in the universities and incorporating DRR into in-service teacher training packages as a mandatory component of the training. Similarly, school administrators, School Management Committees and Parent Teacher Association members could be trained to address social aspects of disaster issues at a school level.

7. Conclusions

The sociological theoretical framework is widely applicable to analyse the multi-dimensional aspects of disasters. This theoretical paradigm also offers a wider understanding of DRR education provision and practices. Analysis of the sociological concepts of disaster, education and development, highlights how the concepts of disaster vulnerability and risks are constructed socially. An analysis of DRR and disaster management from the social, political and historical perspectives enable disaster scholars to have an understanding of the macro-context of the disaster study. This framework is also helpful to consider DRR implications beyond physical safety. The framework of the study, focusing on the impact of disasters from historical, political and social perspectives, is significant for identifying a suitable model of disaster governance and education planning.

In addition, Dale *et al.*'s pluri-scalar cube model contributes to discussing scales and levels of influence of various actors in education and development. This cube model is also useful to analyse and discuss the roles of various actors who manage education governance specifically in DRR education initiatives in a disaster-prone context. Furthermore, this model helps to discuss the influence of neo-liberalism and globalisation in education and development in Nepal. Sociological framework allows us to discuss the findings related to the four governance activities: funding, ownership, regulation and provision of the pluri-scalar education governance model presented by Dale *et al.* [119]. Taking DRR education practices and provisions as an example, this theoretical framework has outlined the issues of education governance. These issues, identified in the DRR area, are reflective of broader challenges in the governance of education in Nepal. The governance mechanism is not truly decentralised and reflects the devo-

lution of some power and authority to a local governance mechanism. Discussions show that increased donor-based funding in education decreased the feeling of ownership by the local people towards public education. Similarly, centralised governance practices promote the expansion of general education interventions rather than contextualised and needs-based interventions. These results are also associated with poor legal provisions and weak regulations. Because of globalisation and neo-liberalism influences in education governance, both in terms of activities and in terms of scale, the state is only minimally involved. The centralised nature of education policy-making practices and lack of resources at the grass roots level, mean that DRR education interventions are not enough to address disaster risk and social vulnerability issues. Lack of inclusive practices in education, traditional teaching practices, poor school facilities, weak school management and leadership, decreased community participation, limited teacher development opportunities, lack of political will and commitment, political instability, and weak regulation mechanisms all have negative consequences for the overall education system. It is concluded that a social, political, historical, cultural, and economical aspects of disaster and its vulnerability play significant roles in disaster risk reduction and disaster management. Considering the education system, a well-functioning governance mechanism is a cornerstone to addressing social aspects of disaster and its vulnerability through the provision of relevant and contextualised DRR educational interventions.

Institutional Review Board Statement

The University of Auckland Human Participants Ethics Committee approved this research project (Reference number: 017773).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study. Data Availability Statement: Data is available on request.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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