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Participation in Disaster Risk Reduction (DRR) Education: Analysing the Practices, Issues and Challenges

Yagya Raj Pant*

New Zealand School of Education, Auckland, New Zealand
Email: *yagyarajpant@gmail.com, *yagya@nzse.ac.nz

Abstract

This article draws from detailed qualitative case studies of three schools as they responded to the devastating Gorakha earthquake in 2015 and other disasters in Nepal. Using Arnstein's [1] ladder of participation, it explores nature and importance of participation to address the local disaster context. Along with Robertson *et al.*'s [2] pluri-scalar education governance framework, it also discusses the current forms of participation from various stakeholders specifically within the education system. The article analyses the reasons for stakeholders' participation in DRR initiatives. It also explains the purpose of the participation, challenges of participation in DRR education, and highlights some key messages around what the study's data says about participation in DRR education. The article concludes with the idea that curriculum participation is a crucial element to mobilise schools for their disaster preparedness, response and recovery journeys.

Keywords

DRR Education, Education Governance, Participation, Ownership

1. Introduction

The provision of disaster risk reduction (DRR) education has been given a high priority to prevent and minimise disaster risks. School plays a significant role to develop disaster resilient capacities through delivering relevant information and enhancing essential skills to individuals in communities [3]. However, active and effective participation of like-minded stakeholders in relevant DRR interventions in schools is still an issue in a disaster-prone country like Nepal. School curricula offer opportunities to students who can act as change agents in their

communities. However, a crucial question for effective disaster education provision is: "who develops the curriculum and how"? The purpose of this study is to explore crucial factors which contribute to raising the quality of disaster risk reduction education in schools. In this article, we begin by outlining the needs and importance of participation of various stakeholders in DRR education interventions. Primary and secondary data were collected from schools and other relevant organizations. Arnstein's [1] model of participation enabled us to observe, experience and theorize the nature, issues, and challenges of such participation in DRR education. Data analysis highlights formal, non-formal and informal types of participation in DRR education in school and community settings. It argues that meaningful participation is essential in supporting schools to develop and conduct DRR interventions effectively and efficiently.

2. Literature Review

Active and meaningful participation in DRR is a well-accepted and strongly advocated concept [4] [5]. Various studies, for example, Davidson *et al.* [4], Shaw [5] and Renn [6] state that a participatory disaster management approach contributes positively to disaster preparedness, prevention, mitigation and recovery. Considering its importance, Poterie and Baudoin [7] also emphasise that participation of relevant stakeholders at the global level is a critical component of successful development of DRR policies and projects. International frameworks for DRR initiatives also recognize the importance of active involvement of the local actors and communities in disaster management to increase resilience to disaster risks and climate change impacts [8]. The Yokohama Strategy and Plan of Action for a Safer World [9], the Hyogo Framework for Action [10], and the Sendai Framework for Disaster Risk Reduction [11], which are the three international frameworks for DRR, recognize the importance of local knowledge, participation of the local actors and the growing recognition of the importance of intra-community differences in vulnerability [4] [12].

Meaningful participation of relevant actors at various levels is important. According to UNISDR [10] engagement in DRR interventions promotes local stakeholder participation in DRR through policy development, network strengthening and the provision of delegation from authorities of required resources. It also states unless disaster risks are effectively managed through active participation, increasing disaster loss and impacts adversely affect the achievement of Sustainable Development Goals (SDGs) by 2030 [13]. The Sendai Framework [11] notes the use of local knowledge and expertise through community-based DRR interventions. It also suggests comprehensive public consultation while developing relevant DRR policies and plans.

While these frameworks stress the rhetoric of participation, Cronin *et al.*, [14] point out the importance of multi-stakeholder participation to raise awareness about disaster risks. Osti [15] notes that since the community bears the burden of disasters and acts as a first responder, their participation in DRR interventions is highly important to prepare for and face the disasters. Explaining the

importance of local actors' involvement in DRR, Pearce [16] states that if the local actors are ignored in the disaster risk reduction area, then there is less chance to address the local disaster issues with proper solutions. Participation also helps to develop the capacity of the local people and create local ownership initiatives, which contribute to sustainability [17] [18]. Ahrens and Rudolph [19] state that the process of working together is helpful to strengthen communities because it reinforces local organisation, and builds up trust, skills, capacity to cooperate as well as awareness. Provision for participation in DRR practices and policy development is crucial, it helps to increase disaster resilience for local communities [11]. Considering participation is an important approach, Adams [20] explains that it helps to ensure inclusiveness and provides opportunities to include people's views in the decision-making process. Stakeholders' participation from the very beginning of disaster management is crucial in motivating them in their ongoing contribution for successful DRR interventions [18] [21].

In the education setting, the involvement of communities, schools, educational institutions, and stakeholders, including children, in reducing disaster risks plays a key role in disaster preparedness [22]. Children's participation in DRR education is an emerging idea. Their active involvement in DRR activities, through establishing a platform of learning and sharing, helps them understand disaster issues in a meaningful way. In the context of Nepal, Action Aid [23] states that the provision of Child Clubs encourages children's active participation in DRR education initiatives in school and community. Ronan and Towers [24] explain that child-centred disaster risk reduction initiatives are effective in strengthening children's skills so they can understand the risk of the disasters in their community. Such participation opportunities also enable them to play a crucial role in reducing the risks and impacts of potential disasters. UNICEF *et al.*, [25] state that child-centred disaster risk reduction (CCDRR) is a well-recognised and effective approach in developing change agents in communities.

Ongoing stakeholder participation also provides them with an opportunity to learn more about the programmes. Shaw [5] explains that community engagement is crucial in disaster management, their active participation from the beginning allows them to put their views forward to identify the needs and address these effectively. By encouraging stakeholders to have an input, their sense of belonging in the community is strengthened and they develop a sense of ownership towards DRR programmes. They become aware of the available resources; thus, the participation process is helpful to ensure transparency and accountability [26]. Farazmand [27] states that since local people are familiar with their geographical location, and know the culture and language, their engagement in crisis management is crucial.

Wider participation in the DRR area contributes to collective efforts to overcome the common issues and challenges [14]. Participation is also helpful in incorporating local social capital in DRR interventions that also contribute towards ownership [10] [18]. Effective use of available natural resources, local labour and local knowledge and skills is also helpful in making the interventions

cost-effective [28].

Shiwaku *et al.*, [29] find that community involvement plays a significant role in DRR education in imparting students' awareness and action. Local level participation also helps to carry out relevant school disaster programmes effectively. With the provision of the local community participation in materials development, the International Federation of Red Cross and Red Crescent Societies supported a school disaster management project in Kazakhstan which successfully harmonised teaching materials and a teaching-learning approach in schools [30].

The International Network for Education in Emergencies [INEE] [31] states the importance of provision of national laws and policies to manage education in disasters or crisis situations. It explains the importance of collaborative work and active stakeholders' participation in the DRR education area at various levels. UN agencies and development actors, such as Save the Children, Plan International and World Vision, initiated a Comprehensive School Safety framework which aims to bridge humanitarian and development actions. UNICEF [32] suggests the need of wider community participation to address issues related to three pillars: safe school buildings, school disaster management and risk reduction, and resilience education of the Comprehensive School Assessment framework. Shaw [33] describes how the provision of opportunities for involvement within disaster-vulnerable groups such as among women, the elderly, children and the disabled, was found effective in his study in Bangladesh and Vietnam.

The creation and utilisation of mothers' clubs in Bangladesh, the Veteran's Association and the Women's Association in Vietnam, as well as training and raising awareness in schools, made a great contribution to disaster preparedness and mitigation. Shaw *et al.*, [34] also describes the importance of including family and community in school DRR initiatives.

In the disaster-prone context of Nepal, Ministry of Home Affairs [35] identifies various actors including donor partners, multilateral and bilateral organisations that assist government in DRR in the education sector. UNESCO office assisted the Department of Education to facilitate a workshop on mapping DRR education actors and their involvement in DRR.

Figure 1 shows the level of DRR actors and the needs of their active participation in DRR education. It further explains that the regional and national level participation helps to address the local practices and incorporate these into the policies, and global level participation gives an opportunity to share experiences and learning to achieve the commitments.

The newly introduced Disaster Management Act [37] in Nepal states the importance of active participation of various stakeholders in DRR. It identifies local participation, helps to address the local issues and carry out sustainable DRR interventions. Similarly, the existing 14th five-year development plan attempts to mainstream DRR in various sector plans and suggests meaningful community participation in the DRR programme cycle [38].
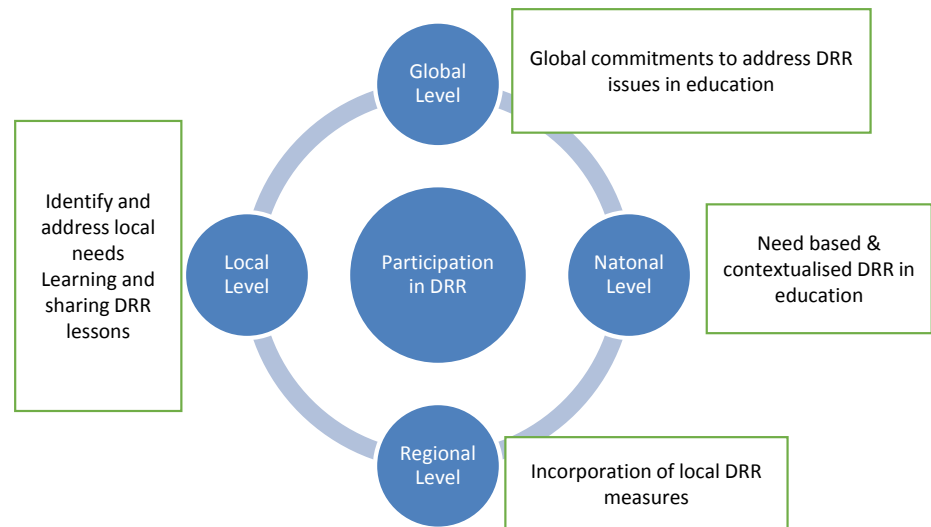
Figure 1. Need of stakeholders' participation in DRR Education in Nepal. (Source: UNESCO [36]).

3. Assessing Participation

Participation has a variety of meanings and it can be viewed in different ways. For the purpose of this study, there are two key matters to explore. The first one is regarding the nature of participation, and the second is the level of participation in the DRR education sector. World Health Organisation [WHO] [39] defines participation as:

…*a process by which people are enabled to become actively and genuinely involved in defining the issues of concern to them, in making decisions about factors that affect their lives, in formulating and implementing policies, in planning, developing and delivering services and in taking action to achieve change.* (*p.* 10)

The above definition explains the importance of people's active engagement in identifying the local issues and addressing these in a sustainable way. Adams [20] states "participation by people in policy and service development and delivery is a widely accepted concept" (p. 30). Newton and Montero [40] discuss meeting, helping each other, voluntary involvement and political types of participation that may occur in any society. Law [41] describes how the nature and extent of involvement or sharing in an activity is the major concept in participation. Therefore, for the purpose of the study, the term "participation" refers to the involvement of relevant stakeholder/s in an education system where stakeholders play a more active part, and contribute significantly to disaster management, especially in the DRR education area.

Participation is considered an important part of DRR education initiatives. The frequency of participation in the relevant events brings about a close relationship among the actors to conduct effective DRR education interventions. In considering the involvement and nature of relationship, Law *et al.*, [42] divide participation into formal and informal types. They further describe how formal

participation means involvement in formally designated structures, whereas informal participation means involvement in informal activities that are little planned or unplanned and initiated by the individual. Guillen *et al.*, [43] state that formal participation means involvement in established structures and organisation, whereas informal participation means involvement in an informal setting. They also describe the informal participation as flexible and providing the opportunity to interact with relevant authorities. Both natures of participation in DRR education are also identified from the data.

Various scholars such as Arnstein [1] and UNDP [44] describe their framework for analysing the level of participation in education and other areas. According to Arnstein's ladder of participation, the highest level of participation is citizen power which shows citizen control, delegated power and partnership. At this level of participation, participants have highly increased influence over decisions. She explains how the partnership stage enables the participants to negotiate and engage in interventions with traditional power holders, whereas delegated powers allow them to carry out the decisions within their own managerial role.

In the middle level, Arnstein discusses the three rungs of the ladder: informing, consultation and placation, which can be considered degrees of tokenism. The informing stage provides the opportunity for the participants to share their needs and get information from the power holders. Consultation also provides the opportunity to share ideas but does not ensure how their input is taken into account in the decision making by power holders. At the bottom level, manipulation and therapy are considered to be non-participation. Arnstein [1] explains that "placation refers to higher level of tokenism" (p. 220); at this stage the decision-making rights belong to the powerholders rather than the participants.

Arnstein [1] describes the various levels of participation; therefore, her ladder of participation is useful also in identifying the degree of participation. Since the ladder is a useful tool when analysing what is meant when DRR education programmes and policies refer to participation, we will use this model of participation as a tool to analyse the data.

4. Methodology

This qualitative study is based upon constructive paradigm and case study approach to study the real-life context in a disaster setting [45] [46] [47] [48]. This research sits at the intersection of the sociology of disaster and education and development, as this research intends to explore stakeholders' perspectives and practices related to DRR education in Nepal.

Qualitative data was collected at three levels (local, district and national). Interviews, focus groups and document analysis were the major methods of data collection. At the local level, three public schools representing urban and rural settings and vulnerable to various natural disasters were selected. The following table presents details of the data collection process (Table 1).

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

Level	Details
School level School 1, 2 and 3 (Interview and focus group)	Head Teachers/School Principals (3 interviews)-PC1, PS1, PSN1 Teachers (primary, lower secondary and secondary)-TC1, TC2, TC3, TS1, TS2, TS3, TSN1, TSN2, and TSN3 and community representatives including School Management Committee/Parents Teacher Association in each school-CC1, CS1, CSN1 (Total 12 focus groups)
District level (Interview and focus group)	District Education Officer-EO1, DRR Focal Person-EO2, Educational Training Centre trainer-EO3, Local NGO Actor-NR1 (4 interviews) Resource Personnel-OE4 (1 focus group)
National level (Interview)	Officer from Department of Education-OD1 Officer from Curriculum Development Centre-OC1 Officer from National Centre for Education Development-ON1 Representatives from INGO and Association of International non-government organizations-NA1, NO1, NU1 (Total 6 interviews)

The research was carried over four months during August-November 2016. The research participants contributing to the primary sources were, school head teachers, teachers from primary, lower secondary and secondary levels, School Management Committee (SMC) and Parents' Teachers Association (PTA) representatives at local level. The District Education Officer (DEO), School Supervisors (SSs), Resources Persons (RPs) and representative of the local non-governmental organisation (NGO) working in DRR education at the district level and Manager from the Curriculum Development Centre (CDC), National Centre for Educational Development (NCED), international non-governmental organisations (INGO) contributing in DRR education at the centre level. As presented in the above table, total 13 interviews and 13 focus groups were carried out. The secondary data sources that include rules and regulation, official documents such as School Sector Reform Plan (SSRP), National Curriculum Framework, Teacher Capacity Development guidelines and manual were also consulted. Thematic analysis was carried out to examine the major themes.

5. Data Analysis

Disaster risk reduction (DRR) education focuses on disaster prevention, mitigation, response and recovery related education acts that take place in any formal and non-formal education settings. The data revealed that there are two main forms of participation in DRR education in Nepal. These are formal and informal.

5.1. Formal Participation

Interview data shows that the provision of disaster management committees and networks established at local and national level offered formal participation opportunities to the stakeholders in DRR activities. These opportunities are

deemed useful for sharing their views and experiences in DRR education, and so help to shape DRR education at a local and national level. Committee members, supporting organisations and like-minded organisations were invited to participate in regular meetings/interactions where they discussed the DRR education agendas for further action.

An officer from the Department of Education, (OD1) explains:

There is a Central Disaster Relief Committee consisting of twenty-seven members chaired by the Ministry of Home Affairs. In the Department of Education, we have a Disaster Management and Educational Counselling section which was established just before the Gorakha earthquake. There are DRR Focal Persons in each of the relevant departments including the District Education Office. We have an Education Cluster at national and district level. …there is also a Child Centered Disaster Risk Reduction Consortium established at national level. (OD1)

With the assistance of UN agencies, relevant governmental agencies have established respective clusters to respond to water sanitation and hygiene issues, including during disaster and times of crisis. For example, to address DRR in education issues, there is the provision of an Education Cluster in the area of education at national and district level. This is the platform to engage governmental agencies and NGOs working in DRR, which helps to generate the collaborative efforts among like-minded organisations [49].

The Disaster Management and Educational Counselling centre coordinates with all DRR education actors at a national level in Nepal. It also leads an Education Cluster at national level. The education cluster is established to generate collective efforts in DRR in education. A representative of the Association of INGOs in Nepal mentions:

Education Cluster is a platform for sharing the learning and experiences among DRR actors at a national level. It also organises DRR education annual planning and review meetings and enables all the actors to participate in collaborative DRR actions. (NA1)

At the local level, there are also some mechanisms established for relevant stakeholders to participate in DRR education. At the district level, besides the District Disaster Management Committee, there is also a District Education Cluster in each district. The cluster provides opportunities to participate in district level DRR education interventions. The District Education Officer says:

At district level, we have a District Education Cluster in each district led by the District Education Officer. All DRR actors are members of the cluster and the District Disaster Risk Reduction Focal Person acts as the member secretary. These committees are working very effectively for all relevant stakeholders to participate in the recent post-disaster context to address DRR in education issues. (OE1)

Formal participation is important in making relevant decisions and generating collaborative efforts in the DRR education area. Similarly, at the local level, in

schools, as a formal mechanism of participation, there are School Management Committees and Parent/Teacher Associations established to oversee the overall management of education. The school principal from study school 2 notes:

School Management Committee is the major body of the school which oversees every aspect of school management. The committee members participate in overall school management-related decision-making processes. They also ensure community participation to make any important decision such as fund raising at school. The school recently carried out a participatory School Improvement Plan development workshop, however parents from poor and marginalised groups did not come …DRR is still not valued at a local level. However, there is a Focal Teacher and Red Cross Circle formulated by Red Cross that conduct some DRR activities with Red Cross support. (*PSN*1)

The School Management Committee needs to address the school safety issues while developing and reviewing the School Improvement Plan [50]. Participation of the vulnerable community groups in such planning is crucial. However, due to socio-economic status and power relationships, people from these groups felt isolation in the decision-making process. The school organises general forums such as mass meetings, Parents' Day, and school day celebrations, and invites local stakeholders to participate. These events were fruitful in disseminating relevant messages to the participants to some extent. The school principal from study school 3 says:

School Management Committee invites local stakeholders to attend mass meetings and Parents' Day and share the major problems of the school and asks them to make decisions to address local DRR issues…more specifically raising funds to reconstruct earthquake resistance facilities. (*PC*1)

The existing rules and regulations have given authority to school management committees to carry out participatory school planning [51]. Wider community participation helps to increase ownership of the institutions and programmes. It also helps with sustainability of DRR education interventions [22]. Participation is also helpful for community people to clarify their roles and responsibilities and make them more accountable. The importance of community participation, especially from the most vulnerable groups at a local level, is valued by the national officers. An officer from the District Education Office says:

While developing and reviewing DRR education provision in School Improvement Plan, schools need to ensure wider community participation including disabled, Dalits and indigenous people. In current practices I have noticed that these groups are excluded in school decision making process. (*OE*2)

Community participation, including of disadvantaged groups, plays an important role in safe school development. An officer from the National Centre for Education Development comments "*community and school need to work together to establish safe schools and address the issues of vulnerable groups including poor, disadvantaged, children and disabled*" (*ON*1). Similar to OD1 and ON1, an INGO representative (NU1) says:

Teachers, District Education Office representatives, parents, students, and committee members were invited to school DRR interventions, such as school safety mapping, risk assessment and local curriculum development workshops, then their experiences and ideas were collected, and plans developed. We observed that all these participation initiatives increased their association with DRR education. It developed their feeling of ownership towards schools and DRR education initiatives. Their involvement in school activities increased. (*NU*1)

NGOs have an important facilitation role for school stakeholders to participate in DRR risk assessment. Such a participatory approach used in the DRR area increased the awareness of local stakeholders on DRR issues.

The interview data show that no specific committees had been established to look after DRR education in schools. However, the Red Cross has established a Junior Red Cross Circle in each school programme. An officer from Red Cross says:

Junior Red Cross Circle plays an active role to strengthen DRR at local level. Students can help schools to raise community participation for local level DRR initiatives. (*NR*1)

Student participation in the DRR area is a well-accepted idea. Getting assistance from Junior Red Cross Circle, the school organises day celebrations such as Education Day, Earthquake Day, and certain functions such as extra-curricular events which give an opportunity for community people to participate in these events at school. These opportunities to participate in various forums help individuals to gain an understanding of DRR areas and enhance the network. NGO representative-NR1 explains:

School children must be engaged and valued to carry out DRR. First aid, school safety, search-and-rescue training and planning, disaster preparedness drills, and DRR awareness raising training have been carried out for teachers and students and are some of the main areas where Nepal Red Cross Society is assisting in schools. We are supporting schools through implementing a School Disaster Risk Programme. Reducing the vulnerability and increasing the livelihood are other main areas of the working approach of Nepal Red Cross Society. We have developed several DRR polices. (*NR*1)

Formal participation in DRR education can be classified as participation in general forums and organisational forums. The general forums of formal participation were in the form of day celebrations, certain school functions and mass meetings. Day celebrations such as earthquake day, disaster day, democracy day and education day allow participants to engage in the event. Such opportunities helped the participants to widen their understanding about DRR. Their participation in meetings helped schools to collect local funds, labour, or any other local materials to maintain or rebuild the school facilities.

Some participation in organisational forums, where the participants have some roles and responsibilities, was also identified. This included, for example, participation in the School Management Committee, Parent Teacher Associa-

tion, User Group, Disaster Management Committee at community level, District Education Committee, Education cluster, Consortium and District Disaster Management.

It is observed that, because of the limited DRR interventions and the fact that only selected people were participating in DRR education through the formal committees at the local level, the formal participation in DRR education interventions was very low. Local actors joined various events and school authorities consulted them whenever it was needed. Analysing the type and level of participation at the local level, specifically at school, reflects a level of tokenism in DRR education.

Community participation in DRR education seems very limited because of very limited formal participation opportunities at the local level. School Management Committee and Parents/Teacher Association members were more concerned with increasing the number of students, through raising the quality of education; DRR-related expertise seemed to be less important to them.

5.2. Informal Participation

Interview data also highlight the nature of stakeholder participation in various informal activities pertaining to DRR education, especially at the local level. These are situational opportunities, such as school visits by parents or community members, and informal sharing with teachers or school administration or NGO workers. This type of participation is mainly observed at the local level, especially in schools and communities where people meet each other and share ideas. The following areas are identified as informal mechanisms of participation in DRR education.

5.2.1. School Visits

Local people trust the school and teachers to give sound advice to resolve their problems. Mutual trust and support received from the school family during crisis situations encourages informal school visits by the local people. One of the community members from Study School 3 says:

[*Our*] *school and teachers are always with us during a difficult time, they have supported the community during earthquake, fire and landslides. We visit our school and interact with teachers, principal, and others to address possible disaster risks.* (*CS*1)

Informal participation contributes to delivering DRR knowledge and assisting collaborative action. Before the earthquake, participants were rarely involved in school visits to discuss disaster risk reduction issues. One of the parents from study school 1 says:

After the earthquake, we visited the school more to consult with our teachers to get more advice and support…such as sending our children back to school, getting relief materials for the affected families and update on the financial assistance that the government promised to provide for reconstruction of homes of the earthquake affected families. (*CSN*1)

Since the country has been affected badly by the recent earthquake, this situation reinforced the collective efforts and raised local participation in disaster management at community level. One of the female parents from school 2 shares:

After this earthquake, people became more concerned about disasters. We realised disasters are common problems… one of our school buildings has also collapsed. To assist the school, we visited the schools more after the earthquake… the school and community both need to work together for preparedness and mitigation. (CSN1)

These exposures provided interactive activities at school and helped to increase the frequency of school visits. Such visits also help to strengthen relationships between school and community to address disaster issues. Since the physical facilities are destroyed and schools are still looking for supportive organisations to rebuild the destroyed property, school visits by community people help to share information with other like-minded organisations. The school principal from School 3 expresses:

The school visits by local stakeholders helped to disseminate DRR information from school to community. It helped to find supporting organisations to rebuild our destroyed property. (PC1)

Participation in terms of school visits was needs-based, therefore it was flexible and based on the disaster response, recovery and rebuilding-related activities. Participation in informal interactions about disaster issues in schools also increased the action from parents and community leaders to overcome existing problems.

In the DRR education area, informal participation also plays a significant role in delivering DRR knowledge, experience and learning. Socio-economic status plays a significant role in effective informal participation. Parents' socio-economic status, DRR knowledge and understanding and opportunities to interact with relevant people were some factors observed that affect their participation in informal mechanisms. Parents who were struggling with their economic situation were found to be less interested in participating in DRR education activities. They were more concerned with resolving their daily life issues. However, the schools have realised the importance of their participation, encouraging them to come and meet relevant school members to provide their ideas and advice for school safety and DRR initiatives.

Similarly, all three school principals confirmed that the level of education of the parents also influenced their participation in DRR activities. Educated parents are willing to visit schools more frequently to assist the schools to carry out DRR education activities. Similarly, people taking major roles in schools, such as in the School Management Committee, Parent Teacher Association, User Group or any other alliances, were visiting the schools more frequently than others. The school principal from study school 1 says:

Parents' participation in DRR initiative is important. Normally parents who

are associated with school committees visit the school more frequently than others. (*PS*1)

Parents who are engaged more in school activities and decision-making processes carry out more informal visits than others. The data generally shows that parents who were engaged in formal mechanisms were also more likely to participate informally.

5.2.2. Discussing School Safety Issues in the Community

Most of the participants reported that in relation to rebuilding the school structure and establishing a safe school environment, they also participated in discussing these issues with other neighbourhoods and community people. Community leaders seemed more active in such discussions. To find proper solutions to resolve problems such as the generation of resources and collaborative efforts for rebuilding and other DRR education interventions, they convinced others to be involved.

Community people are also concerned with raising the quality of education in the school. A School Management Committee member of study school 1 says:

Not only in school, we have discussed our school situation in our neighbourhood and community…we are more concerned how our school will be a safe place for our children and for us. We do share the possibility of helping the school alongside the NGO worker too. We always want to develop our school as a model school in the district. (*CS*1)

People's perceptions of participation in DRR education have changed. They were active in the current post-disaster situation, but without having proper resources and enough knowledge in DRR to address the current DRR needs, their actions are still more concerned with getting financial resources for the schools for rebuilding. Only some school management committee members seemed more active in helping the schools to resolve the current situation. Schools can work further with community people to mainstream DRR in school and community development to impart their understanding in the DRR area. The existing level of informal participation in DRR education initiative is still limited; schools need more collaborative actions with parents to raise their involvement in the DRR area.

Considering Arnstein's [1] ladder of citizenship participation, there is a need for more collaborative action to engage parents in partnerships in DRR education. Local people were interested in contributing to the need for DRR education in the schools, and they were informed of the situation and consulted in the decision-making process. However, the authorities' roles seemed passive, similarly their formal participation.

6. Discussion

6.1. Purpose of Participation

Using the participation mechanisms discussed above, stakeholders' participation in DRR education can be identified in the following ways. Most of the respon-

dents at national level shared that the opportunities to participate in relevant DRR activities at national level were conducted regularly. These activities gave them the opportunity to share their ideas and assist the committee and networks in the following areas of participation. At the district level, participants in the study appreciated the District Education Office organising regular Education Cluster meetings. However, at the local school level, participants of three study schools realised there were very limited DRR education interventions carried out in the school and community. The data revealed five forms of participation in DRR events. These are discussed below.

6.2. Fund Raising

National level DRR actors are working together to raise funds to address local needs. There are several supporting agencies that have been assisting the Government of Nepal in the disaster management sector [49]. The Education Cluster also requests its members to be involved in collaborative action. Officers from the Department of Education, Curriculum Development Centre and National Centre for Education Development agreed that education line agencies received funds from relevant development partners to implement DRR in education projects in selected locations.

The provision of a School Safety Programme, in certain schools in selected districts through such funding, is one of the best examples of such participation. Similarly, participation of the community members though the provision of user groups for improvement of facilities also helped schools to raise resources such as labour and cash donations from the community.

Organisations that are assisting with child-centred DRR interventions have established a consortium at national level. The provision of "Consortium style" implementation of child-centred DRR interventions in certain schools in selected districts also shows that formal mechanisms at national level are helpful in strengthening DRR education initiatives at local level. However, such interventions exist only as long as funding is available.

Schools need to be more concerned with carrying out needs-based DRR interventions independently without outside support. Regular budgetary provision for the implementation of DRR education interventions in school and community helps stakeholders to participate more effectively. Sustainability of DRR interventions through short term, especially one-off, activities does not have potential at the local level.

Osti [15] describes how local level participation in the form of labour, local material contribution, donations, input in planning, implementing and monitoring, evaluation as well as decision making has increased during the last few decades. Such partnerships contribute to build ownership. Local level respondents identified that their participation in DRR education also helped to contribute to the construction of school facilities. According to Arnstein [1] such engagement works best through partnerships. Since the funds available for build-

ing or re-building the facilities are not enough, schools expect donations in the form of cash, labour and/or material contribution.

Community people are more concerned about their school development. The strong relationships between school and community motivate local actors to regular involvement in school development. Participation in the form of fund raising is also needs and consultation-based. Participants have, however, shown their concern about the expenses.

6.3. Information Sharing

According to Pearce [16] disadvantaged communities also need to be able to get relevant DRR information. School teachers also pointed out the need for and importance of the establishment of a DRR information sharing centre at community level. Participation also involves sharing of DRR information among like-minded stakeholders and the community. At the national level, through Education Clusters, the Department of Education coordinates with national level DRR education stakeholders to develop contingency plans. Information relating to past disaster experiences and learning, and local context was found useful while conducting school safety mapping exercises.

Participation in either mechanism was found to have a significant impact on sharing disaster-related information. This information was helpful in planning and increasing collaboration. Bajracharya *et al.*, [52] state private public partnership in disaster management is helpful to share and document information effectively.

Various scholars such as Mutch [48] and Shaw [5] describe the role of schools in DRR education. Mutch [48] states that schools can deliver the DRR message to the community through children because schools support communities in a disaster situation. However, schools might not always contribute in a positive way; if the information is not shared properly, there is more possibility of loss and casualties in a disaster situation. DRR information and relevant skills play a crucial role in saving people's lives.

School drills, for example, do not provide the reasoning or the skills to use the knowledge and skills in unfamiliar scenarios. Petal and Green [53] found that earthquake drills are well-practised under the school desks, but the problem is in generalisation using knowledge and skills in other situation away from a school desk. After the earthquake, Consortium published a common disaster message to make people aware and save their lives. However, there are still gaps in information sharing and practice.

Access to information is essential in the decision-making process [16]. Stakeholders want to participate actively in DRR education, but because of limited DRR education activities, they are still unfamiliar with revised DRR policies and plans. The International Federation of Red Cross and Crescent Societies [54] states that access to information is a right: community people can then plan for themselves, make informed choices and act to reduce their vulnerability. People

seemed willing to share (in an informal setting) and contribute information, and even though there was limited provision of participation mechanisms for information sharing, this information was regarded as significant. The above analysis fits the middle level of participation, as Arnstein's [1] ladder of participation describes.

6.4. Awareness Raising

It is critical to engage community people in order to prepare them for possible hazards [55]. At the local level, community people shared that they participated in disaster awareness-raising events including meetings organised in the school or community. Participation of more vulnerable people groups in disaster management interventions help to make them aware of disaster situations, reduce their vulnerability and enhance their coping capacity. The interview data also highlights the importance of participation in the form of awareness raising.

Community people expect ongoing DRR-related awareness raising activities at a local level. They appreciated the street drama and rallies carried out by Junior Red Cross Circle in their communities. Similarly, the role of children in disseminating DRR information is highly valued. Moreover, children's engagement in sharing the DRR message from school to family is highly recognised by all the teachers.

Although there was very limited awareness raising carried out for community people, they seemed enthusiastic to learn more about DRR. It reflects the need for ongoing DRR activities at school and in the community. Participants realised the need for wider DRR activities in school and communities. Parents' engagement in awareness-raising interventions seemed voluntary.

6.5. DRR Education Material Development

Stakeholder participation in the form of DRR materials development and managing emergency education was also highlighted at various levels. Study data shows that at the national level, various DRR actors participate in developing DRR-related materials that can be used by schools and communities to develop their disaster-resilient capacity. The data also shows that the national level collaboration is meaningful to engage DRR actors for carrying out DRR materials development initiatives. However, it can be seen that these materials are still not assessed. Moreover, these DRR materials developed at central level are not easily accessible at the local level. Most of the teachers expected support from schools and education line agencies to get access to these at local level.

After the earthquake, instead of DRR materials development, INGOs and NGOs have contributed significantly to establish continued education at school. It is important to provide opportunities for participation and working together to make collaborative efforts in crisis situations. Similarly, Moore *et al.*, [56] state that the ability and provision of working together among INGOs helps to carry out humanitarian aid operations successfully.

Due to the nature of the centralisation of the curriculum development process, it seemed that there was less local participation in the DRR curriculum development process. Data also revealed that availability of resources as one challenge to ensuring wider participation in curriculum development. Study participants also shared the need for stakeholder participation in order to prepare a local level disaster curriculum.

6.6. Capacity Development

Luedeking and Williams [57] state participation is not enough; people need the capacity to participate effectively. Data shows that some DRR focused local NGOs supported some selected schools of the districts to carry out DRR interventions. These include the interventions such as school mapping, the development of a school safety plan, DRR-related workshops, training and ongoing meetings organised by schools helped to raise community participation in DRR in education. It is revealed that participation in such capacity development activities helped to activate the local groups and networks and inspired them to be involved in school safety. Participation in exposure visits, training and workshops help the community people to widen their understanding about DRR issues and take the given responsibility seriously. These opportunities for formal participation were appreciated by the community representatives, teachers and resource personnel.

Support received from the local NGOs for the school helped to raise student and community participation in DRR education. Selby and Kagawa [58] state schools play active roles in delivering DRR knowledge and skills to local participants through getting the resources and technical inputs.

School committee members, parents and teachers realised the importance of the vulnerability and capacity assessment while conducting school safety mapping exercises with the help of local NGO. Their participation in such activities helped to widen their understanding about DRR. A community representative from study school 3 reports that "safety needs to come first in family, community, and school" (CC1). Similarly, Shaw [5] describes the importance of community participation in incorporating their perceptions of vulnerability and capacity in risk analysis and disaster management.

In the interview, the contact person of the DRR task force of the Association of INGOs in Nepal mentioned that it was because of INGO advocacy and lobbying that the Curriculum Development Centre has incorporated DRR in education.

INGOs facilitation role in DRR education at global, national and local level is highly appreciated [58]. The above quote explains how participating in the DRR education sensitising workshop influenced the Curriculum Development Centre to develop DRR education provisions in school education. DRR education-related lobbying and sensitisation events were found successful in advocating the inclusion of DRR into the national curriculum [23].

6.7. Challenges of Participation

The data also describes some of the challenges of participation at various levels. These are presented briefly below.

6.7.1. Time and Resources

Participation requires time and, therefore, participants need to allocate a considerable amount of time to participate in relevant DRR events in schools and community. Most of the community people are struggling with their daily living, and they think of their regular participation in DRR-related activities as a waste of time, since they can earn money if they use that time.

It is very hard to ask these communities to participate in DRR intervention and give more time for meetings and visits unless it is fulfilling their basic needs. Solo *et al.*, [59] state bringing real community participation to risk management is a difficult task, it is a time and energy-consuming process. The quote also indicates that poverty is one of the major challenges to ensure participation in institutional and family level decision-making processes. Availability of the parents' time plays a significant role in carrying out such participation.

Public consultation is time-consuming, especially in rural areas, as it takes a long time for travelling. Gender roles also influence participation; since women need to accomplish most of the regular domestic chores, women's participation in DRR interventions is less than men's [60].

Since most of the parents are from poor and marginalised communities, and they are adversely affected by the recent earthquake, all the parents cannot contribute cash, time and/or materials. They prefer to continue their regular labour work for earning rather than come to school to participate in DRR planning and capacity development activities. INGO representatives also mentioned the challenge of time constraint to the target groups' participation in DRR initiatives at the local level.

6.7.2. Expectations

Another challenge for participation is the expectations people hold. Community members have different interests and motivations while participating in DRR-related activities. They expect more resources and input to carry out disaster management activities. It is difficult to meet the big expectations of the local community with the available limited resources. Such conditions may affect participation.

In a disaster-prone context, there are many disasters preparedness and mitigation needs. The availability of limited resources in schools and communities to carry out relevant small scale DRR interventions are sometimes not enough to address all the expectations of the community. The provision of adequate financial and natural resources is the basic requirements for the successful implementation of community-based interventions [26]; insufficient resources may also hinder participation.

It is difficult to engage local stakeholders in DRR education unless disaster

management initiatives address their daily life-related issues. However, with limited resources, schools face challenges to address such needs and expectations.

6.7.3. Centralisation

How stakeholders are invited to participate in disaster management is critical to the success of that participation [16]. Centralisation was also noticed as a challenge to ensuring participation in DRR education. More specifically, while discussing their role in DRR curriculum development, all teachers agreed that the curriculum development process is centralised. Teachers' engagement in curriculum development is not valued, and the current practice does not provide opportunities to put their experiences and suggestions into the DRR curriculum development and revision process. Similarly, school and community leaders also shared that the centralisation mechanism practiced in DRR education does not allow them to participate in curriculum development and its effective implementation.

School principals and most of the teachers shared that the DRR policy development, including curriculum development process, is more centralised and none of the respondents from the three schools got an opportunity to participate in the development process. All the teachers across the focus groups did not hesitate to share the truth that teachers were not participating in the curriculum development process. They mentioned that the curriculum development process of the country is more centralised and theoretical and local engagement is denied in the process. They pointed out that a central curriculum does not address local disaster issues.

Similarly, all three school principals expressed that they were not involved in the curriculum development process from the beginning. They attended the dissemination workshops and did not even get time to ask questions of the authorities.

The centralisation decision-making process is non-supportive in addressing the local needs. So, decentralisation, in other words devolution, the transfer of the decision-making role to local government [19] [61], is the alternative to addressing such limitations. Local government initiatives in disaster awareness and planning need support from national government, NGOs and the private sector in order to address local needs [59]. Maskrey [62] points out the consequences of a centralised top-down approach without community participation *i.e.* the disaster interventions remain incomplete and such activities make them more vulnerable. In the newly-changed political context of Nepal, the federalism structure of decentralised authority seems to have the potential to address local disaster education issues.

7. Conclusion and Prospects for Future Research

This article discussed the notion of participation in DRR education in Nepal and identified formal and informal mechanisms of participation in DRR education. The findings highlight that because of limited DRR education interventions at

the national level, there is limited participation in the DRR education sector at local level. However, after the earthquake, to address the current needs of DRR education, the level of participation at national level seemed more compared to the local level. At the local level, since there are still gaps in mainstreaming DRR education interventions in the national curriculum, systematic participation in DRR education was found to be weak. However, because of the support provided by international communities to through the local NGOs, some schools have gained opportunities to carry out DRR education interventions at school and community level. Schools need systematic support to fully integrate DRR education into their School Improvement Plan. A similar conclusion is also drawn by Tuladhar *et al.*, [63] in their study about the DRR knowledge among the school level stakeholders in Nepal. They also concluded that DRR education initiatives implemented at the local level in Nepal are not sufficient.

Wider participation in DRR education is a highly recognised issue in global level strategies, however, it seems to be more rhetoric than action. At a local level, disaster issues are still not the focus of school leadership and parents. In the community, families still seemed unaware of effective DRR education interventions through schools. Because of limited participation practices, schools and local people are still unaware of their role in disaster preparedness. A lack of DRR knowledge by the relevant stakeholders, low socio-economic status of parents and resource constraints at schools are some identified reasons behind this problem. The study on the progress made by HFA carried out by the Global Network of Civil Society Organisations and the International Federation of Red Cross and Red Crescent Societies states that communities are still not effectively engaged in DRR decision making [54]. It was found that various actors from local, regional, national and supernational levels such as local level line agencies, non-governmental DRR actors and national level policy makers and development partners highly appreciated the importance of active and meaningful stakeholders' participation in DRR education initiatives at various levels. Local level people also pointed out the importance of participation by local people, including teachers, in the DRR curriculum development.

The existing DRR and Disaster Management Act and other DRR policies provide genuine space for stakeholder participation in disaster governance and DRR interventions. However, the country has not yet introduced a separate disaster governance mechanism in the education sector; the existing School Management Committees are delegated the authority to look after DRR activities. In the changed democratic political context of the country, to enhance community engagement in DRR sector in various levels, provision of disaster governance needs to be clearly introduced in the newly introduced Acts and polices. Thus, further academic and practical study of DRR education with the aim of identifying relevant disaster governance mechanism in education sector to facilitate contextualised DRR curriculum development and implement process will be the focus of future research.

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Ethical Approval

Application for Ethics Approval (Our Ref. 017773): Approved by UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE (UAHPEC).

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Conflicts of Interest

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

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