

Evolving disaster governance paradigms in Nepal

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ABSTRACT

This article aims to explain various disaster governance paradigms that have emerged and currently exists in Nepal. A disaster governance paradigm is a comprehensive set of prevailing and institutionalized ideas that shape disaster plans and policies that eventually are implemented on-the-ground. Nepal has prepared various disaster plans and policies at the national, provincial and local level, but there are major gaps in disaster risk preparedness, with annual floods and landslides continuing to be responsible for the loss of lives and heavy infrastructure damages. In this article, we show how disaster governance paradigms have evolved between 1982 and 2019, using policy document analysis and semi-structured interviews with key policy actors. The study found that four major disaster governance paradigms exist in Nepal – (1) response and recovery; (2) disaster risk reduction and management; (3) integrated climate change adaptation and disaster risk reduction; and (4) federalized disaster risk reduction. The results of this study show that multiple state and non-state actors such as key government ministries, NGOs, INGOs and other civil society actors are competing over resources and there is an ongoing administrative struggle for promoting different disaster governance paradigms. There has been a push from various civil society actors to prioritize disaster risk reduction in Nepal. Finally, we conclude that it is too early to assert that the decentralization process will be able to reduce disaster risk for vulnerable communities, especially with the federalization of Nepal's disaster governance.

1. Introduction

Disaster governance is pertinent to Nepal due to the increasing frequency and severity of natural hazard induced disasters. Policy actors from local to global level are working towards enhancing the resilience of vulnerable countries such as Nepal [1]. In the last three decades, the Nepali government has drafted and implemented various policies and plans to systematically reduce the impacts of natural hazards [2–7]. Such disaster policies and plans are formulated based on disaster governance paradigms, that refer to a comprehensive set of prevailing and institutionalized ideas [8,9]. Disaster governance paradigms are the underlying ideas or approaches through which policy actors frame the disaster issue, develop policy goals and design policy instruments to reduce the risk of disasters [9,10]. Disasters such as floods, earthquakes

and landslides are governed by a variety of actors through multiple competing disaster governance paradigms [11,12].

Different disaster governance paradigms are used by various policy actors to reduce the impacts of disasters in the least developed countries, especially with the rising debate on climate-induced disasters. Scientific literature shows that disaster governance paradigms have evolved and been influenced by international policy arenas and key bilateral and multilateral organizations and donor agencies such as Global Network of Civil Society Organizations for Disaster Risk Reduction, United Nations Development Programme – Bureau for Crisis Prevention and Recovery, United Nations Office for Disaster Risk Reduction [5,13,14]. Further, disaster management frameworks such as the Sendai Framework for Disaster Risk Reduction (2015–30) and Hyogo Framework for Action (2005–2015) have played a significant role in pushing certain

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governance paradigms (e.g. disaster risk reduction), meeting their underlying ideas and interests. Apart from the global and regional influences, national and local policy actors and their ideas have shaped and driven the emergence of disaster governance paradigms [15]. For instance, international and national non-governmental organizations (NGOs) operating in Nepal align their priorities with disaster risk reduction or climate-induced disasters to capture foreign funding and gain the confidence of the local communities [5,16]. Both global and national level policy actors (NGOs; INGOs; donor agencies) influence the emergence and shaping of disaster governance paradigms [5,17].

Disaster governance is rather a new concept, emerged in its advanced form in the 2004 report from UNDP – ‘Reducing Disaster Risk: A Challenge for Development’. The report views disaster governance as an exercise of economic, political and administrative authority to manage disasters at all scales, being mindful of multifaceted, multi-stakeholder approach and cross-scale dynamics [18]. Further, Daly et al. [19] and Miller and Douglas [20] characterise disaster governance as a combination of laws, regulations, practices and policies that guide hazard mitigation and post-disaster response. Disaster scholarship has sufficiently explained individual underlying ideas relating to disaster governance such as disaster risk reduction and response and recovery [5]. However, a comprehensive understanding of changing disaster governance over a long period of time is missing in the current literature. In this article, we use the concept of paradigms to bridge this academic gap in the literature by systematically understanding different disaster governance paradigms and what they mean for Nepal at a time when there is increasing efforts to govern and manage disasters. Disaster governance paradigms will support to implement existing and formulate future disaster policies and plans.

Against this backdrop, this article aims to address the question – *how have different disaster governance paradigms emerged in Nepal in the last three decades?* The article identifies disaster governance paradigms and explores the underlying catalysts for the changes in these paradigms. An improved and systematic understanding of disaster governance paradigms will help in taking stock of policy initiatives made in the last two decades to reduce the impacts of hazards. It will allow the current policy actors in Nepal to understand the past underlying catalysts that influenced the changes in disaster-paradigms and learn from the gaps in the existing disaster plans and policies. Moreover, such an analysis will support policy actors in making sense of the future of disaster-related policies and reshape such policies to mitigate the risk involved in the least developed countries context.

The remaining article is structured in four sections. Section 2 elaborates the concept of disaster governance paradigm and its aspects – framing; policy goals; financial and legal instruments. Section 3 introduces the methodology and context, explaining the data collection and analysis procedure. Section 4 presents the findings, elaborating the four disaster governance paradigms and the underlying reasons for the change from one paradigm to another. The last section reflects on the different disaster governance paradigms and how have they evolved and their contribution to Nepal’s risk reduction efforts.

2. Conceptual framework

In this article, the concept of the disaster governance paradigm is influenced by the work of Popper [21]; Thomas Kuhn [22]; and Peter Hall [9]. Kuhn [22] argues that science undergoes revisions in order to find solutions to serious scientific puzzles that were not solved by previous periods of science; a period of scientific inquiry that differs in conceptualisation and dominant methodological approaches to others is referred to as a ‘paradigm’. This understanding of scientific paradigms was taken as an analogy by Hall [9] and developed into the concept of policy paradigms based on learning processes in policy-making. He defined policy paradigms as “*a framework of ideas and standards that specifies not only the goals of policy and the kind of instruments that can be used to attain them but also the very nature of the problems they are meant to*

be addressing” [9]. Further, Howlett [10] mentioned that policy paradigms influence the formulation of policy goals and instruments used as a solution to a policy issue.

We extend the concept of policy paradigms to disaster governance, specifically focusing on how policies aim to govern disasters in Nepal. The concept of policy paradigms is useful to specify the role of ideas and interests in disaster policy-making, it explains the interlinkages between ideas and policy-making processes. Further, it challenges the fundamental thoughts such as how ideas influence policy-making and how ideas change over a period of time due to underlying catalysts. We conceptualize disaster governance paradigms by configuring three aspects (see Table 1) – (1) framing of disasters and disaster risk; (2) policy goals to govern disasters; (3) use of financial and legislative policy instruments to achieve policy goals. These three aspects are inspired from the recent work on ‘climate policy paradigms’ from Vij et al. [8].

2.1. Framing

Framing refers to how policy actors involved in disaster governance interpret disasters, disaster risk and which solutions are proposed to address it. To elaborate, it means how a variety of different actors conceptualize or interpret disasters in different ways and orient their thinking around that interpretation [23]. Houston et al. [24] note that framing helps to interpret, organize and understand information on disasters – especially on how disasters impact individuals and communities and how disasters are depicted in policies. Different interpretations of disasters exist in public policy. For instance, disasters can be framed in terms of natural hazards, which are unavoidable and depoliticized [25]. On the contrary, disasters can also be framed as a social vulnerability construct, which is human-induced and is a result of lack of governance and discrimination based on geography, class, caste and ethnicity.

2.2. Policy goal(s)

Policy goals are understood as the desired outcomes that the government or policy actors aim to achieve through policy or plans [26]. Framing influences the policy goals and gives direction to the choice of policy instruments available to achieve policy goals. A disaster policy may formulate different policy goals to reduce the impacts of hazards. For instance, one policy goal might be formulated to improve the adaptive capacity and build the resilience of the vulnerable communities while another may be to improve the information flow among relevant actors during the time of pre and post-disaster.

2.3. Financial and legislative policy instruments

Lastly, policy instruments are the tools by which policy goals are achieved and policy challenges are tackled. Usually, a state uses policy instruments to intervene and implement policy action. Scholars have discussed different types of policy instruments such as mandates, knowledge and information, incentives, symbolic and learning tools, treasure, authority, and organization [26–29]. In this article, we emphasise financial and legislative policy instruments, as they can

Table 1
Aspects of disaster governance paradigm.

Disaster governance paradigm	Aspects of a paradigm		Description
	Framing		Disaster is framed in the policy language and text
	Policy goal(s)		Key policy goal(s) mentioned in the policy documents
	Financial and legislative policy instrument(s)		Instruments that are formulated to achieve the policy goals.

demarcate the services rendered by disaster-related plans and policies [30]. Mention of details regarding the financial and legislative instruments in a policy document indicates the intent and importance of a policy to the state. Disaster policies without a clear directive on financial and legislative instruments are more likely to be shelved [31]. The range of financial instruments may include funds, subsidies, taxation, tax benefits, grants, interest-free credit, and credit waivers. The legislative policy instruments used to achieve disaster policy goals may include statute law, regulations, building codes and standards and state-issued directives.

Disaster governance paradigms have evolved from one paradigm to another in the last two decades. In this article, we empirically present the causal conditions responsible for the change. We emphasise on the above-mentioned three aspects (1) framing; (2) policy goal(s); (3) financial and legislative policy instrument(s) to explain the changes between the paradigms. Some of the causal conditions are domestic, whilst others are international drivers that have influenced the change in disaster governance paradigms of Nepal. We do not follow any particular categorization of causal conditions, with reliance on empirical evidence that emerged during the research.

3. Context and methodology

Located in the Hindu Kush Himalayan region, Nepal is highly vulnerable to natural hazards and extremely sensitive to changing climate [6]. Historical data shows that the frequency and intensity of hazard-induced disasters reported are increasing [32]. The historical analysis showed that the total disasters reported between 1900 and 2005 in the three ecological zones (Mountain, Hills, and Terai) have increased from 22 to 3512. The disasters include earthquakes, floods, cloudbursts, droughts, landslides and wildfires [33,34]. Further, Nepal is classified as a low human development nation in terms of indicators including life expectancy and educational attainment, ranked 149 out of 189 countries in the composite Human Development Index [18]. Specific in-country disadvantages include a high incidence of poverty and social inequality based on caste-based discrimination [35]. In addition to geophysical and social vulnerabilities, Nepal is evolving as a democracy. In 2015 Nepal federalized its administrative structures and constitutional framework and in the new structure, local-level accountability has been allocated with special financial and administrative decision-making power [36] that directly affect disaster governance.

3.1. Data collection

The article uses an interpretive approach and employs a case study method [37]. Three data collection strategies were used to collect the data for this article. These strategies will help in capturing framing, key policy goals and instruments; whilst experiences from interviews will help in identifying underlying reasons for changing paradigms. **Strategy A** – we collected all the documents from *dpnet.np* pertaining to disaster governance in Nepal. *DPNet-Nepal* is an umbrella organization comprising national and international agencies advocating for disasters policy reform, knowledge dissemination and capacity building in Nepal. Since its inception in 1996, *DPNet-Nepal* has been actively making a repository of disaster plans & policies and other disaster-related documents (such as ministerial-level presentation, publication, information, education and communication material, international and national guidelines on disasters and workshop meeting reports) pertaining to disaster risk reduction, governance and management. A total of 121 documents were collected, updated until December 2019. All the documents were saved in a repository in *Atlas.ti*.

Strategy B – additional policy documents such as annual development plans of Nepal were also collected for analysis. There was a mention of annual development plans and other sectoral policies in the disaster plans and policies of Nepal and therefore, to make the analysis robust we included these documents. The annual development plans

elaborated policy goals temporally and mentioned financial and legislative instruments to reduce the impact of disasters. **Strategy C** – 16 semi-structured closed-door interviews were conducted between May–November 2019 and 7 interviews were conducted between October–December 2016 in Nepal. The interview respondents were identified from the networks of researchers and referral by the interviewees. Respondents were included based on their experience in the field of disaster research and on-the-ground involvement. Majority of the interview respondents shared their experiences and knowledge of the evolution of disaster policies in Nepal, particularly pertaining to events or underlying catalysts that changed disaster governance paradigms. Approximately 860 min of interview data is transcribed and analysed using *Atlas.ti*.

3.2. Data analysis

Policy documents and interviews were coded and analysed to capture the framing, policy goals and instruments. We systematically analysed the language in the documents and interviews to understand the framing of disasters and solutions offered [38]. We marked and analysed the excerpts from each policy document that highlighted the particular framing, specific policy goals and financial and legislative instruments. For instance, natural calamity relief act (NCRA, 1982) aims to respond to a disaster after its occurrence; therefore its framing is post-disaster relief. From the interviews, we captured and identified key moments mentioned (e.g. disasters, domestic political changes and implementation of international policy frameworks) by the respondents that resulted in the change of disaster governance paradigms. While analysing the data, we considered a paradigm change when there is a modification or alteration or transformation in the three aspects of a disaster governance paradigm (see [Table 1](#)). We used annual development plans and other policy documents to compare the policy goals, financial and legislative instruments to mark the changes between different time periods. Due to the continuity of development plans, we used them to construct a timeline for disaster governance paradigms. We connected chain of events or underlying catalysts that shaped four disaster governance paradigms. For each paradigm change we have elaborately discussed the catalysts. For this article, key chain of events or underlying catalysts are major disasters (floods, landslides and earthquakes; see *SM 1*), change in the domestic political situation and push from civil society or international donor agencies to develop plans and policies to reduce impacts of hazards.

4. Findings

The following sub-sections discuss the key disaster governance paradigms of Nepal (see [Table 2](#)) and the underlying reasons for the change from one paradigm to another.

4.1. Response and recovery (1982 - ongoing)

Before 1997, the focus of the government was entirely on response and recovery (see [Table 2](#)). The policies and plans are framed towards assisting communities hit by disasters, especially from water-induced disasters such as floods. The policy goals framed during this period focused on response and recovery from disasters. For instance, Natural Calamity Relief Act (NCRA, 1982) states “... to make arrangement for the operation of relief work and the maintenance of people convenience with a view to protect the life and property of the people in general and public property” (pg. 1, NCRA, 1982). NCRA (1982) emphasise relief work in the disaster affected areas to remove grief, inconvenience and simultaneously rehabilitate the victims of the natural calamity. NCRA (1982) is a legislative policy instrument designed to implement relief operations at the district and local level through District Disaster Relief Committee and Local Disaster Relief Committee respectively. Further, regarding the financial instrument, NCRA (1982) mentioned that the Natural Calamity

Table 2
Disaster governance paradigms and related aspects.

Disaster governance paradigms in Nepal	Aspects		
	Framing	Policy goal(s)	Financial and legislative instruments
Disaster response and recovery (P1)	Assist communities hit by disasters, especially floods and landslides.	To support and protect life and property in a post-disaster context	National Calamity Relief Act (1982); District Disaster Relief Committee and Local Disaster Relief Committee established; Natural Calamity Aid Fund created
Disaster risk reduction and management (P2)	Reduce vulnerability and risk of communities	To reduce water-induced risk and use data and information to map vulnerable areas	Department of Water Induced Disaster Management established (2000); National disaster fund for relief and rehabilitation
Integrated DRR and CCA (P3)	CCA can assist in increasing the adaptive capacity of the vulnerable and disaster-affected communities	To establish climate-resilient disaster risk systems	Nepal Climate Change Support Programme was initiated; 80% of the CCA funds at the local level
Federalized DRR (P4)	DRR and management is a national priority and it is a priority to improve coordination among local, provincial and federal levels of government	To reduce disaster mortality and increase resilience by investments in critical infrastructures and basic services	National policy for disaster risk reduction (2018); DRR&M Act (2017)

Aid Fund will be created at central, regional, district and local level via the support of the government of Nepal and various national and international civil society organizations.

4.1.1. Paradigm change (P1 to P2)

There was a change in disaster paradigm from response and recovery to disaster risk reduction and management in the late 1990s. Three main catalysts were responsible for this. First, a major earthquake in August 1988 hit Nepal and a significant number of private houses and public buildings were damaged due to inadequate construction standards, especially regarding the seismic activity. This earthquake made the policy actors realize the importance of disaster risk management and mitigation. The earthquake pushed policy actors to consider the formulation of the development of building code and long-term shelters. In 1988, the then newly formed Ministry of Housing and Physical Planning (MHPP), requested technical assistance from United Nations Development Program (UNDP) and United Nations Centre for Human Settlements (UNCHS) for institutional development and capability strengthening of MHPP and formulation of a long term shelter policy for Nepal.

Second, due to the various water-induced disasters such as floods and landslides, the Nepali government in collaboration with the government of Japan established Disaster Prevention Technical Centre (DPTC) at the Ministry of Water Resources (MoWR) in 1991. Japan International Cooperation Agency (JICA) funded this initiative until 1999. The objective was to build the capacity of the government to cope with

hazards such as landslides, debris flows, soil erosion and flooding through the development of technology suitable to Nepal and training for personnel working in these fields. The entire focus of DPTC was rehabilitation and reconstruction. Further, Nepal also adopted the Yokohama Plan of Action in 1996. Nepal constituted a national committee under the aegis of International Decade for Natural Disaster Reduction (IDNDR) to chalk out a national plan for disaster management. The plan focused on aspects of preparedness, response, rehabilitation and monitoring and evaluation activities.

Third, a multi-party system was established in 1990, ending the one-party *panchayat* government (local level administration). This political and administrative change also allowed various national and international NGOs to penetrate into various rural and interior locations. Our respondents mentioned that after 1990, there was an increase in the number of national and international non-governmental organizations (NGOs) in Nepal focusing on disasters. In the 1990s, international NGOs such as Practical Action and CARE Nepal also started to focus on community-based 'human infrastructure development' approach. Association of International (AIN) NGOs was also established in 1996 as an umbrella organization to foster harmony and promote cooperation between organizations. Various INGOs started projects on the theme of environment and poverty reduction, mainly with an emphasis on the development needs of the vulnerable communities. During this time a small number of INGOs started to incorporate themes of disaster management into their work in Nepal. However, for the majority, the late 1980s and early 1990s disaster management was still an emerging theme. Red Cross Nepal was the only organization explicitly working on disasters, but their entire focus was on post-disaster response and relief.

Our respondents emphasised that this paradigm change towards disaster risk reduction and management does not mean that the response and recovery paradigm is diluted. In Nepal, the response and recovery disaster paradigm is still prominent as the capacity of the communities to mitigate disaster risk is still weak. Moreover, there is a lack of financial and human resources within federal, provincial and local government departments that are required to build communities resilience and adaptive capacity to mitigate disasters. With limited capacities, there is more encouragement towards response and recovery paradigm in the disaster policies and plans.

4.2. Disaster risk reduction and management (1997- ongoing)

From 1997 onwards, the dominant paradigm in Nepal was disaster risk reduction and management (see Fig. 1). The 9th and 10th Five Year Plan documents (1997–2002; 2002–07) and National Water Plan (2002) in Nepal emphasised infrastructure development and improved information services on disasters. For instance, the 9th FYP document states "... application of new information technology will be emphasised as regards to the essential, preventive, and protective measures to be adopted at the time of natural disasters such as flood ..." (pg. 58, 9th FYP). From 2003 onwards Nepal framed their development policies on how disasters increase vulnerability and risk for the poor (see Fig. 1). This is mentioned in the 10th FYP, stating "... behind regional inequalities in Nepal is the centralized structure and vision of the State, political instability, ...environmental degradation and natural disasters" (pg. 80, 11th TYP). Moreover, in 2005 Nepal also adopted the Hyogo Framework of Action (2005–15), which eventually resulted in the formulation of National Strategy for Disaster Risk Management (NSDRM) in 2009. The policy goals in various policy documents emphasised water-induced risks and were persistent on the need for data and information. Legislatively, the Department of Water Induced Disaster Management was established in 2000 with funds and grants allocated for developing a management information system to flood-prone areas. Simultaneously, the financial efforts continued towards relief and response, when the 11th FYP established the national disaster fund for relief and rehabilitation. Our respondents confirmed that disaster paradigm of response and recovery continue to overlap with the disaster paradigm of risk reduction. In various future FYPs, the

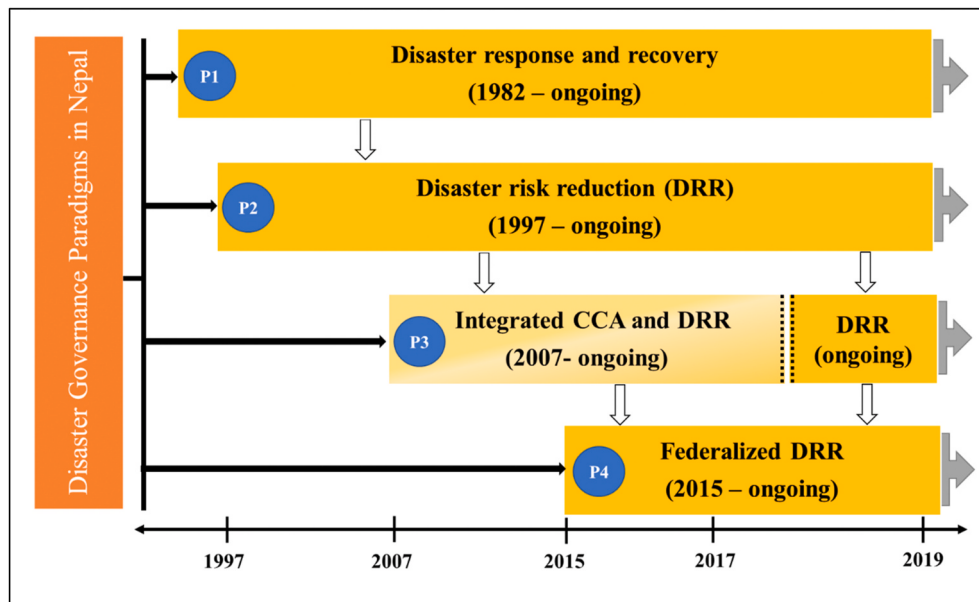


Fig. 1. Disaster governance paradigms in Nepal.

state continues to allocate funds and structural support for both response and recovery and DRR paradigms.

4.2.1. Paradigm change (P2 to P3)

From disaster risk reduction, the disaster governance paradigm in Nepal gradually started to change towards integrated climate change adaptation and disaster risk reduction. During this time Nepal became more stable after it signed the peace treaty with the communist party in November 2006 ending 10 years of conflict. Our respondents mentioned that this resulted in a broadening of focus from activism on human rights and conflict resolution to include environmental issues and infrastructure development. With the pressure from INGOs, the government of Nepal also started to participate in the annual Conference of Parties (COP) UNFCCC process. Simultaneously, there was international pressure and motivation for least developed countries to prepare National Adaptation Programme for Action (NAPAs) and to increase the emphasis on climate change adaptation. This was particularly to reduce the immediate and short-term impacts of climate-induced disasters, despite minimal contribution to emissions. Nepal started the process to prepare NAPA in 2010, with the anticipation to attract large funds from the adaptation fund and other international donor agencies for climate change adaptation and reduce the impact of climate-induced disasters.

4.3. Integrated climate change adaptation and disaster risk reduction (2007- ongoing)

From 2007 onwards, climate change adaptation (CCA) emerged as an overarching theme for disaster governance paradigm in Nepal. The policies and plans were framed around CCA and how it can be used to increase the adaptive capacity of the vulnerable and disaster-affected communities. During this period policy documents such as NAPA (2010), climate change policy (2011), local adaptation plans for action (LAPA) framework were prepared. Recently, Nepal has also come up with the new national climate change policy, aligning its goals with the new federal structure of Nepal [39]. During the 4th Asian Ministerial Conference on Disaster Risk Reduction, Incheon REMAP was adopted by Nepal; which aims to address DRR through climate change adaptation. One of the policy goals of the Incheon regional roadmap was to establish climate-resilient disaster risk management systems that contribute to sustainable development at the regional, national, sub-national and community levels by 2015. Further, in the 12th Three Year Plan (TYP,

2010–13) a separate chapter was dedicated to climate change with special emphasis on CCA. Further, the chapter also highlighted the integration of CCA and DRR. For instance, one of the policy strategy stated in the TYP is “*acclimatize climate change, and manage and preserve natural resources along with the continuation of disaster risk reduction, poverty reduction, and poverty-environment initiative*” (pg. 160, TYP, 2010–13).

Regarding the financial policy instruments, one of the respondent mentioned that the government of Nepal initiated the Nepal Climate Change Support Programme (NCCSP) and more than 100 LAPAs were implemented in fourteen districts. Our respondents confirmed that many of these LAPAs exclusively focused to reduce the impacts of disasters. In relation to the legal instrument, the climate change policy ensured that the NCCSP would use 80% of their funds at the local level for implementation purposes.

4.3.1. Paradigm change (P3 to P4)

From integrated CCA and DRR paradigm, Nepal is moving towards a federalized disaster risk reduction paradigm. This change in paradigm can be considered as a change towards a new paradigm as it aims to federalize disaster governance. Our respondent attributed this change to two main reasons. First, in 2015 Nepal was struck with Gorkha Earthquake. During the earthquake, Nepal’s immediate focus went to disaster response and recovery, and DRR. This change did not particularly result in the formulation of a completely new paradigm but DRR emerged with a new avatar, where the federalized administrative structure decentralized DRR planning and implementation in Nepal. The emergence of federalized DRR paradigm reflects, what we previously suggested, that the previous paradigms do not get diluted but are simply becoming part of multiple paradigm landscape. Along with the government, various international and national NGOs initiated disaster risk reduction programmes at the local level. The 2015 Gorkha Earthquake brought a change in attitude on the part of the planners, government officials, donor agencies and civil society actors and calls were unanimous for the need of a coordinated disaster preparedness and response mechanism. This call resulted in a new Disaster Risk Reduction and Management (DRR&M) Act that came into force in 2017; this act is coherent with the new constitutional amendments for federalized local-level governance. The DRR&M Act is to be implemented by the independent DRR&M authority, which will function at different levels of governance. Ministry of Home Affairs (MoHA) is responsible for the constitution of the

authority, however, there has been delay in the formulation of the authority. One of our respondent mentioned that

“The executive committee headed by MoHA has been deliberating on the structure and the people to be inducted in the authority. It will not be easy for the authority to coordinate with armed forces and other ministries, which is currently coordinated by a MoHA. The constitution of authority also needs approval from Ministry of Finance and Ministry of General Administration for recruitment of human resources. MoHA has been somehow purposefully delaying the constitution of the authority as it will reduce their control over disaster governance and related authorities in Nepal.”

The above statement have also been supported by other respondents, showing that disaster governance in Nepal is very nuanced and complex. The disaster governance in Nepal functions at the expense of powerful government agencies and its line departments. In such an environment, Nepal has taken the direction of implementing federalized DRR paradigm, hoping it will improve the situation of communities at risk.

Second, our respondents mentioned that many policy actors, including the government of Nepal is disappointed with the financial support on climate change issues. Nepal prepared necessary legislative instruments to implement CCA, but there was insufficient funding from the international donor agencies and green climate fund (GCF). Only one national agency, Alternative Energy Promotion Centre (AEPIC) could qualify the accreditation process of GCF. Moreover, Nepal could not qualify as a national implementing entity (NIE) for adaptation fund due to stringent criteria. GCF guidelines are strict and require strict adherence to corruption charges and accountability. Nepal currently ranks 113 out of 180 countries and does not have a history of stable political and administrative structure (Transparency International, 2020). Considering such criteria, Nepal failed to qualify for NIE status. Based on our interviews we suggest a lack of funding for climate change adaptation leads to the loss of trust among Nepal's policy actors and contributed further to the change in disaster governance paradigm.

4.4. Federalized disaster risk reduction (post-2015)

After the 2015 Earthquake, the entire framing of Nepal disaster governance changed towards disaster risk reduction and recovery. Our respondents mentioned that this was due to high-level fatalities and heavy infrastructure losses, as well as a partial failure of all the previous paradigms to develop the adaptive capacity of the vulnerable communities. Further, the 2015 earthquake highlighted the political inertia towards implementing disaster management reform leaving the government open to criticism from public and civil society (Jones et al., 2016; [40]). The official development assistance expenditure increased by 72% between 2014 (US\$ 884 million) and 2015 (US\$ 1225 million) in Nepal, pertaining to disaster relief and various other efforts on DRR. During this period, policy and plans were framed to rejuvenate the paradigm of disaster risk reduction and management. The new DRRM Act was passed in the parliament in 2017 and the act was prepared in accordance with the recent amendments in Nepal's constitution. The changes relate to establishing federal structure, allocating more financial and administrative powers to local governance (new rural and urban municipalities) (for a detailed look at post 2015 policy reforms see Refs. [41]). Further, the national policy for disaster risk reduction (NPDRR, 2018) was drafted, which states “... as per the Constitution of Nepal, this policy will adopt the principle of coordination and cooperation among local, provincial and Federal government in the disaster risk reduction, prevention and management (pg. 7, NPDRR, 2018). Similar framing of DRR is re-iterated in the 14th TYP and the 15th Five Year Plan of Nepal. The policy goal of NPDRR (2018) aims to reduce disaster mortality and increase resilience by investments in critical infrastructures and disruption of basic services such as agriculture, roads, communication, water supply and sanitation, education and health facilities. Regarding the

financial instrument, the NPDRR aims to establish a disaster management fund at federal, provincial and local levels. As a legislative instrument, the DRR&M Act was passed in the parliament mandating each of the provincial governments (7) to prepare their respective DRR acts based on their needs and vulnerabilities.

5. Discussion

In this section, we will present three key reflections based on the above-mentioned findings of the disaster governance paradigms in Nepal.

First, the older disaster governance paradigms have not diluted with the emergence of the new ones. Instead what is currently seen is that multiple paradigms landscape, which is being implemented by different actors and sectors dependant on needs, comprehension and capacity. These paradigms represent a negotiation between the past, present and future disaster governance needs in Nepal; for instance, the response and recovery paradigm in Nepal is still prominent in disaster governance, despite various new policies and actors stating their goal is working within the disaster risk reduction paradigm. The main underlying reasons for this can be seen in the findings that the last two decades of disaster governance in Nepal has been mandated by the Ministry of Home Affairs (MoHA) [5,17]. This is one of the most prominent and influential ministries in Nepal, that controls security forces such as police and armed forces who are the first responders for relief tasks and measures after a hazard. These security forces are well trained in response and recovery efforts in the versatile terrains of Nepal. Moreover, our findings indicated that a close partner to MoHA is Red Cross Nepal, who currently provide staff for District Emergency Operating Centres (DEOC) and Local Emergency Operating Centres (LEOC) and act as the secretariat for District Administration Office (DAO) regarding DRR. Red Cross Nepal is extremely efficient in response and recovery but has little experience in disaster risk reduction and building resilience in vulnerable communities. Thus, the overpowering influence of MoHA and Red Cross in shaping disaster governance in Nepal has resulted in ‘response and recovery’ remaining a prominent feature within disaster governance, to the extent that it is often conflated with risk reduction and management strategies. This interplay between actors also suggests that these multiple disaster governance paradigms could be utilised as a political tool [40].

Second, our findings revealed that despite its influential position in the DRR governance landscape, the MoHA relies heavily on various international and national NGOs, bilateral and multilateral agencies and donor agencies. These actors have a prominent role in influencing Nepal's disaster governance, resulting in disaster risk reduction as a theme being heavily donor-driven [42,43]. A good example of MoHA reliance on outside expertise as a positive relationship is the annual Nepal Disaster Risk Reports. These reports have been predominantly funded and written by INGO's and UN agencies with the MoHA only taking full ownership for the 2019 edition [5,17]. As such we argue that the progress in national level DRR, in part, can be attributed to the international humanitarian and development community who have challenged and reconfigured MoHA policy towards disaster via means such as funding conditions and through collaboration. However, we found that at the provincial and district level where there are fewer international actors, there has yet to be a significant change from the recovery and response paradigm to DRR paradigm. This slow evolution of disaster paradigms within the MoHA is also compounded by the transient nature of bureaucratic hiring and transfers. Multiple respondents pointed to the high turnover of staff in the MoHA which has resulted in a lack of consistency in knowledge dissemination and development; the revolving door of staff have to be consistently retrained in DRR hindering progress.

Paradoxically as a negative outcome, it is the reliance that the MoHA has on international donors that contributes to the confusion in Nepal's disaster governance landscape (Jones, 2014; [42]). This relationship between MoHA and other non-state actors can result in conflicting

outcomes. It is extremely difficult to point out a single paradigm that has shown successful results. We argue that this can be attributed to the shift from the government to governance in the context of disasters. This shift can be attributed to a twofold reasoning. First, in the last three decades, NGOs and INGOs have shown some promising results in the field of microfinance, forest management and irrigation management in Nepal [44,45]. Such initiatives have improved the economic well-being of communities by job creation, empowered the marginalized groups and have also build capacity [44]. Considering such success, communities have put their trust in non-governmental organizations as compared to state agencies, which are marked by corruption and lack of transparency. Second, due to a long political turmoil and instability in Nepal, various NGOs and INGOs have been able to make space in the environmental discourse at the national level [42]. Moreover, these agencies have a vision to bring on-the-ground changes in Nepal, and in cases have shown promising results. These two underpinnings have shifted the frame of the policy-making and implementation from government to governance. The United Nations and a constellation of several non-governmental actors having a strong influence on the disaster agenda of Nepal; so much so, that Nepal would not have prioritised disaster risk reduction without the pressure and influence of these actors [5].

With a strong focus and capacity of government line agencies (MoHA) on response and recovery and a low capacity on disaster risk reduction, it is easy for the civil society actors (international and national NGOs) to influence and shape the disaster governance paradigms [46]. However, our interviews suggest they do so based on their knowledge, expertise, resources, and agendas, resulting in various overlapping and often confusing governance paradigms. The existence of multiple paradigms has resulted in the division of resources and a lack of coordinated efforts to tackle disasters. Worryingly, according to our respondents, this division of resources is stifling the impact on-the-ground. Yet, there is hope for change in this situation with the new DRR&M Act that has created a separate authority for disaster governance, which will operate across all scales of governance. However, at the time of writing, and based on interviews, the MoHA have been reluctant to give away its power of managing and governing disasters to DRR&M authority.

Third, the push from the Gorkha earthquake in 2015 may result in an opportunity lost. After the earthquake, there was sufficient influx of funds and necessary pressure on the civil society actors and the government of Nepal to make positive policy efforts [41,47]. The DRR&M Act was passed and various other policy efforts such as revised building codes, disaster-resistant housing in the rural areas, building knowledge and capacity at the local and provincial levels were made [41]. However, our respondents suggested that with the constitutional amendments in the administrative structure of Nepal, there is a lack of clarity which is emerging as political struggle between the actors at different levels that needs to be addressed. Respondants gave an example of this struggle as shown between districts and the newly formed local (rural and urban) municipalities. They said that under the Nepali constitution (2015), local level municipalities have autonomy, funds and decision-making power to address their DRR need as they choose. Yet, they do not have the mandate to deploy army and police in the event of a disaster, which sits with the chief district officer; hierarchically, lower in the federal structure than the local municipal chair. This results in competing levels of authority, a lack of willingness to co-operate, contested decision-making autonomy in relation to local recovery and response needs, and preparedness needs. We argue that this lack of clarity is further compounded by poor resources and human capacity within the local government bodies with many of the newly elected officials still undergoing training for their new roles. Further with MoHA reluctances to transfer power to emerging disaster authority there is a real concern that power dynamics at the national level between different ministries might also impede the current efforts.

6. Conclusion

In this article, we respond to the research question of *how different disaster governance paradigms have emerged in Nepal in the last three decades?* The concept of disaster governance paradigms is useful as it explains the underlying thinking of plans and policies and illustrates the gaps in governing disasters in the least developed country context. Further, the concept of paradigms helps in presenting a normative value as well as the reality of disaster governance, by reflecting on the changes in different policy documents in the last three decades. The concept of disaster paradigms and the analysis position our article to gain an empirical understanding of nuances of disaster governance of other least developed countries in the Global South. The article explains the underlying catalysts for the change in these paradigms. Based on our analysis, we identified four major disaster governance paradigms in Nepal – (1) response and recovery; (2) disaster risk reduction and management; (3) integrated climate change adaptation and disaster risk reduction; and (4) federalized disaster risk reduction. Nepal has evolved from one paradigm to the other, without diluting the earlier ones.

There are underlying reasons for the existence of multiple disaster governance paradigms and can be attributed to three important reasons. First, there is a high influence of MoHA (nodal authority for governing disasters in Nepal) over disaster governance, leading to response and recovery as the major disaster governance paradigm. Second, with a high dependency on civil society organization and donor agencies, the paradigms of disaster governance changes with their knowledge and expertise. Third, the new federal system of Nepal is still evolving and will take time to set its priorities clearly. Currently, there is lack of co-ordination between different levels of government and the new officials lack capacity, knowledge and resources to design mechanisms of successful disaster governance. However, we can argue that with the continuous change from government to governance approach in the last three decades, the constellation of actors is becoming polycentric and decentralized. With such positive traits of governance, Nepal can make progress in terms of successfully governing and managing future disasters.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- [1] R. Djalante, C. Holley, F. Thomalla, Adaptive governance and managing resilience to natural hazards, *International Journal of Disaster Risk Science* 2 (4) (2011) 1–14.
- [2] NSDRM, National Strategy for Disaster Risk Management in Nepal (Draft). Government of Nepal, United Nations Development Programme, Nepal, 2008. National Society for Earthquake Technology – Nepal; and the European Commission for Humanitarian Aid).
- [3] MoHA, National Strategy for Disaster Risk Management, 2009 (Unofficial Translation), Ministry of Home Affairs (MoHA), UNDP and the European Commission for Humanitarian Aid, 2009. <http://un.org.np/sites/default/files/report/2010-08-06-nsdrm-in-eng-2009.pdf>. (Accessed 17 February 2020).
- [4] S. Williams, K. Jacobs, Introduction: disasters, housing, actuarialism and the securitisation of risk, *Hous. Stud.* 26 (2) (2011) 185–195.

- [5] S. Jones, K.J. Oven, B. Manyena, K. Aryal, Governance struggles and policy processes in disaster risk reduction: a case study from Nepal, *Geoforum* 57 (2014) 78–90.
- [6] MoHA, National Policy for Disaster Risk Reduction, Ministry of Home Affairs (MoHA) and UNDP, 2018. <http://drrportal.gov.np/uploads/document/1476.pdf>. (Accessed 17 February 2020).
- [7] K. Oven, J. Rigg, S. Rana, A. Gautam, T. Singh, # leave no one behind: women, gender planning and disaster risk reduction in Nepal, in: *Climate Hazards, Disasters, and Gender Ramifications*, Routledge, 2019, pp. 138–164.
- [8] S. Vij, R. Biesbroek, A. Groot, K. Termeer, Changing climate policy paradigms in Bangladesh and Nepal, *Environ. Sci. Pol.* 81 (2018) 77–85.
- [9] P.A. Hall, Policy paradigms, social learning, and the state: the case of economic policymaking in Britain, *Comp. Polit.* (1993) 275–296.
- [10] M. Howlett, Process sequencing policy dynamics: beyond homeostasis and path dependency, *J. Publ. Pol.* 29 (3) (2009) 241–262.
- [11] S.B. Manyena, Disaster and development paradigms: too close for comfort? *Dev. Pol. Rev.* 30 (3) (2012) 327–345.
- [12] D.A. McEntire, C. Fuller, C.W. Johnston, R. Weber, A comparison of disaster paradigms: the search for a holistic policy guide, *Publ. Adm. Rev.* 62 (3) (2002) 267–281.
- [13] A. Aitsi-Selmi, S. Egawa, H. Sasaki, C. Wannous, V. Murray, The Sendai framework for disaster risk reduction: renewing the global commitment to people's resilience, health, and well-being, *International Journal of Disaster Risk Science* 6 (2) (2015) 164–176.
- [14] R. Djalante, F. Thomalla, Disaster risk reduction and climate change adaptation in Indonesia: institutional challenges and opportunities for integration, *International Journal of Disaster Resilience in the Built Environment* 3 (2) (2012) 166–180.
- [15] T. Gibson, B. Wisner, Global overview of the role of NGOs in natural hazard governance, in: *Oxford Research Encyclopedia of Natural Hazard Science*, 2019.
- [16] A.S. Chaudhury, M.J. Ventresca, T.F. Thornton, A. Helfgott, C. Sova, P. Baral, J. Lighthart, Emerging meta-organisations and adaptation to global climate change: evidence from implementing adaptation in Nepal, Pakistan and Ghana, *Global Environ. Change* 38 (2016) 243–257.
- [17] Samantha Jones, Katie J. Oven, Ben Wisner, A comparison of the governance landscape of earthquake risk reduction in Nepal and the Indian state of Bihar, *International Journal of Disaster Risk Reduction* 15 (2016) 29–42.
- [18] United Nations Development Programme. Bureau for Crisis Prevention, Reducing Disaster Risk: A Challenge for Development-A Global Report. United Nations, 2004.
- [19] P. Daly, S. Ninglekhu, P. Hollenbach, J. Duyne Barenstein, D. Nguyen, Situating local stakeholders within national disaster governance structures: rebuilding urban neighbourhoods following the 2015 Nepal earthquake, *Environ. Urbanization* 29 (2) (2017) 403–424.
- [20] M.A. Miller, M. Douglass, Disaster governance in an urbanising world region, in: *Disaster Governance in Urbanising Asia*, Springer, Singapore, 2016, pp. 1–12.
- [21] K. Popper, *The Logic of Scientific Discovery*, 1934 (New York).
- [22] T.S. Kuhn, *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago and London, 1962.
- [23] D. Chong, J.N. Druckman, Framing theory, *Annu. Rev. Polit. Sci.* 10 (2007) 103–126.
- [24] J.B. Houston, B. Pfefferbaum, C.E. Rosenholtz, Disaster news: framing and frame changing in coverage of major US natural disasters, 2000–2010, *Journal. Mass Commun.* 89 (4) (2012) 606–623.
- [25] K. Chmutina, J. Von Meding, A dilemma of Language: “Natural disasters” in academic literature, *International Journal of Disaster Risk Science* 10 (3) (2019) 283–292.
- [26] D. Henstra, The tools of climate adaptation policy: analysing instruments and instrument selection, *Clim. Pol.* 16 (4) (2016) 496–521.
- [27] M. Howlett, What is a policy instrument? Tools, mixes, and implementation styles, *Designing government: From instruments to governance* (2005) 31–50.
- [28] A. Schneider, H. Ingram, Behavioral assumptions of policy tools, *J. Polit.* 52 (2) (1990) 510–529.
- [29] L.M. McDonnell, R.F. Elmore, Getting the job done: Alternative policy instruments, *Educ. Eval. Pol. Anal.* 9 (2) (1987) 133–152.
- [30] D. Henstra, J. Thistlethwaite, T. Dordi, Evaluating the suitability of policy instruments for urban flood risk reduction, *Local Environ.* 25 (2) (2020) 101–113.
- [31] J. Linnerooth-Bayer, S. Hochrainer-Stigler, Financial instruments for disaster risk management and climate change adaptation, *Climatic Change* 133 (1) (2015) 85–100.
- [32] K.R. Aryal, The history of disaster incidents and impacts in Nepal 1900–2005, *International Journal of Disaster Risk Science* 3 (3) (2012) 147–154.
- [33] C. Pradhan, R. Chauhan, Disaster resilience for sustainable development in Nepal, in: *International Expert Forum: Mainstreaming Resilience and Disaster Risk Reduction in Education*, Springer, Singapore, 2017, pp. 21–33.
- [34] D. Pathak, P.K. Mool, Climate Change Impacts on Hazards in the Eastern Himalayas, *International Centre for Integrated Mountain Development (ICIMOD)*, Kathmandu, Nepal, 2010.
- [35] S. Von Einsiedel, D.M. Malone, S. Pradhan (Eds.), *Nepal in Transition: from People's War to Fragile Peace*, Cambridge University Press, 2012.
- [36] I. Payne, B. Basnyet, Nepal's federalism is in jeopardy. The diplomat, Retrieved from, <https://thediplomat.com/2017/07/nepals-federalism-is-in-jeopardy/>, 2017.
- [37] D. Yanow, *Conducting Interpretive Policy Analysis*, vol. 47, Sage Publishers, 2000.
- [38] M.I. England, L.C. Stringer, A.J. Dougill, S. Afionis, How do sectoral policies support climate compatible development? An empirical analysis focusing on southern Africa, *Environ. Sci. Pol.* 79 (2018) 9–15.
- [39] MoFE, National Climate Change Policy, 2019, Ministry of Forests and Environment (MoFE), 2019. <http://www.mofe.gov.np/downloadsdetail/8/2018/36366627/>. (Accessed 17 February 2020).
- [40] Iain Watson, Resilience and disaster risk reduction: reclassifying diversity and national identity in post-earthquake Nepal, *Third World Q.* 38 (2) (2017) 483–504.
- [41] Dipendra Gautam, *Past And Future Of Earthquake Risk Reduction Policies And Intervention In Nepal* in Impacts and Insights of the Gorkha Earthquake, Elsevier Inc, 2018.
- [42] Bahul Shrestha, Pairrote Pathranarakul, Nepal government's emergency response to the 2015 earthquake: a case study, *Soc. Sci.* 7 (8) (2018).
- [43] S. Vij, R. Biesbroek, A. Groot, K. Termeer, B.P. Parajuli, Power interplay between actors: using material and ideational resources to shape local adaptation plans of action (LAPAs) in Nepal, *Clim. Pol.* 19 (5) (2019) 571–584.
- [44] J. Pretty, H. Ward, Social capital and the environment, *World Dev.* 29 (2) (2001) 209–227.
- [45] H. Ojha, L. Persha, A. Chhatre, Community Forestry in Nepal: a Policy Innovation for Local Livelihoods, *International Food Policy Research Institute*, 2009, p. 913.
- [46] Andrea J. Nightingale, *Geoforum Power and Politics in Climate Change Adaptation e Ff Orts : struggles over Authority and Recognition in the Context of Political Instability*, *Geoforum* 84 (May) (2017) 11–20.
- [47] Bisri, Mizan Bustanul Fuady, Shohei Beniya, Analyzing the national disaster response framework and inter-organizational network of the 2015 Nepal/Gorkha earthquake, *Procedia Engineering* 159 (June) (2016) 19–26.