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Changing climate policy paradigms in Bangladesh and Nepal

Sumit Vij[a,*], Robbert Biesbroek[a], Annemarie Groot[b], Katrien Termeer[a]

[a] Public Administration and Policy Group, Wageningen University & Research, The Netherlands
[b] Wageningen Environmental Research, Wageningen University & Research, The Netherlands

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ABSTRACT

The aim of this article is to explain and compare the changes in climate policy paradigms (CPPs) of Bangladesh and Nepal. Climate policies are shaped by the underlying CPPs that refer to a dominant set of prevailing and institutionalized ideas and strategies to reduce the impacts of climate change. We focus the analysis on the timeframe between 1997 and 2016, using policy documents (n = 46) and semi-structured interviews (n = 43) with key policy actors. We find that in both countries several CPPs have emerged: disaster risk reduction, climate change adaptation, mainstreaming, and localized action for adaptation. In Bangladesh, specific policy goals and instruments for each CPP have emerged, whereas in Nepal the government has been struggling to develop specific policy instruments to implement the paradigms. We conclude that competing CPPs currently exist which creates diversified policy responses to climate change impacts in both countries. This 'layering' of different CPPs can be attributed to drivers such as unstable political situation, lack of financial support, influence of national and international non-governmental organizations and global policy frameworks. The findings in our study are relevant to further discussions on how to design future climate policy responses to adapt to climate change.

1. Introduction

Adaptation is necessary to lessen the current and future climate impacts. Particularly in highly vulnerable countries like Bangladesh and Nepal additional efforts are needed to increase adaptive capacity and reduce social vulnerability (Adger et al., 2003; Huq et al., 2004). Since 2000, the governments in these two countries have implemented various policies and plans to systematically reduce climate impacts (Vij et al., 2017). Underlying the design and implementation of these policies and plans are climate policy paradigms (CPPs), which refer to a comprehensive set of prevailing and institutionalized ideas and strategies of (policy) actors. The CPPs circumscribe the ways in which policy actors choose to frame particular policy issues, select types of instruments or allocate resources (Hall, 1993). One policy issue can be addressed by multiple paradigms, although tensions and trade-offs are then likely to emerge between competing policy paradigms (de Leon and Pittock, 2017).

The rapidly evolving debates on how to address the climate change impacts have resulted in a mushrooming of CPPs and policies in various policy arena's (Fankhauser et al., 2015). Particularly for least developed countries (LDCs), literature suggests that the CPPs are strongly influenced by the international arenas, particularly the United Nations Framework Convention on Climate Change (UNFCCC), the Inter-governmental Panel on Climate Change (IPCC), bilateral organizations, and donor agencies (Rahman and Giessen, 2017). Apart from global drivers, the interests and knowledge of national policy actors drive the emergence and shape the CPPs. For instance, vested interests of national NGOs to capture foreign funding and political leaders to meet the interests of voters further shapes the CPPs (Barr et al., 2005). National policy drivers influence CPPs as much as the CPPs influence the drivers of change. So far, we know little about the CPPs and the drivers of CPP change and what this means for Bangladesh and Nepal aiming to reduce climate change vulnerabilities. Drivers of CPP change may include financial support, technical and social knowledge, political willingness, and global policy frameworks.

To design and implement effective climate policies in countries like Bangladesh and Nepal, it is pertinent to understand the past and current CPPs as these inform future policy actions. The article, therefore, aims to address two related questions: *1) What are the different CPPs that have emerged in the last two decades in Bangladesh and Nepal? 2) What drives the emergence and change of CPPs in these two LDCs?* Better understanding of policy paradigms and how this relates to policy actions is instrumental to future climate policies.

The remainder of the article is structured as follows. Section 2 elaborates the conceptual framework to operationalize the concept of CPPs and drivers of policy paradigm change. The methodology section introduces the selection of cases, data collection methods, and analysis. Section 4 presents the findings by demonstrating the emergence and

* Correspondence to: P.O. Box 8130, Hollandseweg 1, 6700EW, Wageningen, The Netherlands.
E-mail address: sumit.vij@wur.nl (S. Vij).

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Table 1
Indicators of climate policy paradigms.

	Indicators	Description and key question
Climate policy paradigm (CPP)	Framing	How is the policy issue framed in terms of policy language used in the policy documents?
	Policy goal(s)	What are the climate specific policy goal(s) mentioned in the policy documents?
	Meso-level area(s)	Which are the relevant policy sectors for the implementation of climate policy?
	Financial policy instrument(s)	What are the financial policy instruments that are introduced at the ministry level to routinize the policy?

change of different CPPs in Bangladesh and Nepal, and describing the drivers that have influenced the change from one CPP to another. The discussion section compares the two cases, reflecting on the modes of CPP change and policy progress.

2. Policy paradigms and drivers of change

The conceptual underpinning of this article is inspired by Hall's seminal work on policy paradigms. He defines policy paradigm 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*" (Hall, 1993). Rooted in historical institutionalism, the argument is that paradigms are the underlying forces that determine the ways in which governments address policy issues such as climate change (Béland and Cox, 2013). Building on Hall's work, Howlett (2009) argues that policy paradigms strongly influence the formulation of policy goals and objectives, selection of instruments, and set the preference for implementation by actors. The existence of policy paradigms, therefore, influences the ways in which actors respond to particular issues as it sets prevailing ideas about what is considered logical, acceptable, appropriate and desirable.

2.1. Operationalizing policy paradigms

To operationalize this conceptualization of climate policy paradigms, we deconstruct it into a (1) prevalent set of ideas that is framed to reduce climate change impacts; (2) resulting in specific policy goal (s); (3) involves certain meso-level policy areas to achieve the goal(s); and (4) is operationalized and routinized by the government through certain financial policy instrument(s) (Table 1). We argue that a policy paradigm is in place when all four components are present and interlinked to each other.

The first indicator, **framing**, refers to how policy actors interpret, giving meaning to the problem of climate change impacts and which solutions are proposed (Dewulf, 2013). For example, climate change can be framed as a negative externality to the human system that can affect the health, education and other development aspects (human vulnerability-centered framing), while it can also be framed as a biophysical challenge damaging the ecosystem (climate-centered framing) (O'Brien et al., 2007). These two different frames can result in different policy goals and instruments to reduce the impacts of climate change.

The second indicator, **policy goal(s)**, refers to the main objective of a climate policy and indicates the integration of climate change in the governance system. The policy goals are often influenced by the framing of the problem and set the scope for further implementation through the choice of instruments (Candel and Biesbroek, 2016). Different policy goals can co-exist within the same climate policy. For example, to reduce the impacts of short-term disasters, goals are designed, emphasizing on flood-resistant infrastructure and disaster relief. Also, to improve the adaptive capacity of the communities, separate goals are developed stressing education and health sectors.

Third, **meso-level areas** are policy sectors that have specific goals to tackle climate change impacts. Whilst there can be overarching goals in how to address climate change impacts across sectors, each sector is expected to integrate climate responses in their own policy portfolio. Identifying meso-level areas is, therefore, necessary as it helps to operationalize the policy goals and select instruments used within the sector (Howlett, 2009). Important meso-level areas for climate change include agriculture, water, forests, and energy policy sectors.

Finally, **policy instruments** are the resources at the disposal by government(s) to intervene and implement policy action, so as to achieve the set policy goals. Various policy instruments have been reported such as knowledge, treasure, authority, and organization (Henstra, 2016). Emphasis in this study is on financial policy instruments, as they can clearly demarcate the services rendered by climate policies in an abstract or a specific way (Howlett, 2009). The range of financial policy instruments to achieve climate policy goals may include funds, subsidies, taxation, tax benefits, grants, interest free credit, and credit waivers.

2.2. Drivers of change

While generally stable, policy paradigms can change, as a result of various drivers, such as institutional and political failures of the existing system or through social learning (Hall, 1993). Some scholars argue that the changes are abrupt and sudden (punctuated equilibrium theory) whereas others emphasize on gradual changes (incrementalism). Baumgartner and Jones (1991) explained policy change processes as periods of marginal changes with critical junctures. In the context of climate change, it is often attributed to external shocks, such as flooding or droughts. However, Mahoney and Thelen (2010) argue that there are internal governmental dynamics that create gradual changes of the system. In reality, it is often a combination of drivers from different sources that are responsible for change.

Various categories of possible drivers have been developed. One distinction is between endogenous and exogenous drivers of policy change. Williams (2009) suggests that exogenous drivers such as globalization and international economic crisis are responsible for bringing policy paradigm change. Carmin et al. (2012) discusses endogenous forces, such as the role of civil society actors in pushing the public servants to implement the climate mitigation plans along with adaptation strategies in the urban areas. Another categorization is based on governance levels by distinguishing between domestic and international drivers (Capano and Howlett, 2009).

In this article, however, we do not constrain ourselves to such classifications, but rather empirically investigate the causal conditions to drivers of the empirically observed change that follows from changes in the indicators of Table 1.

2.3. Modes of change

The changes in paradigms can manifest in various ways, often following similar patterns. Frequently used modes to characterize changes in policy paradigms include layering, drift and conversion (Van der Heijden and Kuhlmann, 2017). *Layering* refers to a process of gradual change in which new frames, goals and instruments are added to existing institutions without replacing the pre-existing one (Mahoney and Thelen, 2010). *Drift* refers to a process where there is a change of the existing institutions or elements due to shifts in the external environment (Hacker and Pierson, 2010). Finally, *conversion* is understood as redeployment of existing elements of an institution for new purposes

(Hacker, 2004). Characterizing the modes of change allows to further detail the outcome of specific drivers of change. For example, studies show that 'drift' can be the result of how policy inaction can change policy outcomes due to the inability of policymakers to respond to underlying changes in the larger social and economic context.

3. Methodology

We use the above discussed conceptual framework to study the emergence and changes of policy paradigms in Bangladesh and Nepal (see Appendix A in Supplementary material, Fig. 3). These Least Developed Countries are selected because they are highly vulnerable and generally have low readiness to climate change impacts (Kreft et al., 2014). The vulnerability between the two countries varies: Bangladesh is particularly vulnerable to sea and river flooding (Huq et al., 2004) whereas floods from glacier outburst are already causing temporary displacement and disruption of livelihoods in Nepal (Kilroy, 2015). The two countries also share climate change impacts due to their common natural resources such as rivers and mountains (Hijioka et al., 2014). In addition, the two countries offer sufficient information to allow for a longitudinal analysis of policy paradigm change and both countries have different ways of governing climate change impacts between 1997 and 2016 (Saito, 2013). (For more information on Bangladesh and Nepal see Appendix A in Supplementary material, pg. 1 and 2)

3.1. Data collection

The article uses an interpretive approach and employs a case study method to answer the two research questions (Yanow, 2000). Fig. 1 below highlights the three data collection strategies. Strategy A – a systematic Google search was conducted to identify relevant policy documents using the web-search strings (Austin et al., 2015; Panic and Ford, 2013). Documents were included when there was explicit reference to climate change impacts. The web-search was concluded when the results started to repeat and reached consecutive irrelevant results (see Appendix A in Supplementary material, Tables 1 and 2). The database of policy documents was supplemented with key policy documents mentioned by the interviewees. Strategy B- 43 interviews were conducted in August-December 2016, 27 in Bangladesh and 16 in Nepal. The interview respondents were identified by google searches, from the networks of the researchers, and referral by interviewee (see Appendix A in Supplementary material, Table 3). Strategy C – we examined the national climate policy documents of Bangladesh and Nepal, Bangladesh Climate Change Strategy and Action Plan (BCCSAP) of 2009 and Climate Change Policy of 2011 to identify the relevant sectoral policies. In total, the final database of documents was composed of 30 and 16 policy documents for Bangladesh and Nepal respectively.

Semi-structured interview lists were used to allow for sufficient space for interviewees to narrate their experiences as well as ensure capturing the four indicators of the framework and key CPP drivers. Questions such as, *when was a shift observed from disaster risk reduction to climate change adaptation in Bangladesh or Nepal? And what are the reasons for this change?* were asked during the interviews. The interviewees included serving bureaucrats (SB), expert consultants (EC) directly involved in policy processes, key civil society actors (CS), representatives of development organizations (DO), NGO representatives implementing climate projects (NG), and representatives of donor agencies (DA). Interviews lasted between 30 and 250 min. Follow-up telephone interviews were conducted to clarify responses or inquire additional information. All the interviews and policy documents were stored and analyzed using Atlas.ti (version 7).

3.2. Data analysis

We clustered the policy documents in four different periods between 1997 and 2016. For each time-period, the policy documents were coded based on the four indicators of a CPP (Table 1). To capture the framing in a policy document, we systematically analyzed the language of the policy documents (England et al., 2018; Okpara et al., 2018). For instance, some policy documents described how climate change leads to increased frequency of disasters and their impacts on the ecosystem, suggesting preparedness for communities and disaster resilient infrastructure. We observed that the choice of words such as 'frequency of disasters' attribute to the framing of 'vulnerability created by disasters'. We extracted these text fragments and captured them in a database. Similarly, for policy goals, we analyzed the goals of the national climate policies and the sectoral policies linked to climate change. We only included policy goals that make explicit reference to climate change as this is necessary to allow for comparison across the various policy documents and to cluster them in a certain time-period. For meso-level areas, we extracted the text fragments from policy documents that specifically discuss the impacts and adaptation strategies for agriculture, energy, water, forestry and other relevant sectors. Further, for each policy document we noted the number and name of policy sectors that placed emphasis on reducing the impact of climate change. Lastly, for financial policy instruments, we searched for reference to financial incentives such as funds, subsidies, taxation, tax benefits, grants, interest free credit, and credit waivers recommended in the policy

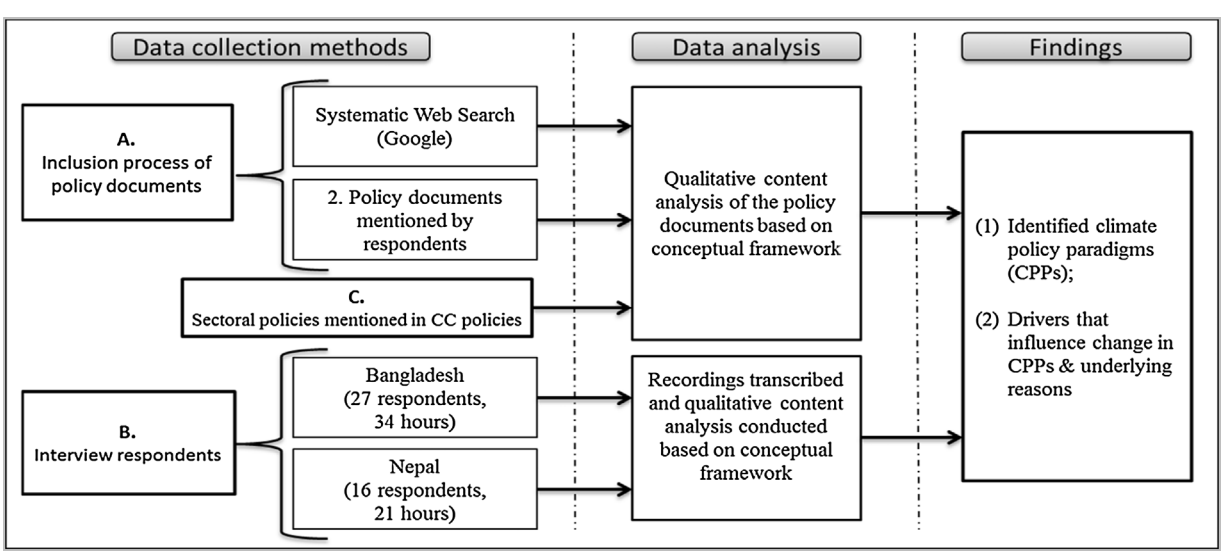

Fig. 1. Methods of data collection and analysis.

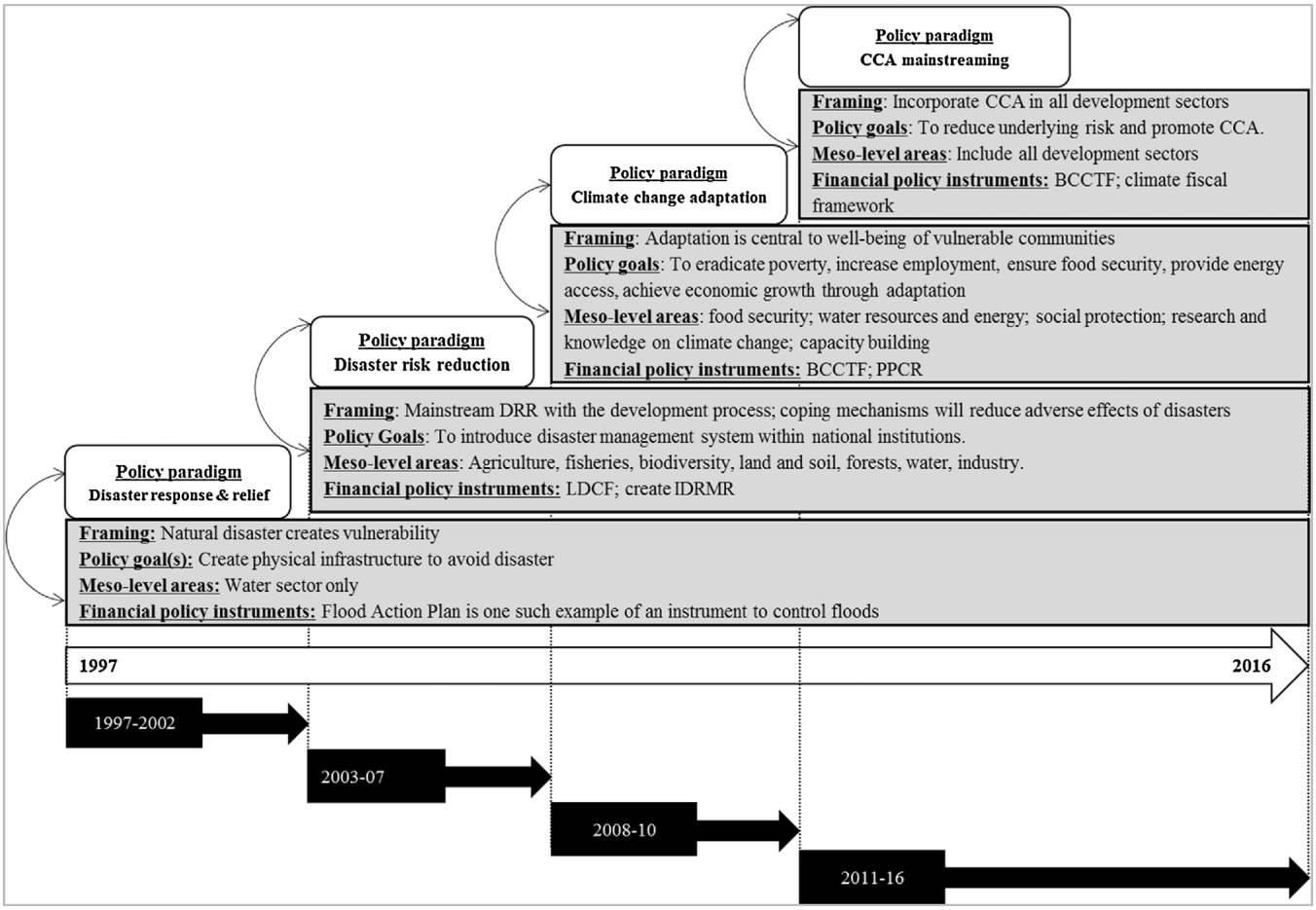

Fig. 2. Climate policy paradigms in Bangladesh.
CCNN (LDCF); Institute of Disaster Risk Management & Research (IDRMR); Bangladesh climate change trust fund (BCCTF); Pilot Project on Climate Resilience (PPCR).

documents. We made use of the expertise of the interviewees to identify the moments of change in policy paradigm and the underlying causes of this change. We reconstructed the chain of events and drivers of change by triangulating the evidences mentioned in the policy documents and through interviews. Important events include the launch of IPCC's Assessment Report 3, Bali Action Plan, Cyclone Sidr in Bangladesh and Nepal's Peace Accord signed in 2006. The results of the analysis are presented in the next section.

4. Results: emergence and changing of climate policy paradigms in Bangladesh

The results are presented into two sections. This section discusses the CPPs emerged in Bangladesh, followed by the drivers that influence CPP change. The case of Nepal is presented in Section 5.

4.1. Climate policy paradigms in Bangladesh

4.1.1. Paradigm 1: disaster response and relief (1997-ongoing)

From 1997 onwards, the framing of national policy documents in Bangladesh, such as the Five Year Plans (FYPs, see Appendix A in Supplementary material, page 1) revolved on how natural disasters create and enhance vulnerability (Fig. 2). The FYP, for example, stated *"…most of the rural people are poor and disadvantaged. They are particularly vulnerable to calamities, both natural* (*cyclone, flood, drought, etc.*)*…"* (*Pg. 138, FYP, Bangladesh, 1997–2002*). This is illustrative for a time when emphasis is placed on reactively responding to disasters and mitigate climate risks, as was frequently mentioned by interviewees. The policy goals during this time-period focused on building infrastructure for improved weather forecasting, increasing awareness, information sharing, and rehabilitation. Considering the meso-level areas, the National Water Policy (1999) limited its activities only to the line departments of the water ministry. The FYP delineated the disaster related activities between the Ministry of Water Resources and Ministry of Food and Disaster Management. This means that relatively less sectors were involved in framing and addressing the problem. Although driven by the few governmental agencies, interviewees highlighted that civil society organizations (CSOs), such as BCAS,[1] PKSF,[2] CARE, and ActionAid were participating in the international conferences driven by the UNFCCC and international global research programs on climate change. Research studies focusing on climate change vulnerability were conducted by CSOs during this period, which later became the basis for government to formulate climate policies. As for financial policy instruments, investments on disaster relief remained an integral component of the government expenditure, along with donor-funded flood action plan and Bangladesh Water and Flood Management Strategy.

4.1.2. Paradigm 2: disaster risk reduction (DRR) (2003-ongoing)

From 2003 onwards, the government of Bangladesh started framing the impacts of climate change as an inevitable part of the DRR paradigm. Explicit consideration of medium-term exacerbation of disasters due to climate change was proclaimed, placing greater emphasis on more proactive ways of DRR. This paradigm builds upon Paradigm 1 as is illustrated by the Poverty reduction strategy plan -1 (PRSP-1)

[1] Bangladesh Center for Advanced Studies.
[2] Palli Karma-Sahayak Foundation.

document, "*the government of Bangladesh has drawn up a Five-Year Strategic Plan for the Comprehensive Disaster Management Programme (2004–2008)… It envisages bringing a paradigm shift in disaster management from conventional response and relief practices to a more comprehensive risk reduction culture*" (pg. PRSP-1, 2007). The policy goals during this time-period as reflected in the National Adaptation Programme for Action (NAPA, 2005), PRSP-1 (2005), and coastal zone policy (2005) emphasized the shift from line ministries to comprehensive efforts of mainstreaming DRR into national policies. In contrast to paradigm 1, additional emphasis is placed on meso-level areas such as fisheries, agriculture and water in which DRR needs to be mainstreamed. With respect to financial policy instruments to implement this newly emerged paradigm, the policy documents only stress the need for donor agencies and international funding, but no allocation of financial instruments were done. Our findings suggest that paradigm 1 became layered with the DRR paradigm, and currently framing, goals, and instruments of paradigm 1 are merged with the DRR paradigm.

4.1.3. Paradigm 3: climate change adaptation (CCA) (2008-ongoing)

From 2008 onwards, a new parallel paradigm emerged. Three major policy documents including BCCSAP (2009), the revised NAPA (2009), and National Plan for Disaster Management (2010) were drafted to address the disasters, with a comprehensive framing to take account of all dimensions of climate impacts, including possible benefits. Increasingly these policy documents started to refer to 'climate change adaptation' (CCA) as a new policy paradigm, to respond to short, medium and long-term climate risks. The policy goals in the three policies emphasize the need to include adaptation in all development processes, plans, and policies. The overall number of proposed meso-level areas increased compared to the previous paradigms: adaptation strategies to be implemented in seven sectors, namely (1) agriculture; (2) water; (3) infrastructure; (4) housing; (5) health; (6) disasters; and (7) energy. However, there was a much stronger focus on disaster related issues than the mentioned sectors. The Disaster Plan (2010) made a transition from just focusing on DRR to integrating DRR into CCA, mentioning "*…disaster risk reduction with climate change adaptation offers a win-win opportunity: Climate system is fundamental for both issues…75% of all disasters originate from weather-climate extremes… Disaster risk reduction offers opportunities for "bottom-up" strategies for adaptation … In this respect, disaster risk reduction can promote early adaptation to climate risks and impacts*" (pg. 25, 2010). The Poverty Reduction Strategy Programme -2 (2009) declared that the government will invest in adaptation from its own treasury, creating a special financial policy instrument, called Bangladesh Climate Change Trust Fund (BCCTF), under the aegis of Ministry of Environment and Forests.

4.1.4. Paradigm 4: mainstreaming of climate change adaptation (2011-ongoing)

From 2011 onwards, a new paradigm focusing on the mainstreaming of CCA into the development process emerged. Previously, CCA was framed as a standalone initiative to reduce the impacts of extreme events; it is now reframed as an important component for development of all climate risk sectors. Policy documents such as the Bangladesh climate change gender action plan (2013), sixth FYP (2011–16), and the seventh FYP (2016–20) explicitly aimed at mainstreaming adaptation into development planning and budgetary process. In addition, the number of meso-level areas further expanded to on-the-ground issues. For instance, issue of energy shortage is linked to adaptation and low carbon development strategies (e.g., solar-based irrigation systems) are being implemented. Regarding policy instruments, the government aims to mainstream adaptation into the annual ministerial budgets, with no further allocation to BCCTF. This most recent paradigm is the result of shift in the paradigm 3 and currently argued as the most prominent paradigm. Our findings suggest that paradigm 3 and 4 are currently implemented, with paradigm 3 to be subsequently layered with paradigm 4.

4.2. Drivers of paradigm change in Bangladesh

The first CPP shift from disaster response and relief to disaster risk preparedness is linked to the annual flood situation in Bangladesh and to the involvement of key INGOs in the preparedness action. In 1998, Bangladesh faced one of its worst floods with estimated deaths and economic damages accounting to 1100 people and 2.8 billion USD respectively (Govt. of Bangladesh, 2009). During this period, INGOs such as ActionAid and CARE Bangladesh along with other individual key policy actors from academia and government pushed efforts towards disaster risk preparedness. The two NGOs were also implementing programs that were displaying the results of DRR preparedness models. Subsequently, the push for DRR is also attributed to the Hyogo Framework for Action (2005) that placed pressure on governments of the disaster-prone countries created preparedness, rather than reactive measures. After the Hyogo framework, Department for International Development (DFID) made investments to improve the resilience of communities (2005–2010).

As for the second paradigm shift from disaster risk reduction to climate change adaptation, interviewees identified a large number of drivers, including global policy frameworks, political instability, and extreme weather events in Bangladesh. Two main contributing policy framework events are the launch of adaptation fund (2007) and the Fourth Assessment Report of IPCC (2007). Extreme events also drove towards alternatives, as was the case with Cyclone Sidr (November 2007), resulting in an estimated loss of $1.7 billion USD (Govt. of Bangladesh, 2008). The interviewees mentioned that the shift to adaptation was also due to national political situation. At the end of Bangladesh National Party's 2001–2006 term, the caretaker government (a non-partisan government to hold fair elections) came to power in October 2006 and lasted for almost two years. The caretaker government in Bangladesh is formulated of non-political and non-controversial advisors from academia, civil society, journalism, and respected ex-bureaucrats. Most respondents during the interview confirmed the importance of the caretaker government as a driver for the shift from DRR to CCA, which led to the preparation of BCCSAP and formulation of BCCTF.

The inadequate adaptation funding and country's need to focus on development issues mostly drove the change from CCA to CCA mainstreaming. The CCA paradigm did not result in sufficient funding for adaptation, except a few piecemeal projects through NAPAs, BCCRF, and donor governments. This meant that strategic reframing was needed to reduce climate impacts and to implement CCA. The funding for adaptation is making use of the development funds of Bangladesh, which became the easy way for the donor agencies to divert funds in the name of adaptation and development, thereby achieving dual benefits. A number of respondents during the interview mentioned that mainstreaming came as an idea from the donor agencies and international non-governmental organizations, building on paradigms around development aid. Respondents also revealed that the commitment to fund the adaptation projects under NAPA (2005) remains unfulfilled.

5. Results: emergence and changing of climate policy paradigms in Nepal

5.1. Climate change policy paradigms in Nepal

5.1.1. Paradigm 1: disaster response and relief (1997-ongoing)

From 1997 onwards, the policy framing was inclined towards protecting people from natural disasters. The policy goals focus on the requirement of physical infrastructure and timely information about disasters (Fig. 3). For instance, the 9th FYP document states "*…application of new information technology will be emphasized 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). Similarly, the National Water Plan (2002) and Irrigation Policy (2002–2003) have policy

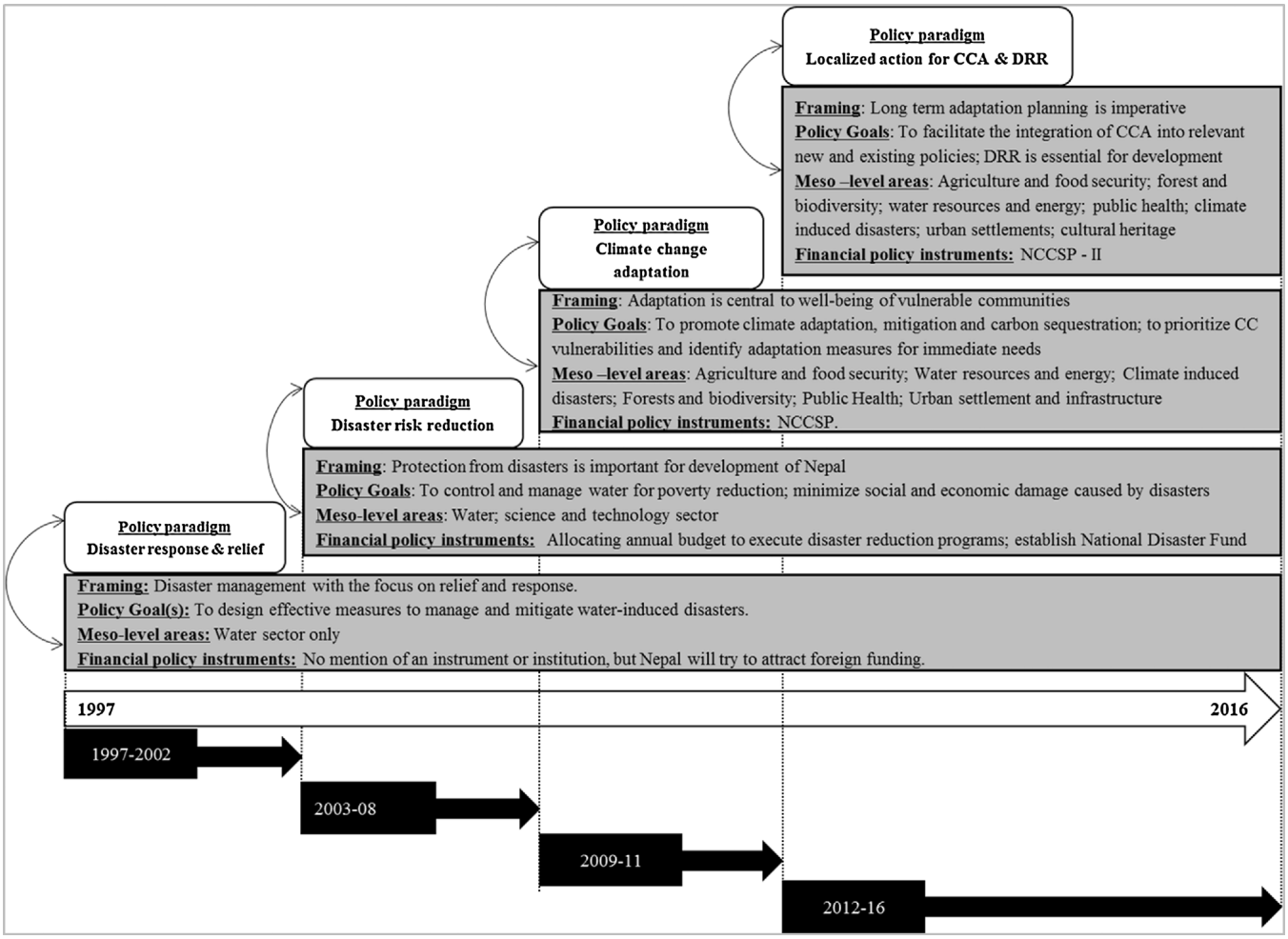

Fig. 3. Climate policy paradigms in Nepal.
Nepal climate change support programme (NCCSP); Local adaptation plans for action (LAPA).

goals stressing on water-induced disasters. During this time-period, the *meso*-level areas were limited, emphasis was laid on water and flood related information broadcasting. The financial instruments, such as grants, are dedicated for developing a management information system for mapping areas prone to floods and for building technical expertise within the government to manage disasters. Department of Water Induced Disaster Management was established in 2000. Our findings suggest that paradigm 1 continue to co-exist with other climate paradigms.

5.1.2. Paradigm 2: disaster risk reduction (DRR) (2003- ongoing)

From 2003 onwards, Nepal explicitly framed how natural disasters increase vulnerability and risk for the poor. This is illustrated in the 10th FYP (2002), in which the government stated that "…*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). In 2005, the government also ratified the Kyoto Protocol, as they saw opportunities of funding through LDC fund and Clean Development Mechanism. Specific goals on DRR were formulated in the 10th and 11th TYP to promote security of life and property from floods. The meso-level areas continue to focus exclusively on the water, information and broadcasting, and science and technology sectors. After 2006, the meso-level areas expanded to forestry sector. Respondent mentioned that many DRR programs are using the community forest users-groups as planning and implementation vehicles. The financial instruments were used mainly for information sharing, increasing awareness and prevention works on landslides, river control and soil erosion through water and forestry sectors. Further, the National Strategy for Disaster Risk Management (NSDRM) and 11th FYP announced to establish a national disaster fund for relief and rehabilitation. Our findings suggest that during this period, paradigm 1 was being layered over paradigm 2.

5.1.3. Paradigm 3: climate change adaptation (CCA) (2009-ongoing)

During 2009, climate change adaptation emerged as a new policy paradigm in Nepal. Policy goals started to emphasize that adaptation is important for all the development sectors, and implementation of adaptation should take place at the local level. During this period, policy documents such as NAPA (2010), climate change policy (2011), and local adaptation plans for action (LAPA) framework (2011), focusing on the required adaptation strategies to reduce the climate change impacts. Further, six clear meso-level areas were defined, specifically in the NAPA (2010) document, with focus on (1) agriculture and food security, (2) water resources and energy, (3) climate induced disasters, (4) forests and biodiversity, (5) public health, and (6) urban settlements and infrastructure. In terms of financial instruments, climate policy declared to establish a climate change fund, and bring various ministries on board, which can implement adaptation projects. Our findings suggest that paradigm 1 and 2 started layering over paradigm 3. With paradigm 2 stressing to prepare communities for short-term extreme events, while paradigm 3 aims to build adaptive capacity for long-term climate risks.

Table 2
Comparison between Bangladesh and Nepal.

Aspects for Comparison	Bangladesh	Nepal
Climate Policy Paradigms	Disaster response and relief (1997–2002) → DRR (2003–07) → CCA (2008–10) → CCA mainstreaming (2011–16)	Disaster response and relief (1997–2002) → DRR (2003–08) → localized action for CCA and DRR (2012–16)
Modes of Change	Layering; drift; conversion	Layering
Differentiated policy progress	Policies – NAPA (2005; 2009); BCCSAP; other detailed sectoral policies. Detailed annual development plans Instruments – BCCTF; Created the Ministry for Disaster with fiscal budgets;	Policies – NAPA (2010); CCP (2011) Instruments – only mention of climate change fund; Implementation of NCCSP in a project mode.

5.1.4. Paradigm 4: localized action for CCA and DRR (2012-ongoing)

From 2012 onwards, Nepal shifted its CCP paradigm towards localized action for adaptation. Policy actors started to frame CCA and DRR as a local issue that requires emphasis to improve the adaptive capacity of the vulnerable communities. For example, the LAPA framework suggests preparing and implementing adaptation strategies considering aspects such as sector, resource availability and distribution system, community access to public services and facilities, and areas affected by climate change. New policy goals emphasize community-based local adaptation actions. For instance, one of the goals of LAPA framework is "*To identify and prioritise adaptation actions in easy ways whereby local communities make the prioritisation decisions about their needs*" (pg. 4, LAPA framework, 2011). In contrast to the CCA paradigm, the meso-level areas for LAPAs are decided based on the community needs, but largely continued to focus on forestry, agriculture, health, and disasters. Financial policy instruments, such as Nepal Climate Change Support Programme (NCCSP), are conceptualized and currently, 100 LAPAs are being implemented in fourteen districts (see Appendix A in Supplementary material, pg. 3). Paradigm 4 is becoming prominent, as the government is preparing for the second phase of NCCSP. Moreover, after the 2015 Gorkha earthquake, the government and the line ministries started to further re-emphasize the importance of DRR and CCA. Respondents mentioned that after the earthquake, DRR and CCA are being discussed in almost all environment related meeting and workshops organized by the government.

5.2. Drivers of CPP change in Nepal

The first paradigm shift from disaster relief and response towards DRR was because the number of recorded extreme events and casualties increased. Respondents reflecting on scientific and government data suggested that between 2001 and 2005 the number of landslides increased, highest in last 80 years (Aryal, 2012; Petley et al., 2007). Respondents mentioned that the sudden increase in the number of extreme events pushed policy actors to think about preparedness. However, the progress was relatively slow in terms of on-the-ground implementation. One of the respondent mentioned that there was limited penetration of NGOs and researchers in disaster prone areas, attributing to two reasons. First, Nepal has a very recent history with CSOs (Karkee and Comfort, 2016). The number of international and national NGOs emerged only after the multi-party democratic system was established in 1990, abolishing the one-party *Panchayat* government (local administrative body). Second, in Nepal the Maoist insurgency and control started in 1991 and lasted until 2006. During these years, the development process of the government and non-governmental organizations remained focused on peace-building activities and activism revolved around human rights. Respondents confirmed that Maoists controlled the rural and interior areas and there was very little penetration of NGOs and researchers. This led to slow progress in the DRR policy paradigm.

The country was relatively stable after the government and communist party of Nepal (Maoist) signed a comprehensive peace accord in November 2006. A group of CSOs formed a Climate Change Network Nepal (CCNN) in 2003 (see Appendix A in Supplementary material, pg. 3). During this time-period, CCNN gradually pushed the government to start participating in the Conference of the Parties (COP) processes of UNFCCC. CCNN-member NGOs with their extended international network brought in some funding for generating knowledge on CCA and eventually became an influential driver for paradigm change in Nepal.

There was a push from international policy frameworks such as the COP 13 (2007). After the inception of the Bali Action Plan, Nepal was very motivated towards the preparation of NAPA. Respondents mentioned that after 2007, Nepal was sending larger delegation to the COPs, especially for COP 15 there were approximately 300 delegates from Nepal. One of the respondents mentioned that "…*for Nepal the launch of adaptation fund was an opportunity to receive large funding for the implementation of adaptation*…" (RB, Nepal). Simultaneously, a very strong interest of government in the CCA debate was driven domestically, with the involvement of the key political actors. Respondents mentioned the then Prime Minister and his government had given a high priority to respond to climate change. His participation and speech during the COP15 was considered an important driver for CPP change towards CCA.

During the period of 2012–2016, NCCSP implemented 100 LAPA projects, following the paradigm of 'localized action for CCA and DRR'. The translation of adaptation to localized action was realized due to the national policy actors involved in the NAPA preparatory process. One of the respondents mentioned, "*during the NAPA preparation meeting, various policy actors raised concerns about the community inclusion in the decision-making process, especially for selecting adaptation strategies*" (EC, Nepal). This concern was raised because of the vulnerable situation of the communities and inadequate voice in the prioritisation process of adaptation projects during the NAPA process. Along with this, the respondents mentioned that the government had lost faith in the promises of the Annex-1 countries, of contributing large adaptation funds for LDCs. One of the respondents mentioned that "*whatever little funds we get for adaptation, it is better to invest in the vulnerable areas; otherwise the money will get spent at the national level planning processes*" (SB, Nepal). These drivers influenced Nepal to shift toward 'localized action for CCA and DRR' paradigm.

6. Discussion

Our findings show that the older CPP continue to co-exist with the new ones and the changes can be characterized with different modes of change (Table 2). We observed rapid processes of 'layering' of policy paradigms, with only one occasion of 'drift' and 'conversion' in Bangladesh. The DRR activities in Bangladesh continue to be implemented in parallel to climate change adaptation activities, but with different and seemingly separated policy goals and instruments. With the revised Standing Orders on Disaster (2012), a separate Ministry and Department on Disaster Management was created in Bangladesh with new institutions and financial instruments. During the same time, the Ministry of Environment and Forestry was implementing adaptation activities across Bangladesh. Although the ministry has a regulatory mandate, between 2009 and 2014 the ministry was disseminating adaptation funds, coordinating with other ministries, and implementing adaptation projects on-the-ground. This was done without bringing any

change in the existing institutional structure of the ministry. This change is characterized as policy 'drift' – referring to no changes in institutions, but changes in its impact, due to changing external environment (Heijden and Kuhlmann, 2016). Currently, with the depletion of BCCTF, the change from adaptation to adaptation mainstreaming has resulted in integrating the adaptation finance with annual development budgets. This can be characterized as 'conversion' (Hacker, 2004).

In contrast we only observed 'layering' in Nepal. CPPs such as disaster response and relief and DRR continue to co-exist with the 'localized action for CCA and DRR' (Van der Heijden, 2011). Various disaster response and relief projects by government and non-governmental organizations continue to be implemented. DRR activities continue to be implemented parallel to adaptation with new policy goals, institutions and instruments – characterizing this change as 'layering'. The Ministry of Home Affairs is responsible for relief and response activities. However, other ministries, such as Ministry of Water Resources and Ministry of Science and Technology, are implementing DRR and response and relief activities.

Layering is advantageous because it provides time for the new CPP to build upon the experience of the older ones, based on the emerging policy challenges and on-the-ground limitations (Laird, 2016). However, the layering process eventually can create fragmentation of policy efforts. There is always the possibility of overlapping efforts, confusion, and competition within various paradigms as layering adds more actors and instruments to address a policy issue. Such competition and confusion can percolate down at the ministerial and sub-national levels, resulting in inter-institutional conflict of interests (Zelli, 2011). Design of new adaptation policies can therefore benefit from more coordination between different policy paradigms, recognizing that full harmonization into a comprehensive paradigm is unlikely to materialize anytime soon.

We observed a differentiated CPP progress in Bangladesh and Nepal. In Bangladesh, each CPP is supported with specific and elaborate policy goals, instruments and meso-level areas. For example, the BCCSAP demarcated clear policy instruments, institutions and meso-level areas to implement adaptation. This process was further strengthened when the CPP changed from adaptation to adaptation mainstreaming. In seventh FYP, Bangladesh linked on-the-ground challenges such as energy shortage for irrigation with adaptation. This is contrasting to Nepal that followed a similar trajectory of CPPs in the last two decades. Policies were much weaker in design and implementation. Various policies aimed at DRR and CCA, but lacked substantive policy instruments and institutions. According to the national capacity self-assessment report (2008) there is a lack of capacity for climate risk management in Nepal which explains the weak policy design. The political situation in Nepal is still very unstable. Between 2011 and 2016, six different governments came in power, some lasting for only a few months.

Moreover, the article shows that underlying drivers of CPP change are largely political in nature (Giddens, 2009; Howlett and Ramesh, 1998). The political nuances played an important role in changing CPPs. For instance, the unstable political regimes in Bangladesh and Nepal resulted in different policy outcomes. The political instability during 2006–2008 in Bangladesh brought a strong focus on climate policy, due to the involvement of academic and civil society actors. While in Nepal, due to prolonged political turmoil, climate policy institutions remained weak. The political nature of drivers also reflects upon the nexus between the national civil society and donor agencies. The strong presence of CSOs in both LDCs can be attributed to the progress of climate policies (Rai et al., 2014). CSOs are influenced by the deliberation at the conferences of UNFCCC, IPCC, bilateral organizations, and donor agencies. Further, donor agencies support different ministries and CSOs in both LDCs. These politically nuanced and fragmented efforts may create competition among various nodal ministries in the future (Gough and Shackley, 2001).

7. Conclusion

In this article, we respond to two questions: *1) What are the different CPPs that have emerged in the last two decades in Bangladesh and Nepal? 2) What are the drivers and how do they influence the CPP change?* Based on our analysis, we conclude that the CPPs in the two countries have graduated in the last two decades (Figs. 2 & 3). Both countries follow a similar pattern of CPPs, but have recently diverted. Bangladesh is currently following the 'CCA mainstreaming' paradigm, while Nepal is following a 'localized action for CCA and DRR' (Table 2). The two LDCs have graduated from one paradigm to other due to the drivers of CPP change, such as an unstable political situation, lack of financial support, influence of national NGOs, and global policy frameworks. In both the LDCs, we observe policy 'layering' as the most dominant mode of CPP change. With the layering of CPPs, there is always the possibility of overlapping efforts, confusion, contradiction over strategies and competition over resources between ministries involved. In the near future, both LDCs will develop a number of climate policy documents (revised BCCSAP, National Adaptation Plan, Delta Plan 2100 for Bangladesh and National Adaptation Plan and revised LAPA framework for Nepal) based on new or existing CPPs. Policy actors in the two LDCs must think carefully to come up with an overarching strategy to integrate or at least recognize the existence of multiple CPPs and respective policies. Designing such a strategy will support policy actors to shape, coordinate and implement future climate policies effectively.

Disclosure statement

No potential conflict of interest was reported by the authors.

Disclaimer

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.envsci.2017.12.010.

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