



## Climate adaptation approaches and key policy characteristics: Cases from South Asia



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### ABSTRACT

This paper analyses and assesses how existing policies and approaches in South Asia consider long-term climate change adaptation. Presently, it is unclear what approaches are used in the existing policies to cope with the future climatic changes. Our research framework consists of two components. First, we identify and define key characteristics of adaptation policy approaches based on a review of scientific journal articles. The key characteristics identified are institutional flexibility, adaptive nature, scalability and reflexivity. Second, we analyse the presence of these characteristics in the climate change adaptation policies of Bangladesh, India, Nepal, and Pakistan. Our findings show that the four South Asian countries contribute to only 8% of the total journal articles on adaptation policy, with least papers representing Pakistan and Nepal. Reviewing the adaptation policies, we find that except for the Climate Change Policy of Nepal, none of the policies discusses transboundary scale adaptation approaches. The identified adaptation policies lack focus on shared transboundary resources between the countries, and instead focus at national or sub-national scale. This is reflected by relatively low scores for the scalability characteristic. All the countries show high scores for institutional flexibility, suggesting that changing roles and responsibilities between government agencies for adaptation planning and implementation is accepted in the four countries. We conclude that to prevent a loss of flexibility and to promote scalability of shared transboundary resources, policy approaches such as anticipatory governance, robust decision-making, and adaptation pathways can be useful for long-term climate change adaptation.

### 1. Introduction

The growing likelihood of a more than 2 °C warmer world will require adaptation policy approaches that include long-term considerations (Burton et al., 2002; Rasul, 2014; Di Gregorio et al., 2017). Adaptation policy

approaches are defined as the ways in which climate policies are designed and implemented to reduce the impacts of climate change (Dessai and Hulme, 2004). Long-term adaptation policy approaches consider a period between 30 and 100 years (Government of Japan, 2010). As decision-makers face the challenges of addressing unpredictable socio-economic and

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climatic changes, there is an increasing call for long-term adaptation policy approaches. These approaches must perform robustly under a variety of future scenarios and increase flexibility to adapt to future conditions (see e.g. Pahl-Wostl, 2009; Haasnoot et al., 2013; Ranger et al., 2010; Werners et al., 2013). Termeer et al. (2015) argues that such policy approaches need to consider governance capabilities such as (a) reflexivity; (b) resilience; (c) responsiveness; and (d) revitalization. Moreover, these approaches ideally should have the characteristics to allow for upscaling and downscaling, responding to challenges at local and shared transboundary scales (Forsyth, 2013).

There is limited understanding in scientific literature on how climate policy approaches are designed and implemented in South Asia (Butler et al., 2016; Saito, 2013). Most of the existing adaptation policy approaches stem from the developed part of the world (see e.g. Cairney and Heikkila, 2014). Especially in countries that have their policy emphasis on development (e.g. Butler et al., 2016) or disaster risk reduction (Solecki et al., 2011; Mercer, 2010; Patra and Terton, 2017) the use of long term and flexible adaptation approaches is not yet at the required level. It is also observed that there are barriers in uptake of long term and flexible adaptation approaches (Le Dang et al., 2014; Biesbroek et al., 2013). This is either caused by the characteristics of the existing approaches themselves, or because the uptake is hampered by the specific contextual setting in individual developing countries (Tompkins and Adger, 2005).

For example, climate policies in South Asia oftentimes emphasize technical solutions for controlling floods and other disasters, which in the long-term may lead to mal-adaptation (Brockhaus et al., 2013; Colloff et al., 2017). Alternative policy approaches that explicitly consider the long-term may steer away from such mal-practices by emphasizing the importance of flexibility and scale. Shifting to such alternative policy approaches entails a series of adaptive learning decision cycles over time (Willows et al., 2003; Smith et al., 2011; Haasnoot et al., 2013). Therefore, it is interesting to know which of the approaches are presently used and even more so in the context of developing countries, where climate vulnerability and uncertainty is much higher.

Against this background, this paper aims to respond to two questions. First, what long-term oriented adaptation policy approaches (and characteristics) are considered in scientific literature? Second, using the outcomes of question one, what characteristics are present in the existing adaptation policies in South Asia. The focus of our research is on

four South Asian countries – Bangladesh, India, Nepal and Pakistan.

The four countries are highly vulnerable and have low readiness to climate change (Kreft et al., 2017; ND-GAIN, 2015). The vulnerability in and between the four countries varies, with Bangladesh and Nepal among the most vulnerable least developed countries (Thornton et al., 2014). Bangladesh is vulnerable due to sea and river flooding (IDL C-ARIAA working paper, 2016), in India floods and droughts affect agriculture productivity (GOI, 2012), glacier outburst floods leads to temporary displacement and disruption of livelihood in Nepal (Kilroy, 2015; Bartlett et al., 2010) and for Pakistan extreme weather events are causing water related disasters (Shaw, 2015). Besides from country specific climate vulnerability, the four countries experience shared climate change impacts with their transboundary natural resources such as rivers and mountains (Hijioka et al., 2014).

The paper proceeds as follows. The methodology section elaborates the methods for data collection and analysis. The results section is divided in two parts. In the first part, the literature-review describes the policy approaches and characteristics identified at the global level and for the four countries. The second part focuses on the assessment of characteristics in climate policies, for which a scoring matrix is developed and used. Lastly, the discussion section reflects on the key insights from this study and the value of this research.

## 2. Methodology

Our methodology is designed to respond to the above two questions. (Q1) is answered by reviewing the literature at the global and South Asian scale, describing the main long-term adaptation policy approaches and their main characteristics. (Q2) is addressed by assessing the existing climate adaptation policies with the identified key characteristics in Bangladesh, India, Nepal, and Pakistan (Fig. 1). The focus on these four South Asian countries is because they share the same natural resources as well as representing climate vulnerability, along with the diversity of socio-economic challenges. Apart from biophysical conditions, authors only had access to adaptation experts in the above-mentioned countries, excluding Bhutan and Afghanistan.

Fig. 1 shows the overall framework of the paper. It highlights the key questions, different methods of data collection, analysis and key results. The following two paragraphs will elaborate on the data collection and analysis aspects of the paper.

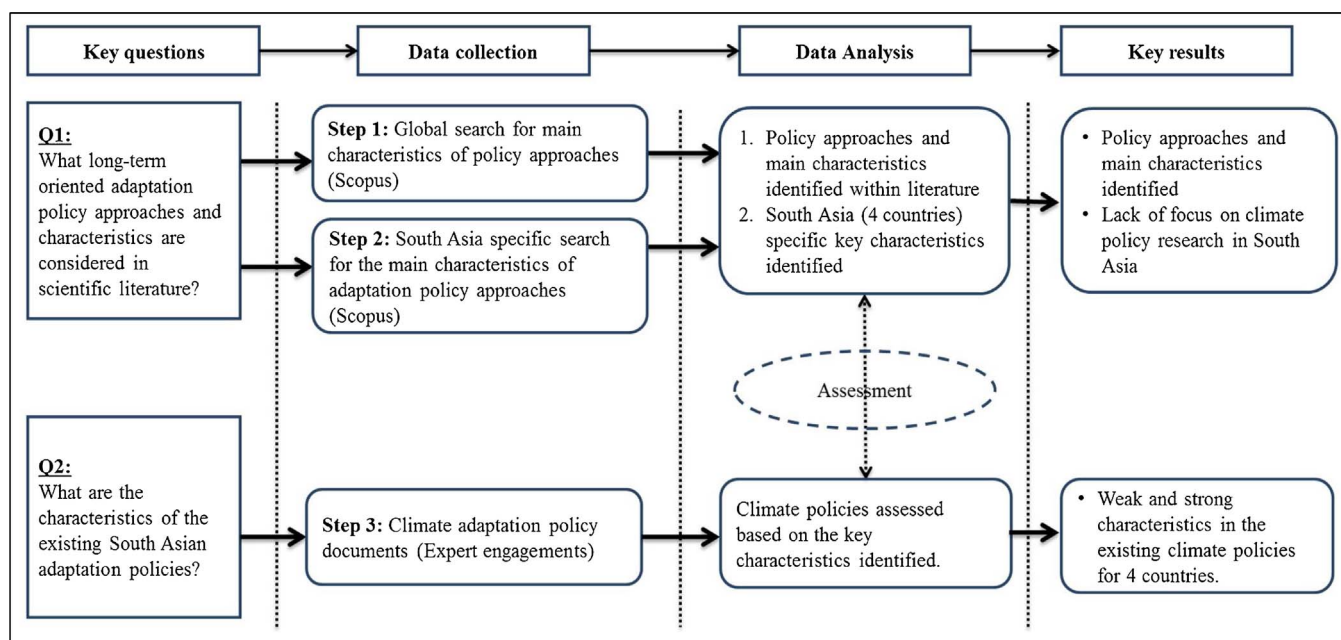


Fig. 1. Methodology of the study.

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