

Approaches through which anticipation informs climate governance in South Asia

Working Paper No. 387

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

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RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



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Abstract

This report presents the RE-IMAGINE research in one of its four regions: **South Asia**. RE-IMAGINE builds on climate foresight expertise of the Climate Change, Agriculture and Food Security (CCAFS) Program and analyses the role of foresight in climate governance across the globe. Scenarios and many other methods and tools are used today to imagine climate futures and develop strategies for realizing new futures while governing climate change. With the proliferation of these processes in sustainability-related research and planning contexts, scrutiny of their role in steering climate actions in the present becomes increasingly important. How can the benefits and challenges of these processes of anticipation be better understood as governance interventions? At the same time, research into anticipatory climate governance processes in the Global South has remained very limited, while these regions are most vulnerable to climate change. The RE-IMAGINE report therefore examines processes of anticipation in four regions of the Global South. The research question we answer in this report is: ‘through what approaches are diverse processes of anticipation used to govern climate change in diverse South Asian contexts?’. In order to answer this question, we first examine what methods and tools are used to anticipate climate futures and their role in climate policy and decision-making. We then closely examine three case studies to understand their approaches to anticipatory governance. Additionally, we present the results of two regional meetings with stakeholders where we discussed the challenges that exist in each country to practice anticipatory climate governance and the opportunities to strengthen capacities in this field. Finally, we present recommendations for strengthening processes of anticipatory climate governance in the region.

Keywords

Foresight, scenarios, anticipatory governance, climate policy, climate, futures, sustainability transformations.

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Contents

1. Introduction.....	1
1.1. About the RE-IMAGINE project.....	1
1.2. Anticipation and anticipatory governance	2
1.3. About this report	5
2. The role of anticipation for climate decision-making in South Asia	5
3. Methodology	7
3.1. Case selection and search strategy.....	7
3.2. Approach to the analysis	9
4. The role of anticipation in policy formulation	10
5. Four diverse anticipatory governance processes.....	12
5.1. Bangladesh 7th Five Year Plan (2016)	12
6. Regional discussion	21
7. Recommendations	23
References.....	27
Annex.....	29

1. Introduction

Anticipating the possible impacts of climate change has become a key global focus. The Intergovernmental Panel on Climate Change (IPCC) has drawn up a set of influential climate and socio-economic scenarios. Many governments, researchers and practitioners are developing scenarios at regional and national levels to imagine and experiment with possible global climate futures. Games are used to experience alternative futures. The futures that are imagined in these processes give shape to actions in the present. But how can the benefits and challenges of these processes of anticipation be better understood as governance interventions, particularly in the regions vulnerable to climate change?

1.1. About the RE-IMAGINE project

The RE-IMAGINE project is co-led by Dr. Joost Vervoort (UU) and Prof. Aarti Gupta (WUR). It investigates how anticipating diverse climate futures is linked to realizing appropriate and effective modes of climate governance in the world's most vulnerable regions. The project analyses various influential processes of anticipation in diverse sustainability contexts across the globe to achieve more reflexive and inclusive climate governance. In doing so, RE-IMAGINE bridges research on foresight processes that envision climate futures with climate governance research.

RE-IMAGINE builds on climate foresight expertise of the CGIAR Scenarios Project under the Climate Change, Agriculture and Food Security (CCAFS) Program, global climate policy and governance expertise from Wageningen University & Research and the University of Oxford, and foresight and climate governance expertise within Utrecht University. It also works with regional governmental organizations in four global regions that are highly vulnerable to climate change: Central America, West Africa, South Asia and Southeast Asia. In these regions RE-IMAGINE collaborates closely with the CCAFS network and regional partners UCI, ICRISSAT, GIZ and ICCCAD. In addition, a Scientific Advisory Committee consisting of leading foresight and governance researchers provides advice throughout the project.

RE-IMAGINE has been made possible by the BNP Paribas Foundation's Climate Action Call, which aims to strengthen anticipation of climate change processes, and further our

understanding of impacts on our environment and local populations around the world. The project started in October 2018 and runs until December 2022.

1.2. Anticipation and anticipatory governance

In the face of uncertain climate futures, governments and other actors are increasingly looking to foresight to help imagine and experiment with future climate conditions – with new IPCC community scenarios aiming to offer a global benchmark. The Paris Agreement's aspirational goal of limiting temperature increases to 1.5 °C by the end of the century has led to mechanisms and processes by which to imagine and govern diverse climate futures which are increasingly coming to the forefront of sustainability debates and practice (Vervoort & Gupta, 2018).

Developing countries that are highly vulnerable to climate change are seeking to use such foresight studies to guide their adaptation and mitigation planning (Vervoort et al., 2014). Foresight and other methods that anticipate future change can amplify the social robustness of adaptation planning under multiple plausible futures (Kok et al., 2007; Sova et al., 2015; Vermeulen et al., 2013). These approaches include model-based scenarios (van den Berg et al., 2016) participatory scenarios (Hebinck et al., 2018), backcasting (Quist et al., 2011), visioning processes (Wiek & Iwaniec, 2014), and also traditional tools which are not considered to fall under the foresight umbrella, but also include a component of future-oriented thinking, such as the ex-ante exploration of risks, costs and impacts of alternative policy options in cost-benefit analysis, risk analysis, impact assessments and technology assessments (Turnpenny et al., 2015), and can also be used in complementary ways.

With the proliferation of these processes in sustainability-related research and planning contexts, scrutiny of their role in steering decision-making becomes increasingly important (Vervoort and Gupta, 2018). The impact of foresight as an intervention for improved ex-ante or anticipatory governance of climatic challenges is poorly understood. Many existing foresight processes are not sufficiently attuned to complex governance realities and policy cycles, and imagine futures within a very narrow framing that may ignore important drivers of change, while lacking reflexivity. Scrutiny of the underlying assumptions ascertaining present-day policy processes is limited in foresight practice, particularly assumptions of the extent to which the future can be known and managed, and how policy-making processes

are shaped based on these conceptions of the future (Pulver & VanDeveer, 2009; Vervoort & Gupta, 2018).

A growing body of scholars in the social sciences and sustainability sciences have used the notion of anticipatory governance to examine these processes of anticipation, including in environmental governance, public planning, responsible research and innovation, science and technology studies and transition management. We understand the concept most broadly as governing uncertain futures in the present (Vervoort & Gupta, 2018). However, research into anticipatory climate governance processes in the Global South has remained very limited, while these regions are most vulnerable to climate change. As anticipatory governance is under researched in vulnerable regions, including in South Asia, adverse mechanisms may be hindering effective and inclusive anticipatory governance (Stilgoe et al., 2013), or legitimize unethically or socially, economically and politically unwanted or risky policy action (Bellamy, 2016; Gupta, 2011).

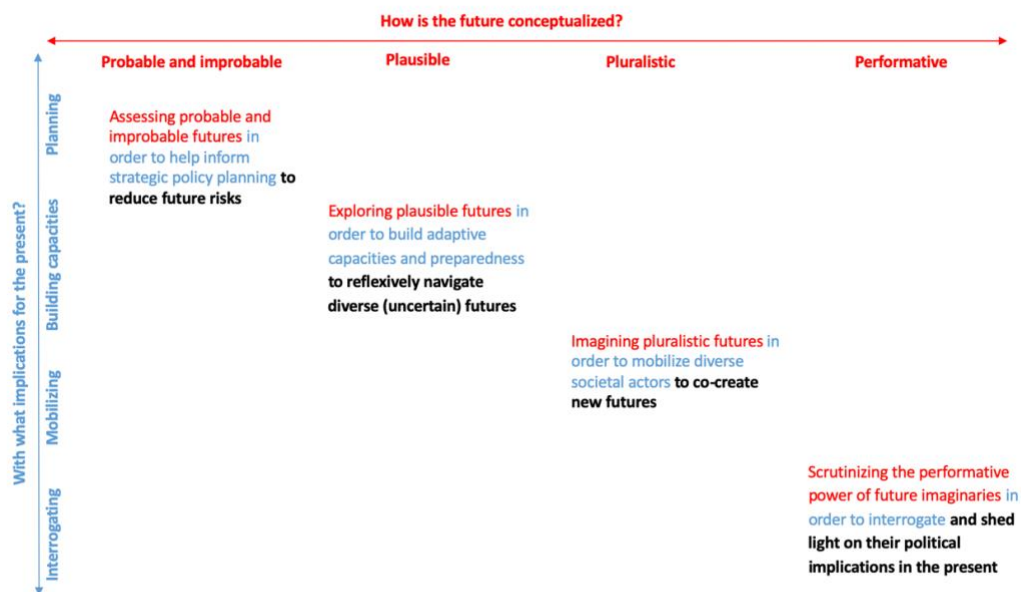
This report therefore examines processes of anticipation in one of the climate vulnerable regions of the Global South. It examines prior and ongoing processes of anticipation in South Asia, which is one of the most climate vulnerable regions in the world. South Asia is a region where the impacts of climate change are already being felt, climate change poses significant threats to the growth and development of the region, coupled with low governance capacities to effectively address its impacts which will cause severe long-term adverse impacts.

The research question we answer is: 'through what approaches are diverse processes of anticipation used to govern climate change in diverse South Asian contexts?'. In order to answer this question, our inquiry follows several steps. We first examine what methods and tools are used to anticipate climate futures and their role in climate policymaking. We then closely examine three case studies to understand their approaches to anticipatory governance. Additionally, we present the results of two regional meetings with stakeholders where we discussed the challenges that exist in each country to practice anticipatory climate governance and the opportunities to strengthen capacities in this field. Finally, we present recommendations forward to strengthen processes of anticipatory climate governance in the region.

In order to examine the approaches through which futures impact on the present, we rely on a recently developed analytical framework on anticipatory governance developed by Muiderman, Gupta, Vervoort & Biermann (Muiderman et al, 2020, see Figure 1). This framework identifies four distinct approaches to anticipatory governance in the aforementioned social sciences and interdisciplinary sustainability sciences literature based on three key elements. These elements are (a) how the future is conceptualized, (b) with what impact on action to be taken in the present, and (c) with what ultimate aim for engaging with anticipatory governance. We use these three questions to understand approaches to anticipatory climate governance in practice. The figure below presents the framework and maps the four approaches (in the boxes) onto a spectrum of conceptions of the future (the horizontal axis) and actions in the present (the vertical axis).

This research aims to address this gap by applying the framework as an analytical lens to comparatively analyse. We focus on South Asia, a region where the impacts of climate change are already being felt, climate change poses significant threats to the growth and development of the region, coupled with low governance capacities to effectively address its impacts which will cause severe long-term adverse impacts.

Figure 1. Analytical framework on anticipatory governance.



Key: **Red:** what conception of/engagement with the future; **blue:** how these intersect with actions to be taken in the present; **black bold:** why/to what end: the desired ends of engaging in/with anticipatory governance
 Source: Muiderman et al (2020)

1.3. About this report

This report presents the RE-IMAGINE research in one of its four regions: **South Asia**. Section 2 describes the role of anticipation for climate decision-making in South Asia. Section 3 describes our methodological approach. Section 4 examines the methods and tools of anticipation and their links to decision-making. Section 5 analyzes the conceptions of the future, implications for the present and ultimate aims of three processes based on the analytical framework. Section 6 examines perspectives on the opportunities and challenges for anticipatory governance in practice and section 7 ends with recommendations.

2. The role of anticipation for climate decision-making in South Asia

Climate policies in South Asia have traditionally emphasized technical solutions to control floods and other disasters without equally taking the socio economic aspects into account, which in the long-term lead to mal-adaptation (Brockhaus et al., 2013; Colloff et al., 2017). Even though several climate change adaptation (CCA) efforts are in place at the national and subnational levels in South Asia, they have been fragmented and incoherent, lacking perspective that integrates technological, institutional, financial, capacity, information and policy needs (Ahmed et al, 2019). Policy approaches that explicitly plan for the long-term can end such mal-practices by emphasizing the importance of flexibility and scale (Vij et al, 2017). The countries chosen for this research are highly vulnerable to climate change. Also, particularly for least developed countries (LDCs), literature suggests that the climate policy paradigms are strongly influenced by the international arenas, particularly the United Nations Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC), bilateral organizations, and donor agencies (Rahman and Giessen, 2017, cited in, Vij et al, 2018).

Bangladesh is vulnerable due to sea level rise, flooding and drought (IDL CARIIA 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). In Sri Lanka, projected change include sea level rise; an increase in mean annual temperature; increase in both daily maximum and minimum temperatures; change in precipitation; an increase in variability and extreme events. Increase in cyclone frequency and intensity and increased frequency and severity of floods, drought incidence, and landslides are also projected. In Bangladesh, adaptation policy initiatives are currently being implemented under the NAPA (2005) and (2009) and Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009; the country is following a Climate Change Adaptation (CCA) mainstreaming paradigm (Vij et al, 2018). Adaptation policies are steered towards mainstreaming as a key paradigm. Moreover, special climate cells have been created in the ministries to coordinate planning and implementation in sectoral ministries. BCCSAP in 2009 was prepared as a living document and the government is currently preparing a revised version. BCCSAP and NAPAs show reflexivity in terms of integration with other sectoral policies; they focus on sectors such as agriculture; water (urban and industry); infrastructure; housing; health; food security; disasters; and energy, emphasizing the aspect of reflexivity with other sectoral policies. Bangladesh has included adaptation in the annual development plans (6th and 7th five year plans) for creating robust and target-based interlinkages between sectors (Vij et al, 2017).

To boost adaptation, India has established the National Adaptation Fund on Climate Change (NAFCC) with a budget provision of INR 3500 million. This is apart from the allocated funds under the various NAPCC Missions. Of the twelve Missions outlined in the National Action Plan on Climate Change, six of the Missions have a focus on sectors wherein adaptation constitutes a core component – Mission on Sustainable Agriculture, National Water Mission, and Mission on Himalayan Ecosystems, the Green India Mission, and the Mission on Strategic Knowledge on Climate Change. Two new missions were recently added in 2015 with a focus on adaptation – Mission on Health and Mission on coastal areas. The cross-sectoral coordination represents ‘institutional flexibility’.

Nepal is following a localized action for CCA and DRR (Vij et al, 2018) approach and has prepared the NAPA document (2010) including the idea of local adaptation plans, followed by Climate Change Policy (CCP, 2011) and Local Adaptation Plan for Action (LAPA) framework document. Nepal is currently preparing a National Adaptation Plan, few sectoral policies also

include the climate change adaptation perspective (e.g., Environment- friendly Local Governance Framework, 2013 and Agriculture Development Strategy, 2015–2035).

In Pakistan, the goal of the National Climate Change Policy (NCCP), 2012 is to coordinate among different sectors and agencies for effective resilience building. NCCP aims to enhance institutional flexibility by coordinating different adaptation activities at national, sub-national and local level.

National strategies and plans for Sri Lanka include: the National Climate Change Policy of Sri Lanka (2015); National Adaptation Plan for Climate Change Impacts in Sri Lanka (2015); Technology Needs Assessment and Technology Action Plans for Climate Change Mitigation (2014); Second National Communication on Climate Change (2012); State of the Nation on Climate Change (2010) and the First National Communication on Climate Change (2000).

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, cited in, Vij et al, 2017). 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).

3. Methodology

This section describes how we selected (Section 2.1.) and analyzed (Section 2.2.) our units of analysis.

3.1. Case selection and search strategy

Our units of analysis are methods and tools of anticipation that are intending to inform climate decision-making. Our case selection included several steps. First, five countries were selected from the South Asian region, namely Bangladesh, Pakistan, India, Nepal and Sri Lanka. All five countries are highly vulnerable to the impacts of climate change. Bangladesh and Nepal are Least Developed Countries (Huq & Ayers, 2007), while India, Pakistan and Sri

Lanka have developing economies. Bangladesh and Nepal are also countries that the Climate Change, Agriculture Food Security (CCAFS) programme of CGIAR selected, which is a partner in the research project that this paper contributes to.

We then searched for policy documents, literature and process reports (grey literature) of anticipatory processes that have guided climate change decision-making. The search started on Scopus by using the following keywords: [country] AND development AND policy AND climate AND change AND future. This did not result in finding the relevant policies or the participatory anticipation practices in South Asia. The search was continued on Google search and Google scholar by using the following keywords: participatory AND future AND scenarios AND Climate AND change AND adaptation AND [country]. A Search was also conducted for climate AND socio AND economic AND scenarios AND policy AND [country]. These search criteria yielded more relevant results. The abstracts or executive summaries were read and the papers were assessed on their mentioning of at least two of the following keywords to identify any form of future-oriented planning: future, adaptation, anticipation, scenario, foresight. Using a snowball method, key informants working on anticipation in South Asia were approached via email and Skype to help identify key cases. The most relevant national policies in the climate adaptation domain were sought on government websites, Google scholar and Google.com. Journal articles and reports were assessed that reviewed most relevant climate adaptation policies. These included national adaptation programmes of action, national adaptation plans, five-year development plans, vision strategies, climate change strategies, climate change health adaptation strategies and sustainability policies. Regional climate governance experts helped to make the most relevant selection of policies. We collected development and climate policy documents from each country. The policy documents were considered for review based on the discussions with experts in each country.

The scope of the anticipatory governance practices were kept limited to those that had been initiated in the last decade (2008-2018); and a maximum of five per country, selected based on their focus on climate change adaptation.

As a next step, we selected four examples for further scrutiny of the approaches to anticipatory governance. Examples were included that are diverse in the methods and tools

that had been used as well as the actors involved. We searched for additional reports on the anticipation processes (e.g. workshop reports) and also held 12 semi-structured interviews with stakeholders on both sides of the anticipation-policy interface. We interviewed at least three key stakeholders involved in each process: one informant who took part in the facilitation of the practice; one intermediary informant who connected the anticipation practice with policy making; and one informant from the policy side. As a final step, we held a regional focus group with diverse stakeholders to share our findings and discuss if and why certain approaches are valued over others.

3.2. Approach to the analysis

Our case study analysis relied on qualitative research methods to understand, analyze, and describe the approaches through which anticipation informs decision-making. First, the policies were analyzed on the types of methods and tools used and how they informed the decision-making process.

Then, the three cases were examined on the approaches to anticipatory governance with help of the analytical framework by Muiderman et al. (2020) based on the policy documents, process reports and interviews. This triangulation of data helped to verify and contrast findings.

Finally, we organized two workshops to discuss the research findings and perspectives on what anticipatory governance should do. We discussed what processes of anticipation were used, the challenges that exist in each country to practice anticipatory climate governance and the opportunities to strengthen capacities in this field.

4. The role of anticipation in policy formulation

Table 1 below illustrates the initial set of policies and practices that were analyzed on the role of anticipation in climate decision-making.

Table 1. Analysis of links between climate adaptation policies and anticipatory processes.

	Policies for climate adaptation	Anticipatory processes
Bangladesh	7 th Five Year Plan (7FYP) [CCAFS Scenarios]	DECCMA Scenarios Bangladesh
	Bangladesh Delta Plan 2100	Bangladesh Participatory Scenario Development (PSD) Approaches for Identifying Pro-Poor Adaptation Options - Economics of Adaptation to Climate Change (2010)
	[the anticipatory process in the next column did not inform a policy document]	Climate change adaptation and migration scenarios in BGD
Pakistan	Framework for economic growth (2011)	The UNEP Country Studies on Climate Change Impacts and Adaptations Assessment (2000) Pakistan
	Pakistan national climate change policy (2012)	[no anticipatory process employed]
	Framework for implementation of climate change policy (2014 - 2030)	[no anticipatory process employed]
	Pakistan Vision 2025	[no anticipatory process employed]
India	12th Five Year Plan (Scenarios for India), Planning Commission	TERI socio economic scenarios for climate change impacts in India
	[the anticipatory process in the next column did not inform a policy document]	A scenario framework to explore migration and adaptation in deltas: A multi scale participatory approach
	[the anticipatory process in the next column did not inform a policy document]	WRI participatory scenarios development: A tool for effective planning

	[the anticipatory process in the next column did not inform a policy document]	Engaging stakeholders in developing food security scenarios (Kerala, India)
Nepal	Climate Change Policy (2011)	[no anticipatory process employed]
	National Adaptation Plan Process (2018)	[no anticipatory process employed]
	Nepal's National Adaptation Plan of Action (NAPA) (2010)	[no anticipatory process employed]
	National Climate Change Health Adaptation Strategies and Action Plans of Nepal	[no anticipatory process employed]
	National Framework on Local Adaptation Plans of Action (LAPA) 2011	[no anticipatory process employed]
Sri Lanka	Mahinda Chintana: Vision for the future 2010	CDKN CCD Scenarios for Sri Lanka
	National Adaptation Plan for Climate Change Impacts in Sri Lanka 2016 - 2025	[no anticipatory process employed]
	National Climate Change Adaptation Strategy (NCCAS) (2011 - 2016)	[no anticipatory process employed]
	National Framework on Local Adaptation Plans for Action	[no anticipatory process employed]
Regional	DECCMA (Deltas, Vulnerability & Climate Change: Migration & Adaptation) project is part of the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA)	[no anticipatory process employed]

The table illustrates that of the key climate policies, only five state to have employed processes of anticipation. We also found three anticipation processes that were not clearly linked to policy processes. Processes included primarily approach 1 type of probabilistic foresight methods that project climatic trends in quantitative trend analyses generated by several climate models. Participatory foresight processes were held in four cases, such as the DECCMA participatory foresight process in Bangladesh with multiple plausible futures; two more participatory scenario-guided policy formulation workshops in Bangladesh and one in India. Most commonly a consortium of partners were seen to work together to design and run the anticipatory methods, consisting of developmental/ research institutes working with

governmental organizations in the South Asian countries, and in a fewer instances partnerships with the civil society and the private sector, were seen. Major multilateral organizations mostly fund the practices, such as the World Bank, UNDP, UNEP, GEF and European Union (EU), along with donor governments and governmental organisations, such as USAID and DfID, UK, and international developmental research institutes such as the International Development Research Centre (IDRC). However, Scenarios for the 12th Five Year Plan for India were the only process that had been initiated and completed by its Planning Commission in collaboration with national research institutes.

5. Four diverse anticipatory governance processes

This section describes the findings from studying four processes in depth.

5.1. Bangladesh 7th Five Year Plan (2016)

In August 2014, the Bangladesh Planning Commission, International Centre for Climate and Development (ICCCAD), and the Future Scenarios Project of the CGIAR Research Program on Climate Change, Agriculture and Food Security Programme (CCAFS) based at the Environmental Change Institute (ECI), University of Oxford organized a two-day workshop that focused on developing impact pathways for the 7th Five Year Plan (FYP) in the context of socio-economic and climate scenarios. The ultimate aim for the CCAFS future scenario project was to engage with the future to support transformative change, ensure more inclusive outcomes and include risk reduction to climate change by mainstreaming climate change adaptation into the plan (a hybrid between approaches 1, 2 and 3 in terms of ultimate aims for engaging with anticipation). Since Bangladesh was one of the focus countries in the CCAFS portfolio, the SA regional coordinator had been actively looking for a way to engage effectively to ensure policy impact in the country. Given extensive contacts in the field of climate change and sustainable development in Bangladesh, when the idea to use future scenarios methods was floated, informing the 7th FYP, which was then at its initial conceptual stages was identified to be the most effective way to introduce this new method in the country.

The policy formulation process started in 2013 and the 7th FYP was finalised in December 2015. The formulation process started with a brief conceptual note outlining the vision, strategy and technical framework that the General Economics Division (GED) of the Planning Commission had formulate for internal use only. The CCAFS future scenarios team was able to use to plan for the use of scenarios methods using this planning document. The plan was funded and formulated by the Government of Bangladesh (GoB) and the future scenarios workshop was completed with technical assistance from CCAFS. The IPCC AR5 and IPCC climate scenarios were used to inform the workshop participants of the impacts of climate change regionally and nationally, which explore multiple plausible futures (an approach 2 conception of the future) along with national and international studies on possible future impacts of climate change on development, agriculture and food security in Bangladesh.

The CCAFS future scenarios workshop was the first time the concept of using future methods were introduced to inform policy in Bangladesh. It is important to note that future methods and the scenarios created were initially used as inputs into the plan. The plan was not yet formulated when the workshop was held. The workshop was able to inform and influence the key drivers that needed to be considered during the formulation of the plan. The policymakers wanted critical feedback from environment and climate change experts to make sure the policy, to be formulated by government officials who were mainly economists, would have a strong component of climate change and sustainable development. These policy makers pursued action in the present that aligned with approach 1. The fact that the scenarios workshop would deal with long term-uncertainty was very new and uncomfortable to them initially: the approach 2 type of anticipation was not considered before the CCAFS research program offered the possibility of organizing it. The process included participatory scenarios built by stakeholders from all divisions of the Planning Commission, Bangladesh; in hindsight it seems that the scenarios and outputs would have been much more inclusive if participation from a wider range of sectoral government ministries and organisations had been ensured, which was not possible at the point due to time and funding considerations.

The scenarios were downscaled from broader participatory South Asia scenarios that had included modelling to quantify the scenario narratives that the regional stakeholders came up with. The aim of the participatory scenarios were to impact the specific policy which was

the 7th FYP, the process was successful in integrating outputs and suggestions from the participatory future scenarios workshop and had a substantial impact on the final plan. The CCAFS South Asia Regional Coordinator working in close collaborations with the GED, Planning Commission and consultants from the Policy Research Institute (PRI) was able to get the outputs into the final 7FYP.

Policy actions from CCAFS aligned with approaches 1, 2 and 3, including providing policy advice, building adaptive capacity for preparedness and mobilising stakeholders to co-create pathways to mainstream climate change adaptation into the whole plan and work on the chapter on sustainable development: environment, climate change and disaster management. The scenarios outlined for the 7th FYP set out diverse futures based on future climate and socio-economic developments. Stakeholders included personnel from the General Economics Division (GED) of the Planning Commission who are responsible for the formulation of the five-year plans; ICCCAD were the local country partner who along with the CCAFS regional coordinators facilitated the workshop also attended by the members of international organizations such as the UNDP and World Bank.

Four scenarios were created for Bangladesh, adapted and re-named from the CCAFS South Asia scenario narratives and model results to describe a range of Bangladesh futures. Results were used as inputs into the 7th Five Year Plan (FYP) facilitated by the on-going ICCCAD learning hub work with the Planning Commission together with CCAFS South Asia Scenarios Coordinator supporting writing up and fostering greater understanding with Govt. through continued interactions and events. By using the results from the CCAFS participatory future scenarios workshop issues related to mainstreaming climate change adaptation, climate risk management, climate resilient development, urban development, food security and low carbon development were integrated into the full plan and especially into chapter (8) on sustainable development: environment, climate change and a disaster management along with consultants from the Policy Research Institute (PRI).

5.1.1. In-depth case 2: 12th Plan and Scenarios for India, Planning Commission

For India's 12th Five Year Plan (2012 - 2017), the Planning Commission stakeholders with diverse backgrounds came together to develop scenarios to facilitate new, collaborative conversations, amongst citizens and policy-makers, regarding India's future. The motivation

of engaging with the future was to understand the major challenges India would face in the future and to ensure more democratic and inclusive outcomes that took voices of all the different regions and social groups into consideration (aligning with the ultimate aims of approaches 1 and 3). The preparation for scenario making for India's 12th plan was an extensive process. The process started with an integrative reflection in 2010 by all divisions of the Planning Commission, cutting across their organisational and disciplinary boundaries about the fundamental challenges the country was going to face in the future (Planning Commission, 2012). In order to examine the challenges and suggest how they could be managed, a widely participatory process was carried out.

The consultations with stakeholders from the Planning Commission led to the finalisation of twelve challenges for India, a few of which are on managing the environment; decentralisation, empowerment and information; securing the energy future; rural transformation and sustained growth for agriculture, etc. (Planning Commission, 2012). Civil society organisations came together on a common platform of their own called Wada Na Todo Abhiyan (WNTA). More than 60 civil society groups representing a diverse groups, including children, youth, women, the elderly, education, and health participated in the meeting. Decision-making was influenced by the engagement with different stakeholders on issue framing. The Planning Commission expressed its keenness to get civil society inputs at all stages of the 12th Five Year Plan, with particular emphasis on the preparation of the approach paper that would inform the 12th FYP. It was decided that national consultations with around 16 social groups would be held before the approach paper was prepared, and an attempt would be made to get regional inputs by spreading national consultations geographically. Inputs from the civil society were then integrated into the Approach Paper to the 12th Five-Year Plan. 608 civil society organisations, 193 individuals and 11 media organisations gave inputs for the Approach Paper via consultations supported by UNDP, India.

Practices used included participatory scenario narrative building which were then quantified by a system dynamics model. The conception of the future was embedded in imagining plausible future to prepare for (an approach 2 conception of the future). The Center for Study of Science, Technology and Policy, a policy research think tank, developed a systems' map to provide a more rigorous grounding for the scenarios by developing the conceptual

scenarios model into a more robust systems dynamics model. System dynamics techniques were used to understand the different aspects. The system's analysis included identification of stakeholders, forces that shape the future and the interaction amongst the various forces. As the analysis proceeded it was tested in various forums including workshops with international development experts and mid career Indian Administrative Officers (IAS) officers from around the country; these interactions were used to validate the scenarios.

Several participants of the original Scenarios exercise expressed an interest in seeing the quantitative outcome of the scenarios. In response, the National Council of Applied Economic Research (NCAER) was commissioned to create a macroeconomic model that would provide quantitative rigor to the original scenarios. NCAER created an analysis of the three alternative scenarios noted above, set in a comprehensive macroeconomic framework. This model provided insights into how the reforms and policy decisions discussed in the scenarios could influence traditionally measured dimensions of the economy over the 12th Five Year Plan period.

Even by the first five-year milestone in the long horizon of the scenarios, the model showed stark differences in GDP growth, fiscal deficits and other measures among the various scenarios. Young professionals at the Planning Commission volunteered their time to examine the plan document and distil key initiatives from each chapter that support these strategies to lead to the desired outcomes. The policy process was directly impacted by the use of strategies outlined in the scenario document. The scenarios created helped by providing strategic policy advice, building adaptive capacities for preparedness and mobilizing stakeholders to co-create strategies to prepare for different plausible futures (aligning with approaches 1,2 and 3 actions in the present). These recommendations in the Plan document are thus directly seen to connect to the strategies outlined in the Scenarios document. Each of these identified initiatives were grouped under the specific level of impact outlined in the Scenarios document viz., Inclusion, Governance and Sustainability. These initiatives advocated greater focus not only on infrastructure and human capital investments, but also on specific sectors that have the greatest potential to provide large scale employment, so that India can successfully reap its much-vaunted 'demographic dividend'. The system analysis revealed three scenarios for India. They can be described under the headings of Insufficient Action (or Muddling Along), Policy Logjam (Falling Apart),

and Strong, Inclusive Growth (The Flotilla Advances). These scenarios resulted from three different configurations of the three “theories-in-use” outlined previously.

5.1.2. In-depth case 3: Bangladesh Delta Plan Scenarios 2100 (BDP 2100) [with support from the ESPA Delta Scenarios]

The Bangladesh Delta Plan 2100 was approved in September 2018 with financial support from the government of the Netherlands. The plan was an outcome of extensive collaboration of two groups of Dutch and Bangladeshi experts, under the supervision of the General Economic Division (GED) of the Bangladesh Ministry of Planning. The vision for the plan was to achieve a water secure, flood safe, climate resilient and prosperous delta, which ensures long-term water and food security, economic growth and environmental sustainability by means of robust, adaptive, integrated planning strategies and equitable water governance (GED, 2018b).

The development of scenarios was an important element in the Dutch Delta Approach. They defined scenario development in a probabilistic traditions (approach 1) as a planning tool that consists of the development of coherent narratives of alternative hypothetical futures that are presented on the x and y axes of a four quadrant matrix (Terwisscha Van Scheltinga et al., 2015). Dutch consultants were assigned to engage in scenario development as part of the development of the BDP 2100. These consultants were affiliated with Dutch research and knowledge institutes: Deltares, IHE Delft, Ecorys and Wageningen University.

They first intended to replicate the Dutch Delta Plan of 2008 by developing contextual scenarios. The intention changed when more than one hundred participants in the scenario development workshop, mostly representatives of various Bangladeshi ministries, identified external drivers other than climate change and socioeconomic development. Workshop participants emphasized population growth, land management and administration, political developments, trans-boundary water sharing and upstream development (among others) as other important drivers that would influence future uncertainties in Bangladesh.

The Delta Plan Team (A) integrated some of the prioritized drivers identified by the participants in the workshop with the Dutch scenario drivers of climate change and socioeconomic development (Hasan et al, 2020). For the BDP 2100, the final scenario drivers

that were decided upon were climate change and trans-boundary water management on the horizontal axis and socioeconomic development and land use changes on the vertical axis.

The GED invited team B, a representative of the Bangladesh Water Development Board of the Ministry of Water Resources, and consultants from the ESPA (Ecosystem Services for Poverty Alleviation) Deltas Project to review the scenarios. The consultants from the ESPA Deltas Project were invited because they had also developed scenarios. Their scenarios were explorative strategic ones that included policy options. This allowed them to partly fulfil their project objective of providing Bangladeshi policymakers with knowledge and tools to help them evaluate the effects of policy decisions on people's livelihoods (Hasan et al, 2020). The ESPA Deltas consultants suggested the use of integrated modelling to assess the validity of the scenario drivers. The final recommendation of the GED was for team A to update the four developed scenarios so that they could be presented to a designated Panel of Experts, which was formed to provide feedback on the developed contents of the BDP 2100. The next step in the process was for two leading consultants of team A to present the scenarios to the Panel of Experts. They suggested developing a range of scenarios based on additional external drivers. Team A representatives disagreed, reiterating that the four plausible futures merely serve as the corner flags of the playing field of plausible uncertain futures. They highlighted that the development of four scenarios in a two axes matrix is a proven method already used in the Netherlands and Vietnam. This resulted in the development and inclusion of two additional scenarios: business as usual and fast urbanization. The development of scenarios for the BDP 2100 thus transformed into something very different than what it was in the Dutch Delta Plan.

Further translations to the strategic scenarios happened during the drafting of the BDP 2100 by team B consultants. They decided to translate the scenarios into something that would be more easily communicable to policymakers and more suitable in the context of development in Bangladesh (Hasan et al, 2020). They did this by placing the scenarios in a macroeconomic framework and proposed only two scenarios on the basis of a macroeconomic analysis that they carried out. In their analysis, they integrated macroeconomic, employment, poverty and environment models (among others) for each of the six geographical regions (the BDP 2100 hotspots) with the use of data from the Bangladeshi ministries, bureau of statistics and knowledge institutes. By assessing the economic impacts of climate change with an

emphasis on economic and environmental variables, they showed the implications on anticipated GDP growth, and employment and poverty reduction. The final two scenarios of team B were: what happens 'without' (business as usual) and 'with' a delta plan' (Hasan et al, 2020). Team B thus translated the strategic scenarios into four policy scenarios (cf. Enserink et al., 2010), with the scenarios becoming policy options.

The GED clearly preferred to use the policy options of team B over the scenarios developed by team A. This was because in their opinion the policy options better allowed establishing a positive causal link between the BDP 2100 and the Bangladeshi government's economic and political interests. The Team A scenarios made use of a probabilistic approach, in which the level of probability remained unspecified. Hence, the GED's preference for policy options over the scenarios developed by team A did not just stem from the desire to make more realistic projections of future uncertainties. The GED also developed the contents of the policy options as a strategy to convince the Bangladeshi government that the BDP 2100 would be an important instrument for achieving its political aspirations and development goals. For the GED, the policy options in the BDP 2100 were a tool to negotiate political buy-in for the BDP 2100 (Hasan et al, 2020). In Bangladesh, the development of BDP 2100 instead was deliberately inserted into normal political and bureaucratic planning processes (Hasan et al, 2020).

5.1.3. Regional Case Study: 4: The Deltas, Vulnerability and Climate Change: Migration and Adaptation (DECCMA) Scenarios 2015

Since the implementation of the SDG under changing conditions requires appropriate engagement of various stakeholders at multiple levels, the DECCMA scenario approach highlighted the concept of combining expert-based and participatory methods. It aimed for the use of a systematic multi-stakeholder engagement process in the development of alternative adaptation policy trajectories for deltas to respond to future changes in climate and socio-economic drivers. The main purpose of the DECCMA scenarios and participatory process was to integrate various complex strands of the project for developing appropriate multi-scale scenarios and policy trajectories. The concepts and methods used allowed to incorporate inputs of various experts (including technical country experts from each case study delta), views and priorities of (non-technical) stakeholders (e.g., policy/decision-makers) at multiple-scales, and integrated modelling approaches. Such approaches

recognise the role of, and provide an important platform to capitalise on, local knowledge (e.g., on historic trends and existing policy directions) and bringing various (technical and non-technical) ideas together on how best to plan for and respond to the potential impacts of future climate, environmental and societal changes. The participatory approach also took into account the multi-scale scenario needs identified within the project.

It used the latest RCP–SSP–SPA global scenario narratives and associated regional and national scenario projections as boundary conditions to develop delta-specific policy trajectories and identified an associated list of specific adaptation interventions. This was achieved through the implementation of the integrated scenario framework that recognises the multi-dimensional nature of the scenario matrix architecture and the needs and challenges of stakeholders at multiple scales.

The scenario development process adopted builds on the ESPA Deltas experience, recognising that DECCMA is a more complex scenario space. The scenarios were used for analysing the future of two contrasting deltas in South Asia: (i) the Ganges-Brahmaputra-Meghna (GBM) delta (Bangladesh/India) and (ii) the Mahanadi delta (India). This included assessment and comparisons of the implications of future climate and socio-economic changes in terms of (i) the short- to medium-term socio-economic impacts (e.g., up to 2050), (ii) the long-term biophysical changes (e.g., up to 2100), and (iii) simulations of the implications of sea-level rise beyond 2100 across the three deltas. In order to achieve this, the scenario framework comprised a multi-scale hybrid approach, with six levels of scenario considerations: (i) global (climate change, e.g., sea-level rise, temperature change; and socio-economic assumptions, e.g., population and urbanisation changes, GDP growth); (ii) regional catchments (e.g., river flow modelling), (iii) regional seas (e.g., fisheries modelling), (iv) regional politics (e.g., transboundary disputes), (v) national (e.g., socio-economic factors), and (vi) delta-scale (e.g., future adaptation and migration policies) scenarios. The framework also included and combined expert-based and participatory approaches and provided improved specification of the role of scenarios to analyse the probable future state of adaptation and migration across the three deltas (combining an approach 1 conception of the future with an approach 2 ultimate aim). It facilitated the development of appropriate and consistent endogenous and exogenous scenario futures: (i) at the delta-scale, (ii) across

all deltas, and (iii) with wider climate change, environmental change, and adaptation and migration research.

6. Regional discussion

The workshop was held with experts from the GED, Planning Commission of Bangladesh, who have previously been involved in three separate scenarios processes to inform national policy formulation. They had various levels of involvement but were aware about how future foresight methods can be used by policymakers for developing long-term plans and programs. The Re-Imagine project was introduced, the framework discussed briefly and preliminary results of the research conducted in South Asia were shared. The main objective of the workshop was to understand, identify and discuss the challenges in conducting and using anticipatory practices to support climate change adaptation and development policy.

For the first part of the group discussion, the following questions were put forward (Group discussion 1):

For those non familiar with climate foresight

- Is long term planning a part of legislation making in your region or country?
- What additional values do you see of such practices on policy development and implementation?
- Will you use such practices in your work please elaborate in both cases (Y/N)

Familiar with climate foresight:

- Did you find the exercises useful please elaborate
- Who usually develops climate foresight products such as scenarios and modeling in your region or country?
- Who drives such processes and uses them?
- What are the pros and cons of using such processes?

The participants were divided into groups of three with the above questions to discuss. Following which there was a round of discussions. Some of the points discussed are mentioned below.

After the discussion, the participants broke off into small groups to discuss the questions below:

Group Discussion 2:

- Have you used any anticipation process in the climate adaptation context?
- Do you know of any best practice examples we might have missed?
- Any contacts we should not forget?
- Do you recognize different conceptions of the future? Does it matter for climate adaptation planning?
- Where do you position yourself?
- Any comments/critiques on how to strengthen anticipatory governance in the region?

The main anticipatory practices used in Bangladesh have been participatory scenarios, supported by climate, socio economic and global economic models. The anticipatory processes have been mainly used to inform long-term development and climate change adaptation policy. The main challenges in conducting such processes were identified as the lack of in-house training and capacity building to conduct these processes without support from external partners and funding to carry out the processes throughout the full length. The SA Regional Coordinator, who has followed the anticipatory practices carried out at the Planning Commission, also identified how the transfer of a key government actors at the Planning Commission who had been trained in anticipatory practices while the processes took place have been transferred to various other departments. In their absence, institutional capacity had weakened and the new cohort of GED practitioners were not as well trained to conduct these processes on their own. A lack of collaboration and communication was also identified between the national university researchers who were working on the modeling and implementation and the government stakeholders. Unless an external party organisation, e.g. a foreign university or organisation, funded and organised in bringing these national stakeholders together, this most often did not happen. It was seen

that in Bangladesh anticipatory practices were mainly used for strategic policy planning and to showcase to the government the various trajectories the future might go towards. Anticipatory practices were used to allow the policymakers explore the different futures, and plan accordingly.

It was found that the main challenges faced by the participants when using foresight methods were loss of institutional memory, loss of institutional capacity through transfer of key resource persons, access and knowledge for scientific credibility and the time needed for the processing and analysis of data. Even though so many different groups have previously tried to mainstream the use of foresight methods for policy and planning at the GED the challenges identified above have caused a significant gap in the availability of key planners trained on the method. There was confusion among participants due to the many different kinds of models and scenarios being developed or used during targeted short periods rather than over a long term process. Most external stakeholders used to conduct such processes without much consistency between policy impacts and capacity building but that has been seen to be changing in South Asia as donors are need to make substantial policy impacts. The process of formulating scenarios is rather complex and difficult to understand but it can be a key tool in the face of fast and slow onset climatic and socio-economic challenges that Bangladesh will be facing in the coming decades.

7. Recommendations

Going forward it was identified in the workshop that both foresight experts and policymakers need to involve national universities, researchers and non-government stakeholders and increase training and capacity building opportunities for them as a whole. This would allow them to make an active contribution to the participatory processes, influence development and adaptation policy and make policies more inclusive. Duplication and lack of coordination between external efforts to influence the same government outfit or policy is an important issue that needs to be addressed. Line ministries who would be implementing the identified changes are often left out when donors/research organisations are only keen to have an impact on policy and often do not think about further

implementable actions or how to assess if their support at the policy level has had any significant measurable impact.

Institutional memory loss was identified as one of the main issues with government stakeholder capacity building. Even when government stakeholders were trained in these anticipatory practices, when they were transferred to different ministries, roles or countries the capacity and knowledge built was lost as brain drain. It was identified that the trained government stakeholders needed to ensure capacity building and training of their junior colleagues. Often times, the processes are run on external funding and with inputs from external experts, it was identified that the government organisations needed to ensure their own personnel and funds to ensure such capacity building is not dependent on external experts. If regular follow-ups were provided these kinds of events would be more effective in furthering thinking about mainstreaming climate change. Support and capacity building for technical knowledge within the government ministries is very scattered and sporadic.

In the case of Bangladesh, even though GED is very pro-active and supportive of allowing their officials to spend time in engaging with external experts to build technical knowledge, there is still a gap with knowledge partners/universities/projects interested to build capacity. There is very little ownership of the many capacity building and training events conducted by both national and international universities and research institutes, long term partnerships need to be curated where the government ministry would take ownership and responsibility. Direct usefulness of such programs are often missing, it is difficult to use information in a properly integrated way, and monitor the usefulness of such sharing of information would allow for a greater understanding of what is more efficient and effective.

The GED gets lots of offers for training and capacity building from a range of places/universities, there is often duplication of efforts from external partners which does not help given government officials are short of time to give to such capacity building and training events anyways. While backed by good intention, much of the capacity building initiatives are scattered, not integrated into internal practices or long running. Long-term retention of staff in government service is not possible at the same ministry either, which adds to the knowledge retention issue.

Many policy formulation functions are carried out by external consultants and not by in-house staff members, this has also led to a oversight of increasing staff capacity to formulate and finalise national plans, policies and strategies on their own. Sometimes short-term investments in capacity building and training do not lead to big impacts; sometimes even big investments fail to mainstream climate change in the development process.

Foreign training on scenario methods and adaptive delta management of 27 officers was ensured during the formulation of the Delta Plan. While many scenarios planning workshops were conducted during the Plan and there was an investment of \$2 million only for scenario building exercises. The strategy was created based on the scenario but still in the final text of the Delta Plan the participating officials were not able to integrate any of the scenario outputs. Despite having invested quite a lot of time and funding, in the final text of the Delta Plan there was no mention of scenarios. After much persuasion they were able to keep the scenarios in the annex of the Delta Plan. This is to explain how difficult it is to mainstream new ideas and methods in bureaucratic policy making, hence just by conducting knowledge sharing and capacity building events such thinking cannot be integrated into the planning process.

There is a lack of adequate national level data and models in developing countries. It is not enough to introduce a concept; the pre-requisites for the concept need to be integrated into the system as well. Mainstreaming a concept into a system is a long-term process, there is a necessity to understand how the government system works and also assess the available resources for the process. Unless a link with the money allocation/investment system can be ensured, the scenarios will remain to be only an academic document. Successfully integrating the scenarios into the text of the plan will not be effective unless it can be translated into implementable actions via the financial allocation system, otherwise it will not have any impact at the ground level.

Capacity building for the junior to mid level multi-scale to top level through policy simulation approaches are necessary, there is a need for both technical skills building and top policy level knowledge and capacity building in order to bring new methods of thinking in policy making. These changes are only possible through investments and training at multiple levels. Mass scale capacity building and engagement is necessary to integrate scenarios thinking

into the government's planning process. Engagement for capacity building needs to be regular and not sporadic, technical institutes within the government are better at uptake of new concepts than non-technical institutes and staff. For eg. Building the capacity of government run and owned research institutes such as CEGIS and IWM in Bangladesh have been very effective. The GED needs a lot of technical knowledge, if there were a knowledge institute they were affiliated with they would not go to external institutions, GED needs to have its own knowledge institution for technical support. They will then become self sustainable and will not need external funding, if their capacity is built and they can make their own money by doing consultancies. Otherwise the technical expertise necessary for national economic development policies will continue to remain to be consultancy based that is never mainstreamed, and capacity of the institution will never be built.

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Annex

List of workshop participants

Designation	Organization
Director	ICCCAD
Member (Senior Secretary)	General Economics Division
Deputy chief	General Economics Division
Deputy chief	General Economics Division
Deputy chief	General Economics Division
Deputy chief	General Economics Division
Senior Assistant Chief	General Economics Division
Assistant Chief	General Economics Division
Joint Chief	General Economics Division
Chief (Attached)	General Economics Division
Assistant Chief	General Economics Division
Program Manager	IFPRI
Assistant Secretary	General Economics Division
Research Officer	General Economics Division
Senior Assistant Chief	General Economics Division
Assistant Chief	Programming Division
Senior Assistant Chief	General Economics Division
Assistant Chief / PS to Member	General Economics Division
Senior Assistant Chief	General Economics Division
Senior Assistant Chief	General Economics Division
Joint Chief	General Economics Division
Designation	Organization
Visiting Researcher	ICCCAD
Student	IUB
Coordinator	ICCCAD
Program Coordinator	ICCCAD
Project Assistant	GED



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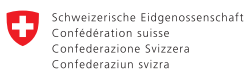
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