

Anticipatory climate governance in Southeast Asia

Working Paper No. 389

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

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RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
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Abstract

This report presents the RE-IMAGINE research in one of its four regions: ***Southeast 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. Anticipating the possible impacts of climate change has become a key global focus. 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 decision-making becomes increasingly important. How can the benefits and challenges of these processes of anticipation be better understood as governance interventions? Research into anticipatory climate governance processes in the Global South has remained very limited, while these regions are most vulnerable to climate change. This report therefore examines processes of anticipation in Southeast Asia. The research question we answer is: ‘through what approaches are diverse processes of anticipation used to govern climate change in diverse Southeast Asian contexts?’. 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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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, ICRIAT, 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

Many methods and tools are used today to imagine climate futures and develop strategies for realizing new futures. These include, for example, more formal foresight tools such as participatory scenario analysis (Kok et al., 2007; Vervoort et al., 2014) and modelling (Mason-D’Croz et al., 2016; Sampson et al., 2016), but also visioning and back casting (Quist et al., 2011; Robinson et al., 2011) cost-benefit analysis (Atkinson, 2015), experiential methods (Candy & Dunagan, 2017; Candy & Potter, 2019), gaming (Baena, 2017; Vervoort, 2019) and critical research methods (Hajer & Versteeg, 2019; Späth & Rohracher, 2012) can be used with a future-orientation. 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).

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). Research into anticipatory climate governance processes in the Global South has remained very limited, while these regions are most vulnerable to climate change. This report therefore examines processes of anticipation in one of the climate vulnerable regions of the Global South.

The research question we answer is: ‘through what approaches are diverse processes of anticipation used to govern climate change in diverse Southeast 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 how they intend to inform climate change decision-making. Then we analyze how engagement with futures is seen to impact choices in the present, and to what ultimate aims. And finally, we examined dominant perspectives on what anticipatory climate governance should do 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. These four approaches are distinct in terms of (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. 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).

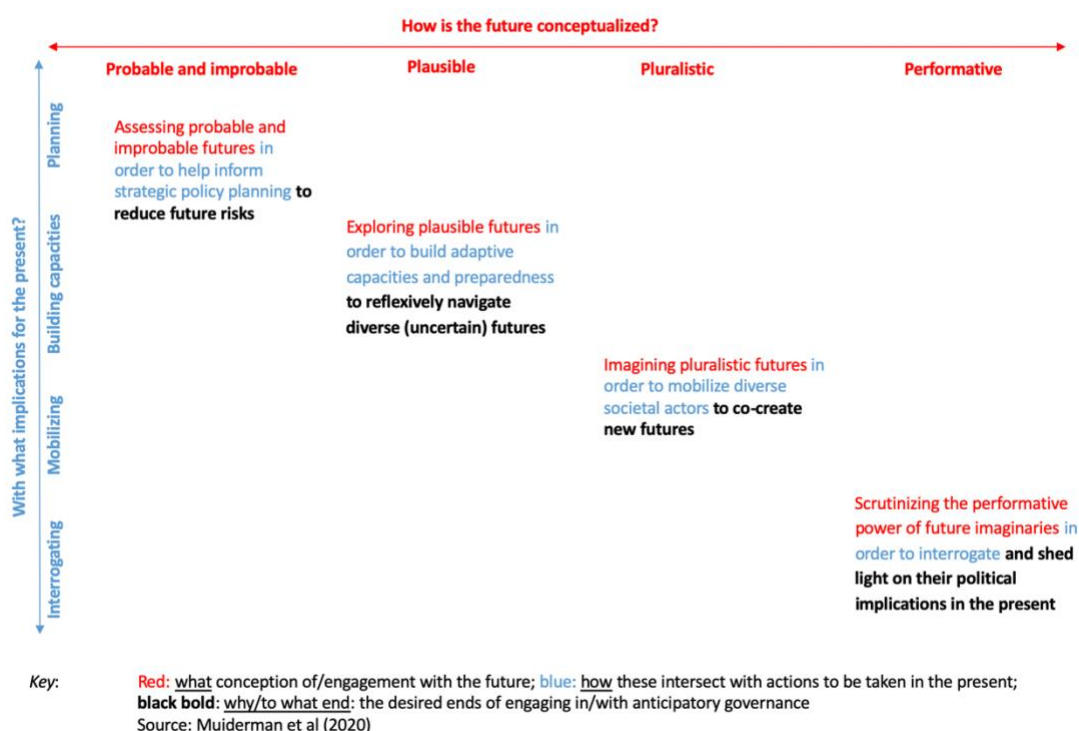


Figure 1. Analytical framework on anticipatory governance

1.3. About this report

This report presents the RE-IMAGINE research findings in one of its four regions: **Southeast Asia**. Section 2 describes our methodological approach. Section 3 examines the methods and tools of anticipation and their links to decision-making. Section 4 analyzes the conceptions of the future, implications for the present and ultimate aims of three processes based on the

analytical framework. Section 5 examines perspectives on the opportunities and challenges for anticipatory governance in practice.

2. Methodology

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

2.1. Case selection and search strategy

This Southeast Asia regional report looks specifically at how anticipatory processes have been employed for policy making in Southeast Asia over the last 10 years. Out of the 10 countries in the Association of Southeast Asian Nations (ASEAN), 5 countries were selected with the lowest incomes in the region yet high state level of adaptation legislation.

We then searched for policy documents, literature and process reports (grey literature) of anticipatory processes and climate policies in these five countries. We first searched for literature on Scopus using the key words [country] AND anticipation AND policy AND climate AND change AND future. This search had few results. We then broadened our scope and searched for literature on Scopus using the key words [country] AND development AND policy AND climate AND change AND future. We then found mainly papers on country climate vulnerabilities. Finally, we pursued our strategy through a traditional legislative stocktaking by reviewing policies, plans, laws, and regulations endorsed in the last 10 years. The principal researcher requested the relevant parliamentary working committees for print versions of the certified translations of policy documents which were primarily available in hard copy.

From 2010 to 2018 were 67 national policies or regulations passed that addressed climate change risks, adaptation, and mitigation in the 5 selected countries. Of these 67, 18 policies referred to processes of anticipation, such as climate modeling or scenarios. We set the limit to 5 policies per country and selected those that were most considered most influential for climate change related decision-making. This was based on the regional experience of the principal investigator as well as other regional climate governance experts who were asked to help identify the most relevant policies. Table 1 below lists the policies included for each

country, as well as the year by which they were passed and if they were executive or legislative.

Table 1. Policies selected for analysis

Country	Name of policy	Year passed	By
Vietnam	"Resolution 24/NQ-TW: Active response to climate change, improvement of natural resource management and environmental protection"	2013	Executive
Vietnam	"Decision No. 543/QD-BNN-KHCN: Action Plan on Climate Change Response of Agriculture and Rural Development Sector in the Period 2011-2015 and vision to 2050"	2011	Executive
Vietnam	"The National Climate Change Strategy and the No: 2139/QD-TTg Decision on Approval of the National Climate Change Strategy"	2011	Executive
Vietnam	"Decision No. 158/2008/QD-TTg on the Approval of the National Target Programme to Respond to Climate Change"	2008	Executive
Vietnam	"Decision No. 2730/QH-BNN-KHCN: Decision on Promulgation of the Climate Change Adaptation Framework Action"	2008	Executive
Philippines	"Executive Orders no. 43 and no. 24 , Cabinet Cluster on Climate Change Adaptation and Mitigation"	2011	Executive
Philippines	"National Climate Change Action Plan"	2011	Executive
Philippines	"Framework Strategy on Climate Change"	2010	Executive
Philippines	"Philippine Disaster Reduction and Management Act (RA 10121)"	2010	Legislative
Philippines	"Philippine Strategy on Climate Change Adaptation"	2009	Executive
Cambodia	"Cambodia Climate Change Strategic Plan"	2013	Executive
Cambodia	"Green Growth Policy"	2009	Executive
Indonesia	"National Medium-Term Development Plan 2015-2019 (RPJMN 2015-2019)"	2015	Executive
Indonesia	"Law 31/2009 Concerning Meteorology, Climatology and Geophysics"	2009	Legislative
Indonesia	"Law 32/2009 Environmental Protection and Management"	2009	Legislative
Lao PDR	Strategy on Climate Change of the Lao PDR	2010	Executive
Lao PDR	Environmental Protection Law (2013 version)	2013	Legislative
Lao PDR	Natural Resources and environment Strategy, 2016-2025	2015	Executive

Taking these policies as a starting point, we then complemented our search by looking for reports that discuss the processes of anticipation that had been used. We examined the links between 18 anticipatory processes and climate adaptation policies in Vietnam, the Philippines, Cambodia, Indonesia, and Laos, before analyzing three anticipatory climate governance processes in detail.

As a next step, we selected three 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 scales that had been examined. We searched for additional reports on the anticipation processes (e.g. workshop reports) and also held 11 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 2 regional focus groups with diverse stakeholders to share our findings and discuss if and why certain approaches are valued over others to understand why certain approaches may dominate (see the picture below).



Picture 1. One of the focus group discussions

2.2. 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, to answer our final research question, 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.

The role of anticipation in policy formulation

This section presents the findings from reviewing the use of anticipation processes for climate change decision-making.

Climate change is a global concern and of special relevance to Southeast Asia, a region that is both rated as one of the most vulnerable regions of the world to the impacts of climate change and the most rapidly increasing region emitter of greenhouse gases. Most recently, foresight modelling and scenarios were used to guide Climate Action for Agriculture for ASEAN with the formulation of an ASEAN Common Position on Agriculture for the COP 23 to straightening the role of agriculture in the UNFCCC COP negotiations its Subsidiary Body for Scientific and Technological Advice. Using participatory approaches country participants developed a national long-term vision and quantifiable objectives for the agriculture sector, taken by policy priorities outlined in their NDCs and relevant national development plans and strategies. Potential strategies, policies, technologies, and investments were identified

aligning and contributing to one of the most important ASEAN legal frameworks; the Vision and Strategic Plan for ASEAN Cooperation in Food, Agriculture and Forestry 2016-2025.

There is a strong will to govern climate futures and with it comes an increasing appreciation for anticipation processes. The Philippines and Vietnam are generally seen as “adaptation pioneers”, Cambodia and Indonesia as the “emerging champions” and Laos still as the “wait-and-see country”. Climate foresight modelling and scenario development are increasingly being used for planning and decision-making in the agriculture sector in Asia (FAO 2018). Scenarios offer a way to address uncertainty about futures by creating “coherent, internally consistent storylines that explore plausible future states of the world or alternate states of a system” (adapted from IPCC 2013).

This also shows from our analysis. Almost all national policies reviewed used some form of anticipation processes to guide climate change decision-making. Anticipation processes generally include climate projections and forecasts, scenario narratives and visioning processes. The policies are quite specific on how the anticipation process was used for decision-making. The level of participation varies, some are an expert-driven process, while others explicitly seek to develop a common future. There is an increasing concern for enhancing people’s reflectivity about the future climate impacts of climate change and strategically working towards more resilient societies.

Table 2 below lists the 18 processes analyzed and how they informed climate change decision-making.

Table 2. Results from analyzing the role of anticipation in key national policy processes

National policies	What anticipatory process was used?	How did it inform policy?
Vietnam		
"Resolution 24/NQ-TW: Active response to climate change, improvement of natural resource management and environmental protection"	Mid and long-term forecasting model on the impact of climate change on social economic development and natural resources and environment development	Specific objectives for the year 2020 regarding climate adaptation and mitigation, reducing GHG emissions, waste and pollution reduction in urban areas and water bodies, coastal protection and sustainable use and restoration of natural resources
"Decision No. 543/QĐ-BNN-KHCN: Action Plan on Climate Change Response of Agriculture and Rural Development Sector in the Period 2011-2015 and vision to 2050"	Forecasting of decreased productivity of paddy crops by climate change in seven ecological zones and assessment of adaptive capacity to climate change in multiple sectors	Undertaking programs to review, raise awareness and strengthen policy for adaptive capacity of the agricultural, forestry, fishery, water resources and salt production sectors and for rural development
"The National Climate Change Strategy and the No: 2139/QĐ-TTg Decision on Approval of the National Climate Change Strategy"	Forecasting of climate change impacts on disaster risk, agriculture, sea level rise, economic damage, and public health	Mid and long-term targets are set for obtaining a low-carbon economy, GHG reduction and climate change adaptation, international cooperation, raising awareness and joining forces with science and local communities
"Decision No. 158/2008/QĐ-TTg on the Approval of the National Target Program to Respond to Climate Change"	Assessment of climate change impact on domains, branches and localities, development of a long-term vision for integrating climate change in socio-economic development and elaborating a climate change response plan	Undertaking of development of climate change scenarios, work out response solutions, setting up scientific and technological socioeconomic development programs, form a larger legal basis for response activities and increase awareness and international cooperation
"Decision No. 2730/QĐ-BNN-KHCN: Decision on Promulgation of the Climate Change Adaptation Framework Action"	Forecasting of climate change impacts on agriculture, hydraulic work, forestry, salt production, aquaculture, and rural development	Action plan for research, communication, planning and implementation activities on further elaboration on forecasting climate change impacts, mitigation, and adaptation action. Seek more cooperation within ministries, sectors, research and internationally
Philippines		

"Executive Orders no. 43 and no. 24 , Cabinet Cluster on Climate Change Adaptation and Mitigation"	Mid and long-term climate forecasting model	The order supports the reorganization of the climate change adaptation and mitigation cluster in the line with the climate forecasting modelling analysis which put the focus on the conservation and protection of the environment and natural resources
"National Climate Change Action Plan"	Analysis of climate change scenarios and their impact based on climate projections of PAGASA. Development of a vision for climate risk resilience, socioeconomic development, and environmental protection	A medium-term action plan for climate change adaptation and mitigation was formulated, including priorities, and expected outcomes
"Framework Strategy on Climate Change"	Development of a vision for climate risk resilience, socioeconomic development, and environmental protection. Identification of key drivers of change. Analysis of climate change scenarios and corresponding impacts and vulnerabilities	The value of multi-stakeholder participation with civil society, private sector, local governments, and indigenous communities is explicitly recognized. A vision and goal for climate change adaptation are formulated and operationalized in a framework. Specific goals for mitigation, waste management and adaptation are set up
"Philippine Disaster Reduction and Management Act (RA 10121)"	Reference to climate scenarios under the IPCC and increasing vulnerability of Philippine	The act ensured a shift in the way in which the country dealt with disasters and moved towards a more adaptive and preparedness approach
"Philippine Strategy on Climate Change Adaptation"	Participatory conference with a broad range of stakeholders about climate change adaptation, including discussing adaptation scenarios delivered by experts and local adaptation case studies	A collaboration framework with localized consultants has been set up and taken up as a law. The Climate Change Act was enacted in 2009 because of the conference. Knowledge gaps are appointed for the sectors agriculture, biodiversity, coastal protection, energy, forestry, public health, and infrastructure. For every sector, a technical working group is set up to develop adaptation strategies for the impact of climate change
Cambodia		
"Cambodia Climate Change Strategic Plan"	Analysis of current and future national development and climate change risks and formulation of a vision, mission, and goals	Development of a strategy to deal with the anticipated impact of climate change by strengthening food, water and energy security and disaster management capabilities. Action plan for climate change adaptation in the immediate, medium, and long term

"Green Growth Policy"	A shared vision for the cohesion of economic growth and development, human well-being, and environmental quality, in order to improve the livelihoods of Cambodians	Proposal of short-, medium- and long-term interventions for greening industries, promoting innovation investments, financial incentives for development of sustainable agriculture and rural communities, creation of public awareness and participation, and setting up a National Ministerial Green Growth Council
Indonesia		
"National Medium-Term Development Plan 2015-2019 (RPJMN 2015-2019)"	Formulation a vision for the period 2015-2019 about economic, institutional, socioeconomic development and environmental restoration	Development of targets, an agenda and national priorities for natural resource and environmental management, and balancing social-economy-environment development
"Law 31/2009 Concerning Meteorology, Climatology and Geophysics"	Formulation of the need to internalize the inventory of greenhouse gasses into climate change policy	Set up of climate change adaptation policies, executing and monitoring programs. Raise awareness and enhance participation of local communities by actively informing the public and fostering climate change data collection and analysis
"Law 32/2009 Environmental Protection and Management"	Strategic planning of environmental protection and management, by developing an integrated system in the form of a national policy and environmental assessment framework	The Environmental Protection and Management Plan (RPPLH) is initiated to decrease environmental pollution and enhance environmental protection. It forms the basis of a medium- and long-term sustainable development plan. The strategic Environmental Assessment (KHLS) is initiated to monitor the integration of the RPPLH in policy and development programs using systematic, comprehensive, and participatory analyses
Lao PDR		
Strategy on Climate Change of the Lao PDR	Formulation of a vision for the future of Lao PDR: there is capability of mitigation and adaptation to climate change, and there is sustainable economic and environmental development. The effect of climate change for natural resources is analyzed and ways and means to achieve the future vision are included	Sector-specific options for adaptation and mitigation are mentioned to be able to achieve the future vision

<p>Environmental Protection Law (2013 version)</p>	<p>A strategic environmental assessment (SEA) is used to mitigate and anticipate on impacts for social and natural environment, including participation and consultation of local authorities and individuals</p>	<p>Individuals and organizations are participating in development of sectoral policies, strategic plans, and programs for protection of social and natural environment. Spatial land use planning and preventive measures against natural disasters, hazards and pollution are added to the environmental protection law</p>
<p>Natural Resources and environment Strategy, 2016-2025</p>	<p>The strategy development process employed a participatory process with both central and local level sectors. Participatory consultation workshops were conducted applying SWOT and PTA</p>	<p>The consultations have indicated five main themes to consider in the strategy, regarding sustainable management and planning of natural resources and environment, city and rural development and climate change adaptation and mitigation</p>

4. In-depth analysis of three anticipatory governance processes

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

4.1. Climate action for ASEAN Agriculture Resilient Societies 2020

The first process is the joint statement on Climate action for ASEAN Agriculture Resilient Societies 2020 which was developed and adopted by the Ministers of Agriculture and Forestry of ASEAN member countries in 2017. The joint statement provides the framework for actions for all ASEAN Submission to the Koronivia Joint Work on Agriculture (KJWA), which is a landmark decision under the United Nations Framework Convention on Climate Change (UNFCCC) that recognizes the unique potential of agriculture in tackling climate change. It was presented at the COP 24 following the developments made at the COP 23 and 24. It was the first effort to consolidate a joint vision to which all ASEAN Member countries could adhere. The ASEAN Climate Resilience Network supported this process and institutional knowledge partners such as UN FAO, CIAT, GACSA, CCAFS organized a regional meeting to present the state of art on climate forecast and foresight and discuss how it could support climate smart agriculture.

The joint statement was drafted using a participatory exploratory scenarios approach that was initiated in a regional workshop in Bangkok, 2017. A diverse group of around 40 stakeholders from 10 different countries participated in a two-day workshop, including policymakers, scholars and people working for development organizations such as FAO, USAID, GIZ, GACSA, CIAT, CCAFS, WBCSD.

Horizon mission methodology was used to create scenarios based on the official projections used in the country's NDCs. The starting point was that the future is not certain, but futures can be collectively created, and so participants were encouraged to share the desirable future they would like to see. Thereafter, participants worked in groups and determined potential strategies, policies, and technologies to achieve the visions. They also decided on a timeline for implementation and prioritized intervention against this timeframe. Several participants who were interviewed said they first felt that the future was envisioned as

“impossibly optimistic” and even “naïve”. However, after the scenario workshop discussed what steps would be needed to realize this future, they also said that the process did in fact provide interesting reflections on the current situation as well as a strategy for addressing the issues.

A visual overview of the pre-2020 NDC roadmap was created based on the work of the different groups, which formed the backbone for the joint statement and was endorsed by all ASEAN countries. Most prominently, the work has been important to create collective visions between stakeholders working at the frontline of the UNFCCC COP negotiations and UN Subsidiary Body for Scientific and Technological Advice (SBSTA) sessions, which develops early warning systems and contingency plans for extreme weather events, assessment of risk and vulnerability of agricultural systems. Part of the success was the result of the work of the ASEAN Climate Resilience Network who pushed for the implementation of the vision in flagship ASEAN policies such as the Vision and Strategic Plan for ASEAN Cooperation in Food, Agriculture and Forestry 2016-2025. Consequently, the group of stakeholders felt more confident to highlight climate-related agriculture problems and the co-benefits of adaptation and mitigation in the agriculture sectors (Mrs. Margaret Yoovatana, Thailand delegation, Focal Point ASEAN CRN). The process enabled participants to collaborate and transcend political differences and agendas for long-term commitment and engagement. The benefits were still felt at the SBSTA 50 in Bonn in June 2019 (Ms. Imelda Baccudo, Senior Adviser ASEAN CRN, GIZ).

4.2. Lower Mekong Basin Scenarios developed by the Mekong River Commission

The Lower Basin Mekong Scenarios were developed by the Mekong River Commission to provide direct input into The Basin Development Strategy 2016-2020. This is a regional policy endorsed and approved by the Mekong River Commission’s (MRC) Joint Committee and Council and ratified by Cambodia, Vietnam, Thailand, and Lao People’s Democratic Republic. The Basin Development Strategy 2016-2020 is considered as a ‘responsive strategy’, aimed to respond to future trends and long-term outlook.

These Lower Basin Mekong scenarios were based on scenarios that had been developed earlier for the MRC Basin Development Plan 2 process (2009-2011). The scenarios combined

diverse plans for sector developments, focusing on water use: domestic and industrial, irrigation, hydropower, and flood control (MRC, 2011). MRC Member Countries identified sectors that they considered key for water resources development and faced greatest risk of transboundary environmental and social impacts. For the succeeding Basin Development Strategy 2016-2020, nine qualitative basin-wide development scenarios were formulated for four different time horizons: baseline (2000); definite future (2000-2015); foreseeable future (2015-2030); and long-term future (2060). The plausibilistic scenarios were intended to be realistic, but not real. The Strategy and scenarios were developed in a two-year stakeholder engagement process representing both a top down and consultative process. The scenarios were based on estimates of maximum development possible within a 20-year time frame within a series of sectors that impinge directly on water resources, including hydropower and irrigation.

Nine climate scenarios were developed that covered: i) three magnitudes of climate change due to low, medium and high carbon emissions in the future; and ii) three seasonal patterns of climate change including an increase in precipitation in both dry and wet seasons ('wetter overall'), a decrease in precipitation in both dry and wet seasons ('drier overall') and an increase in precipitation in the wet season but a decrease in the dry season ('increased seasonality'). The scenarios were presented and then discussions in terms of their impacts on, amongst others, livelihood, economy, transport, environment.

As a second step, for the Lower basin Mekong level, the Mekong River Commission conducted several basin-wide studies to assess the impacts of climate change under the scenarios and prioritized resources and sectors in the Lower Mekong Basin. Studies included assessments of impacts of climate change on the Mekong's flow regime ("hydrology assessment"), on flood and drought behavior, on ecosystems and biodiversity, on food security, on hydropower and on livelihoods.

To staff working with the Lower Mekong Basin scenarios, it is most critical to define and apply future climate change scenarios in climate change impact assessment and adaptation planning. "The Basin Development Strategy 2016-2020 will never have had long term objectives if the scenarios developed were not practical enough" (anonymous). The Lower Basin Mekong Scenarios had been developed by the Mekong River Commission for a

strategic purpose, to feed into specific processes and justify collective actions towards a resilient Lower Mekong Basin under one ASEAN umbrella.

However, a review of scenarios and downscaling approaches by the Mekong River Commission in 2015 argued that the scenarios paid insufficient attention to increasing understanding of climate change uncertainties for each scenario and how to deal with it (CCAI, 2015). The review emphasized the need to work with a wider variety of General Circulation Models and emission scenarios when defining regional climate change scenarios for the Lower Mekong Basin. In addition, the process was perceived too long and not sufficiently inclusive (“Surface consultation”). Therefore, the validity and legitimacy of the scenarios was considered limited. Rapid changes to the region also made that the scenarios outdated rapidly. It was thus perceived as a costly exercise for policy makers to discuss common policy assumptions. In all, the credibility of the scenarios was limited, and they were hardly used for other projects.

4.3. The Vietnam Climate Change and sea level rise scenarios

After the National Climate Change Plan, the Ministry of Natural Resources and the Environment and the Institute of Meteorology, Hydrology and Climate Change requested the central executive committee to model climate change and sea level rise scenarios for a frequency of three years.

The development of the scenarios was considered a highly scientific process. The process was led by experts in a normative rather than exploratory process and reviewed by the Vietnam Communist Party. The scenarios served three purposes: (1) to review the overall system of policy and legislation on climate change adaptation, to (2) build policies and laws on green growth, and the green economy development approach; and (3) to increase the state budget for climate change responses. The latter included the direct investment budget for projects on coping with climate change, and integrated programs and projects on climate change in the annual plans and five-year plans.

The scenarios were integrated in a very holistic and purposeful manner in relevant national policies and external communication, especially to the UNFCCC. The scenarios were used in multiple policy cycles, national and subnational communication campaign and in a media workshop on climate change. Participants interviewed considered them accessible and

robust. Also, stakeholders that had not been involved were happy with the scenarios content and its integration into the various legislative processes, which demonstrates that foresight can interact and influence a large variety of stakeholders despite their lack of involvement.

Policymakers do not see scenarios development and use as optional but as one of the fundamental resources for developing and designing better policies and programs that are efficiently use national budget or investment. The government steers anticipation in a centralized way and ensures high policy integration. Interviewees considered this model to be robust and effective for national capacity building and inter-ministry coordination and commitment for addressing long-term climate change.

5. Regional discussions on the opportunities and challenges

One and a half year into the project, two sessions were held to present the first findings of the analysis and collect insights on challenges and opportunities for the anticipatory governance of transformative agriculture mitigation and adaptation. The main objective was to identify dominant perspectives on what anticipatory governance should do, in terms of the conditions for maximizing the use and impact.

The first meeting was integrated into a two-day Regional FAO Workshop that took place in Bangkok in July 2019, called 'Advanced assessment and planning technologies for Transformative Agriculture Adaptation and Mitigation'. Next to this, the principal researcher presented organized a session on 'Needs and opportunities to localizing the advanced data for transformative agriculture mitigation and adaptation'. In this session, participants joined in role playing based on 4 different scenarios and insights were collected from 70 participants from 17 countries including the 5 Southeast Asian countries under research.

During the workshops, participants shared that over the years climate change legislation multiplied. There are numerous new stakeholders and agencies to lead, support and test policy formulation. The fact that each policy is nationally endorsed demonstrates a strong

political will. The policy development was in many cases supported financially by multiple development partners and received input from technical partners at different stages of the policy. Key partners include the European Union, the Swedish International Development cooperation Agency, GIZ, World Bank and the United Nations Development Program (UNDP).

Foresight was considered useful in multiple ways for the formulation of climate policy. Generally, more than one scenario development process was used, and outcomes were “credited” by experts or from established institutions. An example of this is the Resolution 24-NQ/TW in Vietnam on Active in Response to Climate Change, Improvement of Natural Resource Management and Environmental protection which called in 2013 for “building capacity of forecasting, warning, actively preventing and mitigating natural disasters and adapting to climate change (...) by regularly updating and perfecting scenarios of climate change and sea level rise for the period 2030 with a vision 2050”. The use of socio-economic scenarios for the policy formulation or review process or ensured policy appropriateness, budget allocation and strategic design of investments. Such foresight was seen to be advanced foresight integration and best practice.

6. Recommendations

Here we provide a list of priorities actions based on our analysis to support practitioners and decision-makers who want to be more mindful of the ways in which foresight work can impact on present action towards more sustainable futures in the region.

- In order to meet the targets set as part of the Paris Agreement, all countries should strive towards progressive sustainability transformations, while taking into account common but differentiated responsibilities and capabilities
- Anticipation methods and tools provide opportunities for visualizing and understanding long-term climate impacts of e.g. greenhouse gas emissions on development
- Different methods and tools can be used in complementary ways
- Anticipation can be used to assess probable (and improbable) future climate risks
- Testing policy against diverse plausible futures can help make plans more robust to various uncertain future developments

- More futures work is needed that focuses specifically on making climate futures more socially inclusive
- Also are critical approaches needed to think about the ways in which certain investments, groups and perspectives are prioritized while others might be left behind
- Anticipation and foresight should thus be part of any regional and national planning process that seeks to contribute to a more sustainable future.
- To this end, capacities are needed at the regional and national level, as well as structural financial mechanisms.

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