

Thailand's Climate Change Governance from the Polycentric and Zero-Emissions Society Perspective

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Abstract

Thailand's climate change governance is assessed on the basis of the polycentric and the Climate Action Tracker (CAT) framework. This framework is a systematic approach to understanding current climate change governance and considers the aspects of key enabling factors for effective climate actions towards a zero emissions society. The results show that, over the last two decades Thailand has continually developed important elements of governance architecture to better manage climate change challenges. The orientation of Thailand's climate change governance has been steadily reformulated to move towards a polycentric mode, with diverse instruments formulated, cross - scale institutional arrangements and linkages established, multi - level actors, and different kinds of knowledge produced. One of Thailand's polycentric governance developments is a proactive engagement of public and private actors to enable more effective management of climate change. An additional CAT - based analysis consistently highlights that Thailand has advanced political commitments towards a zero - emissions society. Much progress can also be seen for the elements related to policy processes and stakeholder engagement, but the institutional framework regulating Thailand's governmental and ministerial processes for effective climate action is still weak. To advance towards more polycentric governance, Thailand should make efforts to focus on further strengthening existing mechanisms for climate change responses in the Paris Agreement (PA) regime, especially encouraging institutional reform and enhancing central - to - local coordination and decision - making processes. Moreover, stronger engagement of local - level actors provides a great opportunity to enhance polycentric governance and improve climate change responses at the front line.

Introduction

Climate change poses an unprecedented threat to societies around the world. The changes in the climate are widespread, rapid, and intensifying, and will increase with additional warming (IPCC, 2021, p.5). Therefore, climate change is undoubtedly one of the most daunting global challenges facing the international community in the 21st century. The global response to these great challenges is laid out in the United Nations Framework Convention on Climate Change (UNFCCC). Its ultimate objective is to achieve the stabilisation of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference (United Nations, 1992, p.4). To further strengthen an internationally coordinated effort, the PA adopted in December 2015 provides essential building blocks for universal actions to address climate change. The agreement specifically established two long-term global goals: “holding the increase in the global average temperature to well below 2° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5° C, to significantly reduce the risks and impacts of climate change” (United Nations, 2015, p.3). The PA also defines a universal and obliged framework to strengthen the global response to the threat of climate change. For the first time, all countries will develop plans on how to contribute to climate change mitigation and adaption, and will communicate their ‘Nationally Determined Contributions’ (NDCs) to the Secretariat of the Convention (United Nations, 2015, p.3).

Climate governance is of vital importance for the effective management of anthropogenic-induced climate change to pursue low-carbon and climate-resilient development (IPCC, 2018, p.19; United Nations Children's Fund, 2020, p. 9). It is also a critical determinant for sustainable development, equity, poverty eradication, and climate actions because they circumscribe the processes through which these goals and how to attain them are articulated and contested (IPCC, 2018, pp.20-19). Climate governance is defined in the broadest sense as the instruments, institutions, mechanisms, and processes of interaction and decision-making among

diverse actors aiming at steering social systems toward preventing, mitigating, or adapting to the risks posed by climate change (Hufty, 2011, p.405; Fleurbaey et al., 2014, p.297; Allen et al., 2018, p.71). This definition goes beyond notions of formal government or political authority, and integrates other actors, networks, informal institutions, and incentive structures operating at multiple levels of society. At an international level, climate governance is organised via many mechanisms, including treaties and conventions, for example the UNFCCC and PA. National governments provide a central pivot for domestic governance in terms of coordinating, planning, determining policy priorities, and distributing resources. In addition, sub-national and local governments can play a key role in influencing mitigation and adaptation strategies through coordinating and developing effective local responses (Melica et al., 2018, p.729; Romero-Lankao et al., 2018, pp.586-587). Climate change governance for mitigation and adaptation generally involves individual and collective efforts by diverse social actors, both within and between different levels.

In this article, the mode of Thailand's climate change governance is presented on the basis of polycentric governance perspectives. With this conceptual framework, how Thailand's climate change implementation and governance have evolved over the last two decades - a period during which climate change has risen in prominence on the international agenda is reviewed and discussed. Finally, the country's ability and readiness to transform into a zero-emission society also assessed.

Evolution of Thailand's climate change governance from polycentric perspective

1. Polycentric framework and assessment approaches

In the 1960s, the terminology of polycentricity was adopted in the context of metropolitan governance to describe a system of 1) many autonomous units

formally independent of one another, 2) choosing to act in ways that take account of others, 3) through processes of cooperation, competition, conflict and conflict resolution (Dorsch and Flachsland, 2017, p.48). The concept of polycentricity was subsequently used to analyze collective-action problems, initiated by a large-scale program of case and comparative studies of local common pool resources management. Later, the terminology was applied with regard to climate change, highlighting the potential to create and exploit co-benefits at multiple scales and levels to incentivize global commons management through climate mitigation and adaptation (Dorsch and Flachsland, 2017, p.49). Polycentricity was then accepted as a useful approach for understanding and improving efforts to reduce the threat of climate change (Dorsch and Flachsland, 2017, p.47). It has become common global-to-local system of climate governance with its own inherent logic, dynamics and stabilization mechanisms which offer opportunities for ambitious innovation - based climate strategies (Jänicke, 2017, p.108). However, the term is frequently employed as a metaphor to describe the empirical multitude of actors involved in natural resource, environmental, and climate governance at different scales. Polycentric governance and multi-level governance perspectives are closely related and some researchers consider multi - level governance a type of polycentric governance (Heinen et al., 2021, p.1). Polycentric governance perspectives on climate governance tend to emphasize the role of the local level and its capacity to self-regulate. In contrast, there is a tendency in multi-level perspective to study governance arrangements with formally interdependent actors (Heinen et al., 2021, p.2).

The polycentric framework was applied to assess the current domains and practices underlying Thailand's climate change governance. The concept of polycentricity offers descriptive value to understand horizontal and vertical differentiations of current climate change governance, and presents a multi-level and polycentric approach to enhance the design of the emerging national climate change governance architecture (Ostrom, 2014, p.97; Dorsch and

Flachsland, 2017, p.45; Arriagada et al., 2018, p.2; Heinen et al., 2020, p.1-2). Polycentricity has been increasingly recognised as a useful framework offering flexible solutions for generating effective responses to the multiple climate change challenges (Ostrom, 2014, p.97; Dorsch and Flachsland, 2017, p.45; Arriagada et al., 2018, p. ; Heinen et al., 2020, p. 1). According to Arriagada et al. (2018, p. 3), the polycentric framework consists of four domains: 1) relevant governance levels and corresponding roles; 2) cross-scale institutional linkages between multiple actors; 3) actors and their roles; and 4) knowledge production to improve efforts to reduce the threat of climate change. When combining these dimensions together, a continuum of governance modes ranging from state - centric to decentralized, bottom-up governing can be assessed by considering different aspects of the relationship between state intervention and societal autonomy. Within this framework, decentralized decisions can also be analyzed in relation to the polycentric approach and by highlighting local knowledge and territorial autonomy (Arriagada et al., 2018).

The research methodology mainly relies on qualitative approaches by collecting and analyzing non-numerical data to explore detailed insight regarding the evolution and current mode of Thailand's climate change governance. For obtaining such conclusions, a variety of related data is collected in a holistic, rich, and nuanced manner and findings are emerged through careful analysis (Onwuegbuzie et al., 2021). Therefore, this study is primarily based on a literature review and document analysis (Gill et al., 2008; Bowen, 2009; Pardoe et al., 2018). A set of available peer-reviewed articles, international and national reports, and publicly published meeting documents, and relevant information and data from key governmental websites was compiled and reviewed. The important content and information in the third National Communication (NC) and Biennial Update Report (BUR) as the latest national reports submitted to the Secretariat of the UNFCCC (ONEP, 2018, ONEP, 2020a) were extracted. The main steps of qualitative method applied here include 1) preparation and exploration of collected data 2) content and textual analysis to describe

and categorize important ideas, concepts and developments, 3) interpretation of the results to draw key findings and developments analyzed from a number of reports and documents. As far as possible, the document analysis followed a systematic procedure (Prior, 2003; Gill et al., 2008) designed to examine the extent to which Thailand's climate change implementation and governance has developed over time. The authors' experience as a national negotiator for UNFCCC, and involvement with national and subnational-level climate change policy and strategy formulation and development help to elaborate and discuss the results.

2. Thailand's climate change governance mode

Key features of Thailand's climate change governance mode based on the polycentric framework are presented in the following subsections.

2.1 Relevant national and sub-national governance levels of global climate agreements

Thailand pays great attention to global efforts to address the climate change challenge and shows its commitment to climate actions as the nation ratified the UNFCCC in 1994, became a member of the Kyoto Protocol (KP) in 2002, and made a recent commitment under the PA in 2016 (ONEP, 2018, p.53; ONEP, 2020a, p.1). Thailand submitted its Intended Nationally Determined Contribution (INDC) to the Secretariat of the UNFCCC in 2015, in which GHG emissions will be reduced by 20-25% from the projected business-as-usual (BAU) level by 2030 (ONEP, 2015a; ONEP, 2020a, p.66). It was later updated to NDC in 2020 (ONEP, 2020a, p.66; ONEP, 2020b). By the end of 2021 and just prior to the start of the 26th session of the Conference of Parties (COP26), Thailand submitted its mid-century, long-term low GHG emission development strategy that sets targets for the country to achieve net-zero emissions by the latter half of the century (United Nations, 2021). At the World Leaders Summit during COP26, Prime Minister Prayut Chan-o-cha also expressed that Thailand is ready to upgrade the effort in the NDC to 40%, with adequate, timely, and equitable support of technology, finance and capacity building (Thai PBS World, 2021; The Nation Thailand, 2021).

The global agreement framework signed by Thailand provides a solid ground to develop the national governance architecture which promotes climate change mitigation and adaptation. Currently, the climate change issue in Thailand is addressed at the highest policy level under the National Strategy 2018 - 2037 to ensure a long-term continuity of

implementation alongside sustainable development considerations (ONEP, 2020a, p.66). In 2011, the Climate Change Master Plan (CCMP) 2015-2050 was subsequently developed to reflect Thailand's strategy on climate change mitigation, adaptation, capacity building, and cross-cutting issues. The CCMP laid out the country's vision to achieve climate-resilient and low-carbon growth by 2050 (ONEP, 2015b; ONEP, 2018, p.55; ONEP, 2020a, p.78).

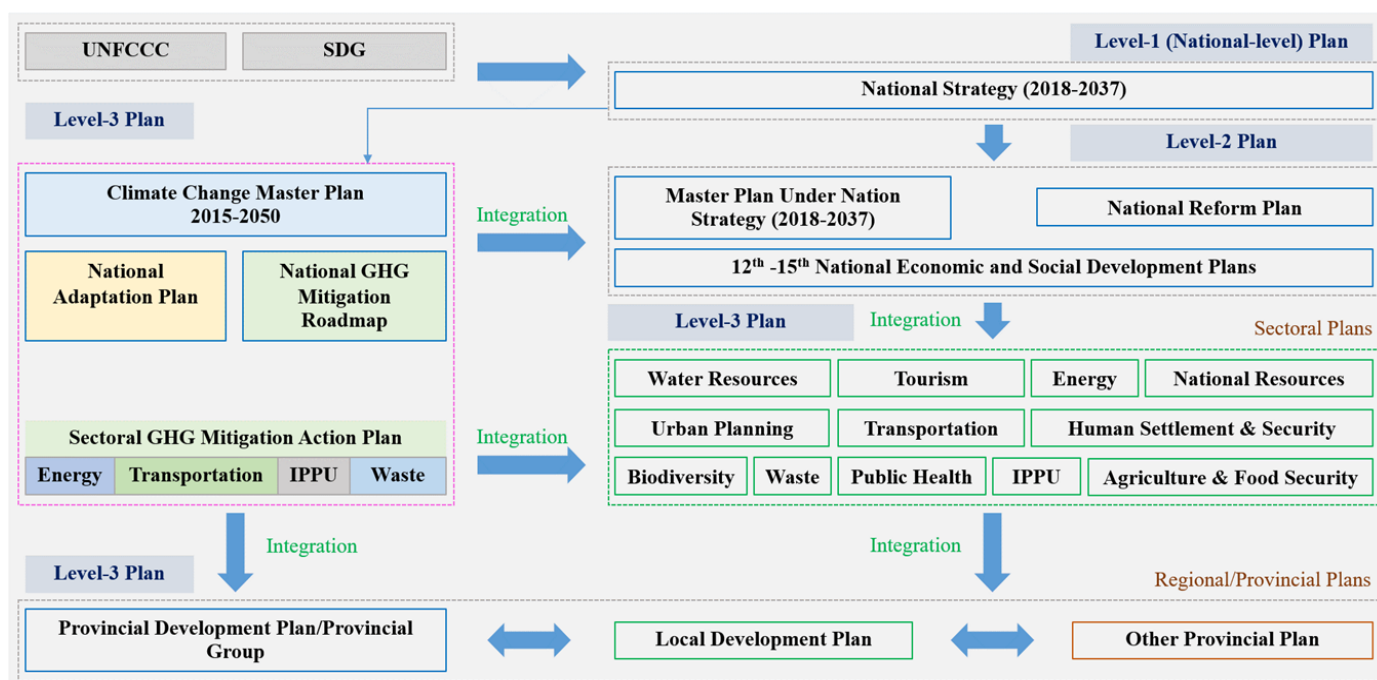
Thailand's major national climate change policies and plans were further formulated under the PA regime. To build adaptive capacity and enhance climate resilience, Thailand developed the first National Adaptation Plan (NAP) between 2015 and 2018 through a participatory process of extensive multi-stakeholder consultations (ONEP, 2018, p. 84). The NAP highlights climate impacts, vulnerability, and adaptation gaps and needs, and identifies adaptation measures covering six priority sectors including water resources management, agriculture and food security, tourism, public health, natural resources management, and human settlements and security (ONEP, 2020b, p.4-6; ONEP, 2020c).

An NDC Roadmap on Mitigation (2021-2030) was developed and endorsed by the Cabinet in 2017 to facilitate the achievement of the country NDC targets in the energy, transportation, industrial processes, and product use (IPPU) and waste management sectors (ONEP, 2020a, p. 71). The NDC Action Plan 2021-2030 also serves as a driven mechanism for an action plan to identify emission reduction targets for each measure in order to facilitate the relevant agencies achieve the target under the assigned mitigation measures. The NDC Action Plan has been approved by the NCCC and consists of 15 groups of mitigation measures (ONEP, 2020a, p. 71).

In 2021, the draft of the country's first ever climate change law was approved by the NCCC, aiming to enhance national climate change implementation and governance. The draft has since been presented to the cabinet for further consideration. The main important points of this law include the NCCC, CCMP, GHG data and reduction, climate change adaptation, and measures to promote climate actions and penalties. Thailand's overall climate change plans highlighting multi-level governance and linkages are presented in Figure 1. Figure 2 presents the timeline of major actions and events of Thailand's climate change implementation and governance in the context of the global agreement framework, national institutional framework, and national policies.

Figure 1

Thailand's overall climate change plans highlight multi-level governance and linkages. Modified from the Office of Natural Resources and Environmental Policy and Plan (ONEP).



2.2 Cross - scale institutional arrangement and linkages

To effectively address climate change at the national and sub-national levels, cross-scale institutional arrangement has been steadily set up as an integral part of Thailand's climate change governance. Thailand adopted a whole - of-government approach, recognising that the responsibility does not lie with one or two ministries but instead requires the coordinated efforts of all ministries. The Office of Natural Resources and Environmental Policy and Planning (ONEP) currently under the Ministry of Natural Resources and Environment (MONRE) was designated as a National Focal Point (NFP) of the UNFCCC in the late 1990s (Figure 2). The ONEP plays a central role in the overall coordination of many aspects of Thailand's climate change implementation. In 2007, the NCCC, as the apex of the institutional arrangement, was established in order to fulfill Thailand's commitments under the UNFCCC and to define national climate policies and mechanisms for implementation and international collaboration (ONEP, 2018, p. 24; Tambunlertchai et al., 2015, p.62). The NCCC is chaired by the Prime Minister

and has members from both the public and private sectors and experts from relevant agencies. The NCCC is currently composed of five sub-committees (Figure 3).

In 2007, the Thailand Greenhouse Gas Management Organization (TGO) was established as an autonomous public organisation, initially serving as a Designated National Authority (DNA) for Clean Development Mechanism (CDM) in Thailand (Tambunlertchai et al., 2015, p. 64; TGO, 2021). The efficiency and effectiveness of TGO were later strengthened to extend its missions and mandate to support Thailand's GHG management in line with the evolving international climate change regime (TGO, 2021). The Climate Change Coordinator Officers (CCCOs) was also established in 2009 and are the senior officers responsible for communicating and coordinating climate-related efforts between their own agencies and the NCCC (Figure 2). A total of 30 agencies under 19 ministries and 11 non-ministerial governmental agencies such as the National Economic and Social Development Board (NESDB) and the Bureau of the Budget with designated CCCOs indicates comprehensive

coverage of all government agencies, providing a national-level platform for coordinating climate-related activities (Tambunlertchai et al., 2015, p.62-63; CCMC, 2021).

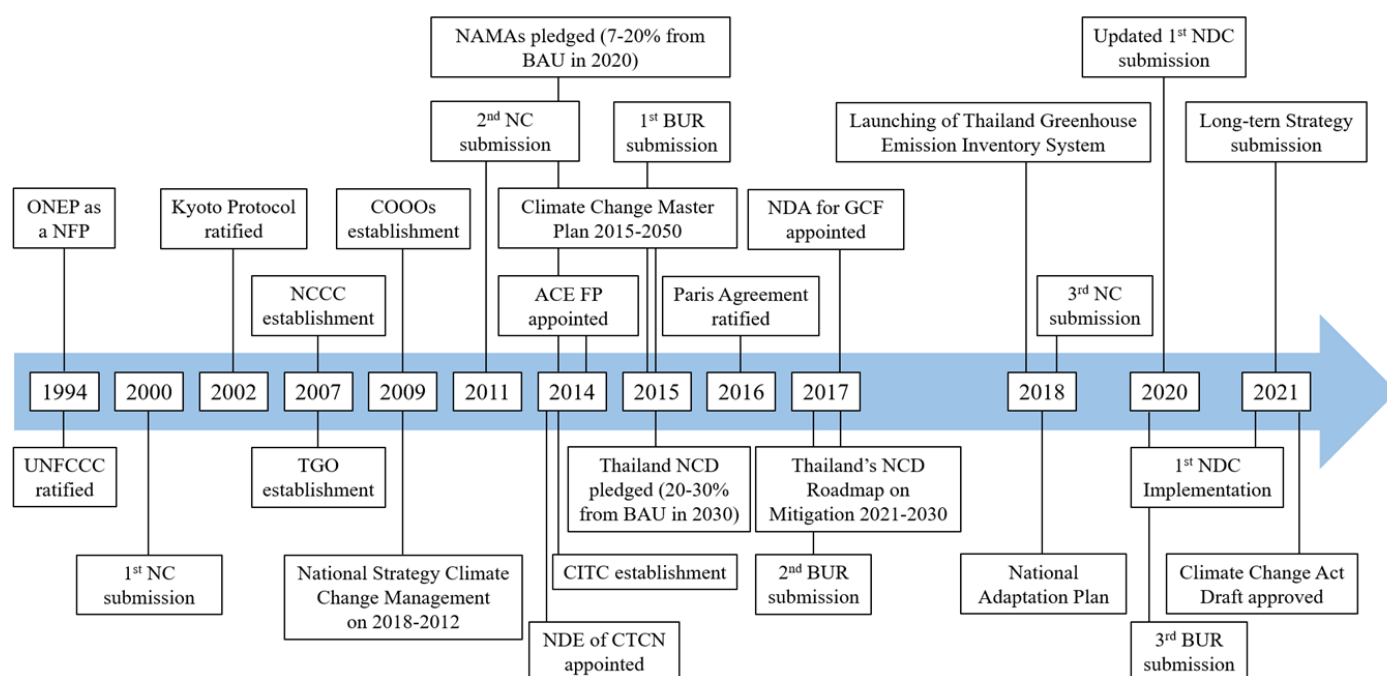
Other designated entities or bodies to facilitate and implement specific issues under the UNFCCC, KP, and PA umbrella were subsequently established. For example, the Department of Environmental Quality Promotion (DEQP) under the MONRE was appointed as a national focal point of Action for Climate Empowerment (ACE) (ONEP, 2018, p. 105) in 2014 in order to systematically coordinate, foster, and enhance the ACE activity (education, training and public awareness) implementation (Figure 2). The ONEP was further appointed as the National Designated Authority (NDA) for the Green Climate Fund (GCF) in 2017 (Green Climate Fund, 2017). It serves as the main point

of contact between the country and the fund, providing broad strategic oversight of the GCF's activities in the country. Vertical coordination from central agencies to provincial and local organisations is usually conducted through the existing mechanisms and channels of line ministries or departments and regional or provincial offices of the MONRE (Regional Environment Office and Provincial Office of Natural Resource and Environment).

More recently, the Cabinet have a resolution acknowledging establishment of Department of Climate Change and Environment under the MONRE. This new institutional arrangement aims to effectively manage climate actions consistent with the Prime Minister's speech in the COP26 to ensure the achievement of national commitment targets.

Figure 2

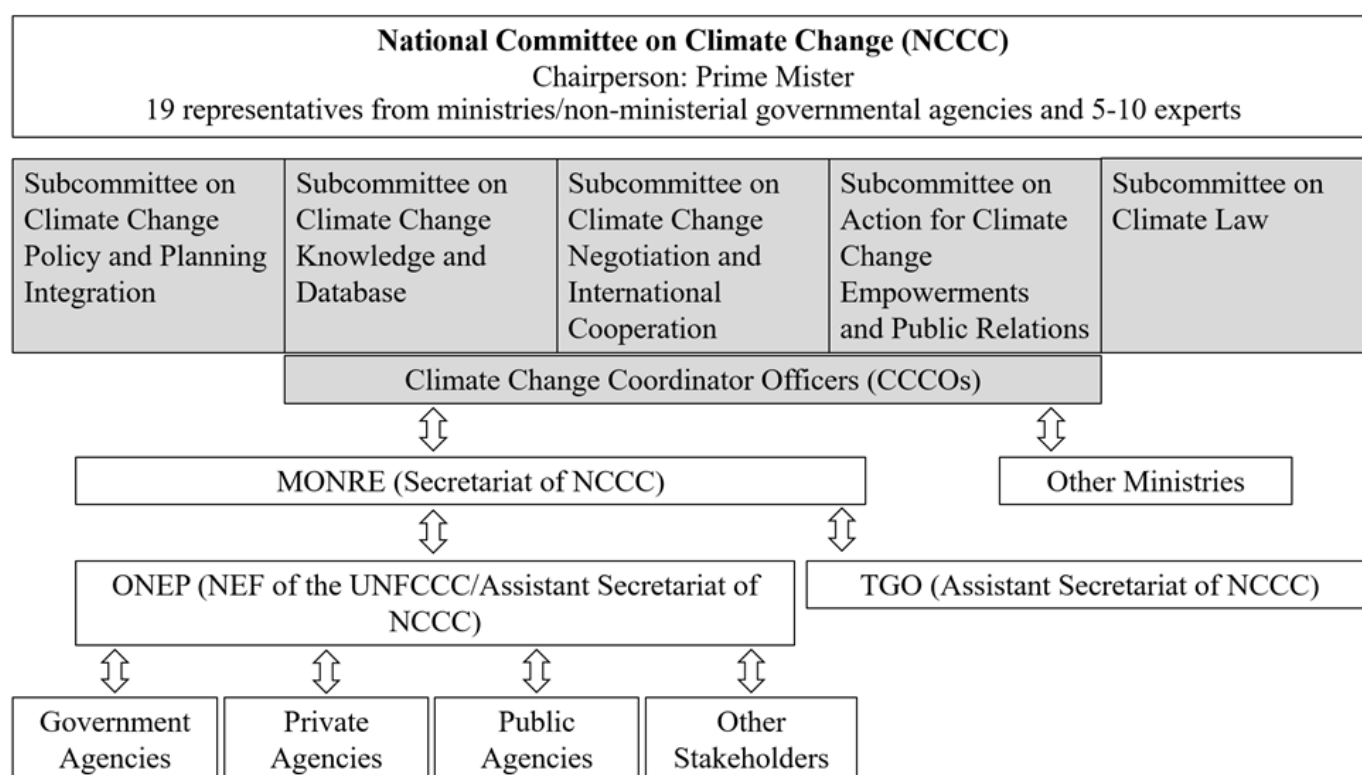
Timeline of major actions and events of Thailand's climate change implementation and governance in the context of the global agreement framework, national institutional framework, and national policies



NFP = National Focal Point, NC = National Communication; BUR = Biennial Update Report, ACE FP = ACE Focal Point
NDE = National Designated Entity, NDA = National Designated Authority

Figure 3

Structure of the NCCC and its sub-committees and linkages with relevant agencies and stakeholders.



2.3 Actors and their roles

In Thailand, multi-stakeholder engagement and broad public participation are key elements in good environmental and climate change governance and decision-making processes (ONEP, 2018, p.109). Governmental agencies, the private sector, civil society, and academia are the four main actors involved in the evolution and development of Thailand's climate change policies, plans, and projects at national, sub-national, and local levels (ONEP, 2018; ONEP, 2020a). ONEP, DEQP, TGO, Electricity Generating Public Company Limited (EGCO), Charoen Pokphand Group (CP Group), Siam Cement Public Company Limited (SCG), Thai Working Group for Climate Justice (TCJ), Thammasat University and Chulalongkorn University are examples of such main actors. Multi-stakeholder engagement and consultation in the formulation of climate change policies, strategies, plans, and actions can be increasingly seen as an important element of Thailand's climate change governance.

More than 40 governmental agencies were identified as key actors involved in Thailand's NAP implementation. Meanwhile, six leading governmental agencies were appointed to be responsible for GHG mitigation in five sectors. Multi - governmental

consultations and engagements are also important processes established during the formulation of CCMP, NAP, NC, and BUR preparation (ONEP, 2018; ONEP, 2020a; ONEP, 2020c). This highlights the importance of engaging key actors in the process of developing national climate change strategies and plans and in drafting the national reports as a mean of building national capacity and raising awareness of climate change related issues.

Private sector has long been engaged in Thailand's climate change implementation. For example, representatives of the private sector are designated as a member of the NCCC and its sub-committees. Currently, the private sector actively participates with the international community to take stronger action on climate change and sustainable issues, as more than fifty leading Thai corporations joined Global Compact Network Thailand (GCNT) (GCNT, 2022). GCNT is a local network of the UN Global Compact, forming a collaborative network of private companies working together to demonstrate that Thailand's private sector is on the lookout for sustainable ways to develop business and is ready to foster a collective and responsible awareness. Some leading Thai companies such as CP Group, EGCO, and SCG have announced their own net-zero goals to achieve carbon neutrality by the

middle of the 21st century in support of the global and national low - carbon society trend (GCNT, 2022). In addition, the Stock Exchange of Thailand (SET) has continuously collaborated with partners from public, private, and social sectors to develop a project to drive sustainable environment management, in compliance with the United Nations Sustainable Development Goals (SDGs) (Thailand Business News, 2021).

Civil society has developed diverse informal efforts to respond to climate change, forming a bottom-up element of Thailand's climate change governance. For example, the Natural Resource and Environmental Protection Volunteers are a large civil society network of MONRE and plays a crucial role in participating in a number of climate change actions covering broad vertical spectrums from national to community levels (ONEP, 2018, p.110). Moreover, the TCJ is a civil society network that plays an important role in the policy - making process of Thailand's climate change (TCJ, 2022). A number of NGOs in Thailand established the TCJ in 2008 with the intention to foster fair participation of civil society in solving global warming issues, with the main goal of raising public awareness and participation by taking climate justice, environmental, and social issues into account (TCJ, 2022).

Experts, researchers, and academics from various governmental agencies, research institutes, and universities also play an important role in producing scientific knowledge related to climate change, and engaging in the development of national climate change policies and plans and preparation of national reports. Thailand's First and Second Assessment Reports on Climate Change (1st and 2nd TARC) are an example of up-to-date scientific knowledge produced by a group of experts and researchers (Limsakul et al., 2019). For formulating Thailand's mid-century, long-term low GHG emission development strategy, experts and researchers from a number of institutes also prepared the key information related to greenhouse gases emission pathway and the measures necessary for driving towards a zero emissions society (United Nations, 2021).

2.4 Knowledge production

Knowledge co-creation is a synergic approach that includes combining content and processes from multidiscipline and multi-actors to produce new ways of understanding (Arriagada et al., 2018, p.7). During the last two decades, different types of climate change knowledge including scientific, bureaucratic, and stakeholder knowledge have been steadily produced by a number of groups of actors to consistently generate

authoritative knowledge for relevant stakeholders and the general public. This will, in turn, create broad social perceptions and long-term and robust policies that improve implementation and governance.

To provide updated scientific information on key aspects of climate change in Thailand to relevant stakeholders and the general public, the 1st and 2nd TARC were produced during 2010-2011 and 2015-2016 by a group of experts and researchers (Limsakul et al., 2019). Assessment methodologies of the IPCC were adopted to ensure integrity, balance, and clarity of scientific information on the current state of knowledge related to climate change in the context of Thailand. This best - available and most up-to-date scientific knowledge is fundamentally important to inform policy formulators and makers and other key stakeholders who have to mount an effective, progressive, and transformative response to the threat posed by climate change (Limsakul et al., 2019, p. 2). Climate change documents and materials in the local context have been made by the DEQP as part of an awareness-raising campaign and public participation activities [18]. In the course of preparation and development of NC, BUR, CCMP, INDC, NAP, NDC Roadmap/Action Plan, and the long-term low GHG emission development strategy, bureaucratic and systematic knowledge was generated and the main results and conclusions presented to provide an institutional support base for existing and future climate action and governance.

Thailand's climate change governance assessment towards net-zero emissions

The CAT assessment framework was applied to further assess the ability and readiness of the Thai government to enable the required economy - wide transformation towards a zero - emission society in pursuit of the PA objective (CAT, 2021, p.1). This framework assesses the aspects of governance covering key enabling factors for effective climate action which includes: 1) the government's political commitment to decarbonize; 2) the institutional framework put in place to achieve its emission reduction targets; 3) the processes established to develop, implement, and review mitigation policies; and 4) its ability and willingness to engage with relevant stakeholders on policy development (CAT, 2021, p. 2). The focus of the CAT's assessment framework is on the factors within the national governments, evaluating the government's capacity to plan, deliver, and monitor the transformational change necessary for a zero - emissions society, and whether they have

developed such plans and put in place the necessary framework to implement them (CAT, 2021, p. 1-2). In the assessment of the ability and readiness of Thailand's government to enable the transformation towards a zero emissions society, four categories of the CAT framework were further divided into criteria or success factors (CAT, 2021, p. 2). Summary of key points relevant to all criteria for each category drawn from document analysis was presented. Each category was subjectively assessed and given rating levels as poor, neutral, or advanced benchmark following the approach done for Australia and the Philippines (CAT, 2019a; CAT, 2019b).

The initial assessment based on the CAT framework indicates that Thailand has shown strong political commitment to simulate the economy-wide transformational changes required for increased climate mitigation ambition. Leadership from high-level government and leading institutions has been more active on scaling up climate action domestically and driving the transition to a low - emission, climate-resilient development. The quality of government decision making has also been strengthened to facilitate ambitious implementation of climate policies in order to provide resources and direction for lower - level government and can activate climate actions through mainstreaming, lesson - learning, and cooperation. Continued political will and momentum of Thai government, ratification and domestic implementation of the PA, formulation of updated NDC and Thailand's mid - century, long-term low GHG emission development strategy appear to be key factors underlying such strong political commitment. These determinants also provide specific frame of climate change governance in which policies, instruments and institutions have been developed in the last decade, as social-economic contexts of Thailand have been increasingly affected by climate change impacts while they are under pressing pressure from international trends that accelerate towards climate - resilient and low-carbon development.

Thailand's institutional framework for climate actions is strengthening, but effective coordination between ministries and between other levels of governments remains still weak. Private sector plays

an increasing role on climate change to deal with impacts arising from the implementation of various response measures. Likewise, research institutes and universities provide a wealth of knowledge that could inform policy - making decisions. However, mechanisms to directly link policymakers and the research community are not strong. Human resource constraints and insufficient budget and resources remain barriers to effective climate governance since there are few climate-related roles, high rates of staff turnover, and relatively small budgets.

Thailand has shown signs of much progress in terms of policy development, implementation, and review processes, but the nation urgently requires a defined Paris - compatible decarbonization pathway and the establishment of an enhanced transparency framework. Work is underway to upgrade the NDC targets, but this process has not yet been formalized into a permanent mechanism to ratchet up mitigation efforts. Moreover, the NDC targets, carbon neutrality, and net-zero GHG emission goals are not yet enshrined in law, and current policy measures need to be further strengthened to achieve the target.

Thailand encourages broad engagement of non-state actors through its participatory processes and undertakes more efforts to ensure a more just transition than simply focusing on the promotion of green jobs. Thai civil society organisations and private sectors are active on climate change and support GHG reduction policies, especially after the adoption of the PA. However, the general public's knowledge and understanding of the goals, importance, and details of the NDC targets, including carbon neutrality and net-zero GHG emission, need to be further improved. Climate change knowledge is publicly available as it has been compiled and assessed based on increasing body of research and studies. Table 1 presents a summary of key points assessed for each category of important enabling factors for effective climate action.

Table 1

Summary of key points for each category of important enabling factors for effective climate action. Each category was subjectively assessed and given rating levels, from “poor” indicating an area where the government is deficient and could do much to improve, “neutral” indicating that the government shows some level of readiness to decarbonise but improvement is still necessary, and “advanced” indicating that while improvement is possible and beneficial, this area of governance is functioning relatively well (CAT, 2019a; CAT, 2019b).

Category	Criteria	Summary of key points
Political commitment Assessment level: <u>Advanced</u>	• High level government leadership • Quality of government decision making	• At COP 26, the Prime Minister announced that Thailand is ready to upgrade its effort in Thailand’s NDC (20-25%) to 40% with adequate, timely, and equitable international support, and aims to achieve carbon neutrality in 2050 and a net-zero GHG emission in 2065. • A national framework for an energy plan sets the goal of energy transition to clean energy with renewable energy contributing to at least 50% of the power generation system, and reduce the use of coal and fossil fuels. This was approved by the Cabinet and the National Energy Policy Council. • Climate change is addressed at all three levels of policies and plans: the National Strategic Level (Level 1); the National Reform Plan on Natural Resources and Environment (Level 2); and the Climate Change Master Plan (Level 3). • Climate change is incorporated as a part of the national strategy developed under the National Strategy Preparation Act B.E. 2560 (2017), which has a monitoring mechanism and provisions on the responsibility of government agencies, if it is not followed. • Political commitment and support for the implementation of NDC goals are clearly determined in the energy sector through the preparation of the National Energy Plan Framework.
Institutional framework Assessment level: <u>Poor</u>	• Effective coordination • Knowledge infrastructure • Adequate resources and capacities	• There is a national mechanism which is the NCCC chaired by the Prime Minister, acting as the central coordinating body between various ministries. • ONEP under MONRE has been designated as a NFP of the UNFCCC which has limited power to direct across ministries. • CCCOs have been appointed to communicate and coordinate climate-related efforts for relevant agencies, but their clear concrete work is still rarely seen. • There are no clear vertical mechanisms, coordinating from national level to sub-national/local levels where climate actions actually take place. This is a major weakness. • The private sector is increasingly active on climate change because of the major accelerating factors including the EU’s Carbon Boarder Adjustment Mechanism (CBAM) which will have a substantial impact on the export sector. • Mechanisms for directly linking between policy makers and academics are not clear. • Systematic mechanisms for climate finance are still lacking. There are some operations in some organisations such as the Stock Exchange of Thailand (Green bond), Royal Forest Department (Regulation of carbon credit trading from reforestation), and the Bank for Agriculture and Agricultural Cooperatives (using trees as financial collateral). • The budget allocation system is still separated by ministries. Agenda-based budgeting is not allocated.

Category	Criteria	Summary of key points
Policy process Assessment level: <u>Neutral</u>	• Paris-compatible emissions pathway • Transparency framework • Ratchet-up mechanism	• The Climate Change Act was drafted and arranged to listen to relevant stakeholders' opinions. It was approved by the NCCC and in the process of proposing a draft law to the Cabinet. • Thailand has been implementing the measures and actions under the PA including the mid-century, long-term low GHG emission development strategy which was already submitted to the Secretariat of the UNFCCC. • The mechanisms of NCCC and National Energy Policy Council are mainly used to formulate and develop climate change policies, strategies, and plans. Components of such committees mostly consist of governmental agencies. • In the preparation of policies, strategies, and plans, there is a process for hearing opinions from relevant sectors and the general public. • There are national and ministry-level mechanisms effectively driving for formulating policies and plans, but there are limitations in translating the plans into actions.
Stakeholder engagement Assessment level: <u>Neutral</u>	• Level and scope • Just transition • Exogenous non-state interests and influence	• The general public's knowledge and understanding of the goals, importance, and details of NDC targets, including carbon neutrality and net-zero GHG emission, need to be further improved. • However, relevant sectors show positive responses to carbon neutrality and net-zero GHG emission. • Thai civil society organisations are active on climate change, and the TCJ was established. • The TCJ has continually presented the campaign on "Justice and Climate Change", including the issue of fairness in the transition to a low-carbon society and to clean energy. • Thai private sectors support GHG reduction policies, especially after the adoption of the PA. • More than 20 large enterprises have announced a carbon neutral policy to adapt to environmental trade measures. • Academics and research funding agencies pay more attention to climate change research and study and continuously provide funding. • Climate change knowledge was compiled and assessed and two Thailand Climate Change Assessment Reports have been written.

Conclusions and recommendations

This article shows that over the last two decades, Thailand has continually developed governance architecture and improved institutional arrangements to better manage climate change challenges. The orientation of Thailand's climate change governance has been steadily reformulated to move towards a polycentric mode. Important policy instruments have been formulated to promote and facilitate the effective implementation of both climate change mitigation and adaptation at multiple levels and across sectors. These instruments have been integrated into the national strategy and national development plans. Cross - scale institutional arrangements and linkages have been synchronously established to enhance climate actions. It is found that coordination occurred mainly horizontally and between ministries and key governmental agencies. However, vertical coordination from central agencies to provincial and local levels remains weak and this area requires urgent improvement. Proactive engagement of a diverse array of public and private actors for more effective management of climate change is one of Thailand's polycentric governance developments. In particular, the private sector currently takes stronger action on climate change and sustainable issues, partly resulting from the collaborative international network initiated by the United Nations. In terms of knowledge production, different types of climate change knowledge have been produced to support public perception and robust policies that, in turn, strengthen implementation and governance. Nevertheless, the created knowledge remains largely formal and technical with limited inclusion of local and indigenous knowledge. Digesting this knowledge to more simplified version for the general public is further necessary to improve this angle of polycentric governance.

An additional analysis of the key enabling governance factors for effective climate actions based on the CAT assessment framework consistently indicates that Thailand has advanced political commitments towards ambitious climate mitigation and a zero - emission society. Overall, both the government and other political actors could make the transition to a zero-emission society a higher priority. The submission of the mid - century, long - term low GHG emission development strategy to the UNFCCC's Secretariat was the first step in the right direction. For policy processes and stakeholder engagement, much progress can be seen and they were consequently assessed to be at a neutral level. For

example, Thailand is well on the way to upgrading the NDC target and incorporating carbon neutrality and net-zero GHG emission goals into the draft climate change law. In addition, civil society and the private sector are actively engaged in climate change through participatory processes, support GHG reduction policies, and are working towards ensuring a just transition to low - emission and climate - resilient pathways rather than simply focusing on the promotion of green jobs. However, a defined Paris - compatible decarbonization and establishment of an enhanced transparency framework and ratchet - up mechanisms for ambitious mitigation efforts require urgent action. Institutional frameworks, regulation, and Thailand's governmental and ministerial processes for effective climate action, especially vertical coordination from national agencies to sub-national and local organisations, are the most important weak key enabling governance factors assessed in this study. Major barriers to effective climate governance to transition to a zero-emissions society include human resource constraints and insufficient budget and resources.

To advance towards a more polycentric approach to Thailand's climate change governance in the near future, efforts should focus on follow prioritized issues: 1) existing mechanisms and practices for climate change responses especially under the PA regime should be further strengthened and elaborated, 2) enactment of the approved climate change law should be accelerated to ensure that Thailand has legislation - based instrument to sustainably tackle climate change in the long run, and associated governance including institutes, mechanisms and various national plans deployed under this law is further strengthened and developed, 3) central-to-local coordination and decision - making that includes diverse social actors and multiple levels of governance should be enhanced through developing effective mechanisms including local capacity, and enabling environments, 4) communication channels and mechanisms among stakeholders and public should be fortified via combination of new innovation and technology and local wisdom. Moreover, stronger participation of local level actors would provide greater opportunities to enhance polycentric governance and improve climate change responses, given that local organizations play a unique role as key actors that are both directly affected by climate change and at the front line of climate actions.

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