City Climate Mitigation & Diplomacy

A Study of Small- and Medium-sized Cities in Thailand

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Title

City Climate Mitigation & Diplomacy: A Study of Small- and Medium-sized Cities in Thailand

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Content Table

List of Figures

List of Abbreviations

ACCCRN	Asian Cities Climate Change Resilience Network
ADB	Asian Development Bank
ADEME	Agence de l'Environnement et de la Maîtrise de l'Énergie
AEC	ASEAN Economic Community
AIESC	ASEAN Initiative on Environmentally Sustainable Cities
AIT	Asian Institute of Technology
APEC	Asia-Pacific Economic Community
ASCCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
BEDO	Biodiversity-Based Development Office
C40	Cities Climate Leadership Group
CCP	Cities for Climate Protection
cCR	Carbon Climate Registry
CO2(e)	Carbon Dioxide (equivalent)
COP	Conference of the Parties
DEDE	Department of Alternative Energy Development and Energy Efficiency
DELGOSEA	Partnership for Democratic Local Governance in Southeast-Asia
DEQP	Department of Environmental Quality Promotion
DLA	Department of Local Administration

GHG	Greenhouse Gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPC	Global Protocol for community-scale Greenhouse Gas Emissions
ICLEI	International Council for Local Environmental Initiatives
IGES	Institute for Global Environmental Strategies
(I)NDC	(Intended) Nationally Determined Contributions
ISO	International Organization for Standardization
ISO 14001	Environment Management System
JICA	Japanese International Cooperation Agency
LCC	Low-carbon City
NAZCA	Non-State Actor Zone for Climate Action
NESDP	National Economic and Social Development Plan
NGO	Non-Governmental Organization
NMT	National Municipal League of Thailand
NNSA	Non-Nation State Actor
NSA	Non-State Actor
ONEP	Office of Natural Resources and Environmental Policy and Planning
OTP	Office of Transport and Traffic Planning and Policy
PAA	Policy Arrangement Approach
T-COP	Carbon Offsetting Program

TEI	Thailand Environment Institute
TGO	Thailand Greenhouse Gas Management Organization
THB	Thai Baht
T-VER	Voluntary Emission Reduction Program
UCLG-ASPAC	United Cities and Local Governments – Asia-Pacific
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UN-Habitat	United Nations Human Settlements Program
USAID	United States Agency for International Development
WWF	Worldwide Fund for Nature

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Abstract

The academic literature highlights the enormous greenhouse gas emission mitigation potential of cities, which have increasingly been recognized as local key sites for combating global climate change. More and more cities implement low carbon city (LCC) programs throughout the world, also in developing countries. To overcome barriers related to their size and limited resource base, cities are moreover claimed to proactively pursue their climate change objectives internationally through direct and indirect collaborations with other actors - a process called city climate diplomacy. However, for both these claims the evidence base is fragmentary for small- and medium-sized cities in the global South. The present research set out to conduce to fill this knowledge gap by analyzing why and how one small- and one medium-sized city in Thailand implemented a LCC program and how this policy was influenced by interactions with international actors. A qualitative comparative case study approach found application and interviews were conducted with stakeholders on site. Findings were structured along the policy arrangement approach's four analytical dimensions - discourse, actors, rules, resources - that helped explain why the LCC policy arrangement emerged and developed. It is argued that the LCC discourse was infused to Thailand by international actors, especially Japan-based ones, and is seen as part of the broader sustainable city discourse. A small number of municipal policy entrepreneurs took the lead in operationalizing the discourse with the objective to maximize local co-benefits, and received decisive support therein from international actors, who increased their resource base. However, a strategic pursuance of city climate diplomacy could not be observed. Later, new central government actors entered the policy playing field and institutionalized the discourse at the national level through formulating LCC rules, thereby disempowering frontrunner cities and curtailing the direct influence of international actors. During this process of policy stabilization, power shifted from an initially dominant intermediary organization to central government actors. The power of certain powerful frontrunner municipalities got diffused when more municipalities initiated LCC experiments and elections cycles came to an end. Cooperation replaced competition. Changes in all PAA dimensions worked towards a LCC stabilization at the central government level. This latest LCC policy stabilization seems to have reached the post-experimentation phase and is likely to find application in more and more municipalities in the near future.

1. INTRODUCTION

1.1. PARIS AGREEMENT: INSTITUTIONALIZATION OF MITIGATION EXPERIMENTS BEYOND THE STATE?

Climate change is one of the megatrends that shapes this century (EEA, 2015) and growing greenhouse gas (GHG) emissions 'will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems' (IPCC,2014). A new approach to effective climate change mitigation and its diplomacy was institutionalized by the Paris Agreement of 2015 and its nationally determined contribution (NDC) strategy. The agreement did away with the division of countries into Annex I and II post-2020 under the Kyoto Protocol, as well as with legally-binding country-specific emission reduction targets for developed countries[1] (UNFCCC, 2015). Climate change thereby became – from an international law perspective – a common concern for the world community. Even though developed countries arguably have a much stronger historical responsibility for increasing the GHG concentration in the atmosphere to dangerous levels, without proactive and decisive actions by developing countries, the international community would be steering towards disaster (IPCC, 2014). Many developing countries have recognized this and started to voluntarily experiment with climate change mitigation strategies that take their domestic development status and prospects into account while nonetheless contributing their nationally appropriate share to the global climate ambitions (Smith, 2015). Additionally, in the absence of an international legally-binding top-down climate treaty quantifying required national mitigation contributions resembling the Kyoto Protocol approach that failed to materialize in Paris, voluntary bottom-up approaches need to fill this void in order to meet the world's climate ambitions. Parties decide for themselves the nationally appropriate level of ambition of their climate mitigation actions. Article 6 of the Paris Agreement furthermore highlights that some parties to the Paris Agreement, especially developing country parties, have chosen to solely pursue voluntary cooperation in the implementation of their NDCs, and make implementation

[1] 'Developed countries' refers to Annex I parties under KP (http://unfccc.int/parties_and_observers/parties/annex_i/items/2774.php); 'developing countries' are used interchangeably with 'countries of the global South' and refer to non-Annex I parties under the KP

completely contingent upon receiving international support (UNFCCC, 2015), as did for instance the Philippines (Philippines Climate Change Commission, 2015). Bottom-up, in this context, does not only refer to national approaches, but especially also to sub-national ones.

Whereas previous COPs, notably in Johannesburg and Copenhagen, emphasized the greater role of the private sector (Clapp & Dauvergne, 2011), the Paris Agreement went further and explicitly acknowledges non-nation state actors (NNSAs), including regions and cities, in chapter V and thereby provided new impetus to the Non-State Actor Zone for Climate Action (NAZCA) established during the COP 20 in Lima (UNFCCC, 2015). Marcu (2015) argues that Paris 'unpacked countries' and that all efforts by all actors, including non-state actors and cities, contribute to meeting the target formulated by the national government within the INDC. It is widely accepted that the implementation of nationally determined climate change contributions relies on actions taken at the subnational level, and especially so on actions taken by cities (Bulkeley, 2005; Hsu et al., 2015; WRI, 2014). The Quito-Agenda - the outcome of the 2016 Habitat-III conference - consolidated the roles cities are expected to play in implementing the Paris Agreement and achieving the Sustainable Development Goals (Dick, 2016). As a result of these developments, a large number of heterogeneous urban low-carbon experiments have lately sprung up around the world and city leaders claim that their constituencies act on the threats posed by climate change whereas states still talk (Castan Broto & Bulkeley, 2013; Sippel & Jenssen, 2009). Low-carbon cities (LCCs) are the fastest-growing city concept in recent years and, as opposed to other concepts such as green or sustainable city, are defined more narrowly as an attempt of 'minimizing the human inflicted carbon footprint' of cities within the contemporary debate on the role of cities in combating global climate change (de Jong et al., 2015).

The trend of delegating more responsibility to cities in developing countries has important implications for the traditional ways in which (climate) diplomacy is conducted and the climate change realm governed. New forms of diplomacy and governance modes are claimed to challenge the dominance of the nation state as the only legitimate guardian of people's interest, both in the international relations realm and locally (McGuirk, Bulkeley & Dowling, 2014, Bulkeley, 2015; Keating, 1999; Lopez-Casero, Cadman & Maraseni, 2013). In addition, cities are framed by media and scholars alike as new key loci for effective climate change mitigation, presented as a solution to overcome the stalemate of interstate negotiations within the UNFCCC process (Fischer et al., 2015). What has led to this new interest in cities is explained in the following subchapter.

1.2. A CITY'S POTENTIAL - WHERE THEORY MEETS PRACTICE

Hoornweg et al. (2010) forecasted that the worldwide population living in cities is going to grow from 54 percent today to 67 percent in 2050. Contemporarily, cities account for 60-80 percent of global energy consumption, 75 percent of global CO_2 emissions and use approximately 75 percent of the world's global resources (Lehmann, 2015). The World Bank (Hoornweg et al., 2010) calculated that the combined GHG emissions of the world's 50 largest cities are only surpassed by the aggregated emissions of China and the US. These numbers form the backdrop against which the evolution of urban climate leadership has to be analyzed, which arguably started some 25 years ago (Bulkeley, 2010). In the following subchapter, the empirical and theoretical developments in the field are introduced in order to establish the academic niche that informed the research direction.

Empirically, a vast number of climate change mitigation policies have been implemented on provincial, urban and local scales (Schreurs, 2008). Steadily more responsibility is delegated to municipalities in the course of decentralization reforms, and as a consequence new modes of urban climate governance have emerged. Empirically, some research exists on the topic of low-carbon experiments at city level in high-income countries, particularly so of low-carbon city individual case studies in the global North with an emphasis on cities in Canada, the USA, Australia and Western Europe (Sippel & Jennsen, 2009; Castan Broto & Bulkeley, 2013; McGuirk, Dowling, Brennan & Bulkeley, 2015; Burch, 2010; Gustavsson, Elander & Lundmark, 2009; Kern & Alber, 2008). Post-colonial researchers stress that Northern cities dominate urbanism research and call for more cosmopolitan, comparative studies to be undertaken that include cities from the global South from different contexts (Beermann, 2014). Most of the existing research furthermore focuses on global cities that have already quite advanced urban mitigation programs in place (Sovacool & Brown, 2010: Kennedy et al. 2009), as did for example Broto's and Bulkeley's (2013) comparative meta-analysis of 100 metropolises with at least 1.3 million inhabitants. Bulkeley's and Kern's (2006) widely cited article provides a comparative analysis of mitigation actions executed by cities in Germany and the UK. Most of the research either theorizes about new forms of urban governance modes, attempts to assess the effectiveness of low carbon programs at the city level or tries to identify the main barriers that prevent urban low-carbon programs to realize their hypothetical potential (Sippel & Jenssen, 2009). More and more authors focus on quantification of GHG emissions by cities and critically question their hypothesized huge urban mitigation potential (Gustavsson, Elander & Lundmark, 2009).

Theoretically, changing modes of international climate change governance is a well-researched concept. Sustainable development diplomacy scholars, for example, challenge the idea of international climate diplomacy being solely a state-actor driven process (Chapin III et al. 2013). They assert that a plethora of actors at varying governance levels are playing an increasingly important role in managing the effects of a changing climate (Moomaw et al., 2016; Bjola, 2013; Betsill, 2015; Bäckstrand, 2008). However, early research focused solely on non-state actors and subsequently omitted subnational governments from their deliberations (van der Pluijm & Melissen, 2007). This research focuses on city climate diplomacy as governance mode for urban climate change mitigation via a city's vertical and horizontal collaboration with other actors in a multilevel situation. City climate diplomacy falls under the concept of 'paradiplomacy' (short for parallel diplomacy) and refers to the pursuance of climate policy objectives by subnational entities directly (Lee, 2014), thereby undermining the power monopoly of the nation state on the international arena (Wolff, 2007). Paradiplomacy, and especially city climate diplomacy, have entered the stage of multilevel environmental governance relatively late (Keating, 1999) and are much less researched. Especially since the late 1990s, cities have put increased pressure on national governments and the UNFCCC by being in the vanguard of combating climate change through the strategic coordination of their efforts via (trans)national networks, which became to be defined as an independent governance mode (Bulkeley, 2010; Bulkeley, 2005). Some key papers published in recent years include Lee's (2013) monograph on 'Global cities and transnational climate change networks' as well as Fischer et al's (2015) 'Urbanization and City Diplomacy' which provide a good overview of the relevance of cities for climate governance. Van der Pluijm & Melissen (2007) make the compelling case that city diplomacy, not limited to the climate change governance, predates the Westphalian sovereignty principle and is not at all a 'new' form of diplomacy, but rather a recurring one and that 'we have come full circle in the city's history' as the prime site for policy-making (Barber, 2013).

1.3. CITIES ACT WHILE STATES TALK - WALK THE TALK?

It becomes clear from the brief literature review above that a number of low-carbon city programs have been established, initially in the global North, but as of late low-carbon city programs have also been initiated in pioneer cities in the global South. Cities have started to voice their concerns about climate change at the international arena without consulting the intermediary actor, the national government, anymore. As a consequence thereof, cities have gotten a lot of attention, both by policy-makers and researchers, who hypothesize that cities are a prime site for climate change

mitigation and key if the world wants to meet its climate ambitions. In the following, the research niche is delineated and set apart from the already conducted research in the field.

A body of scientific literature exists on the theoretical mitigation potential of urban centers. In addition, a small number of empirical case studies on well-established low-carbon city programs in developed countries have been researched. However, the evidence base for the claim that cities act while states talk is missing practical underpinning in the form of case studies from low and middle income countries and from small- and medium-sized cities (Lee, 2014; Anguelovski & Carmin, 2011; den Exter et al., 2015). It is unclear why cities in the global South are implementing climate change mitigation actions in the absence of any legal national or international obligation to do so, and it is not well researched to what extent such actions contribute efficiently to mitigating urban emissions. As also noted by the leading researcher in the field, Harriet Bulkeley, there is a need for 'further comparative research using significant numbers of cases' (Bulkeley, 2010). Additionally, little has been done with regard to nesting those urban climate change experiments within the macro-level legal-political context, especially also with regard to city networks (Castan Broto & Bulkeley, 2013; Lee, 2014).

Theoretically, and due to its recentness, the concept of 'city diplomacy' in the climate change mitigation arena needs to gain a lot of clarity. It is understudied as a unit of analysis in international relations and global governance studies (Lee, 2014; Acuto, 2013). Despite fledgling empirical research started to analyze to what extent cities proactively engage in climate diplomacy, this research is once again limited to global cities, cities in the global North (with the notable exception of Amul & Shrestha, 2015), and cities that are members of city networks (van der Pluijm & Melissen, 2007). Whether - and if so how - small- and medium-sized cities in the global South engage in climate diplomacy has to be determined. More attention needs to be paid to small- and medium-sized cities, because decisive action now can prevent the lock-in of carbon-intensive infrastructure in those rapidly growing cities (Gouldson et al., 2015; CCFLA, 2015). Furthermore, the implication of urban climate governance on a possible reconfiguration of state-based political authority – a rescaling of statehood – is ill-researched (Bulkeley, 2010), and would benefit greatly from empirical work done on the ground.

1.4. COUNTRY BACKGROUND - WHY THAILAND?

This master thesis research is part of a WUR-INREF seed money proposal titled 'Linking low-carbon cities to carbon markets: metropolitan solutions for socially inclusive low-carbon development in Southeast Asia?' The proposal aims at contributing to low-carbon and equitable growth in Europe and Southeast Asia by exploring ways to design policies that can link low-carbon cities with carbon trading schemes and thereby furthering the city's sustainable development as well as the world's climate change objectives. The thesis attempts to shed light on aspects related to governance functions. Thailand has been chosen as the location for undertaking the research because it has arguably much to gain from successful LCC development.

Rapid urbanization and economic growth characterize Southeast Asia. 90 % of population growth up to 2050 is expected to take place in Asia and Africa alone, and most of this growth will be in today's small- and medium-sized cities (CCFLA, 2015). Those two trends are expected to 1) exacerbate the vulnerability of people in Southeast Asia to climate change related extreme weather events and sea level rise and 2) contribute significantly to increasing GHG per-capita emissions of individuals in these countries. Southeast Asia is projected to be among the regions that will experience the most severe warming and largest increase in extreme weather events (EEA, 2015; Kreft et al., 2015). A 2016 Asian Development Bank (ADB) publication supports this assessment and projects that up to 11 percent of the region's gross domestic product will be lost due to climate change impacts by 2100. Next to being particularly vulnerable, the increasing wealth and consumption as a consequence of rapid economic growth, deforestation and land use change, urbanization, and population growth furthermore, led to the fact that the region had the highest carbon dioxide growth rate between 1990-2010 worldwide (ADB, 2016). Especially urban agglomerations take up an overproportional share of the region's GHG budget (APEC, 2014) and by 2015 it is projected that 55 percent of global GHG emissions will come from Asia's cities (Ling, 2010). Citizens of Bangkok, for instance, emit around 10.7t of carbon dioxide per year already and are therewith surpassing much more developed cities such as London (9.6t) or Prague (9.4t), and surely surpassing the global per-capita threshold of 2tCO_2e that are deemed safe by scientists (Marr & Wehner, 2014).

The middle-income countries (Indonesia, Vietnam, Malaysia, the Philippines and Thailand) are responsible for 90 % of the region's GHG emissions (APEC, 2014). These countries' governments contemporarily explore cost-efficient climate change mitigation options, and urban governments are often at the forefront of experimenting with new climate policies. Thailand is the second biggest GHG

emitter as well as the second biggest regional economy after Indonesia (Smith, 2015). It stands out in so far that its low carbon development policies are already comparatively well developed and supported by strong national legislation. It has created a Voluntary Emission Reduction Program (T-VER), as well as a Carbon Offsetting Program (T-COP), which are relying on the creation of carbon credits at the urban level. Since 2010, the central government is piloting a low-carbon city initiative that is complemented since autumn 2014 by a LCC policy plan. Regarding urban low-carbon policies, long before the Thai national government devised a national climate change plan, certain cities were pioneering low-carbon projects and programs. Importantly, some of the cities are engaged with transnational networks. These national characteristics provide an ideal backdrop for this thesis research, and played a role in identifying the research objectives and questions laid down in the following chapter.

1.5. RESEARCH OBJECTIVE AND STRUCTURE

The purpose of the research is to conduce to fill the research gap on climate change mitigation action beyond global cities in the North by determining to what extent claims about urban climate change mitigation efficiency and diplomatic proactivity hold truth in the context of small- and medium-sized cities in Thailand. It aims to contribute theoretically to a better understanding of the concept of city climate diplomacy. Empirically, the thesis aims to add empirical data to validate the theoretical claims about urban climate mitigation efficiency and diplomatic proactivity beyond case studies of global cities in the developed world by analyzing three low-carbon city programs in small- and medium-sized cities in a developing middle income country: Thailand. Two municipalities were selected as units of analysis (Chiang Rai, Muang Klaeng) to investigate: 1) why they initiated low-carbon city programs in the absence of any legal obligation to do so and assess the program's efficiency and 2) how their city diplomacy looks like and 3) what lessons can be learnt from the findings. After reading the present study, it should be clear to what extent the hypothesized claims about climate change mitigation at the city level and city climate diplomacy find application in small- and medium-sized cities in Thailand. Even though the findings cannot be generalized, it is expected that some valuable policy lessons can be drawn that prove useful when analyzing similar cases in the region, since many of the challenges and opportunities cities face are quite often similar, especially within a region (Fischer et al., 2015). In addition, cities share remarkably similar profiles of power across sectors around the world (Schultz et al., 2015).

The thesis is divided into seven chapters. After this introduction, the theoretical framework discusses the current state of knowledge in the field of urban climate mitigation governance and diplomacy. The concept of paradiplomacy is elucidated on and city climate diplomacy is zoomed in on. Trends and hypotheses relevant for this research are extracted from the body of literature available and the research objectives and questions are further elaborated on. Thereafter, the methodological chapter lays down the criteria of the case study selection. The methods used are described, and data validity is discussed. Following this chapter comes the analysis of the data gathered on the ground during the fieldwork period in Thailand, and key findings are extracted to answer the research questions. Finally, the summarized findings will be counter-checked against hypotheses identified in the literature and their relevance discussed to see to what extent the concepts of urban climate governance and city climate diplomacy found application in the case study cities and to place the finding in its academic context.

2. THEORETICAL FRAMEWORK

In this chapter, a literature review is conducted on the concepts used, which includes a brief introduction to the 'new diplomacy' that is increasingly acknowledged to be governing the environmental realm with a focus on multilevel urban governance, followed by a discussion of the city climate diplomacy concept and its implications for the role of cities and the design and implementation of their LCC programs in the multilevel climate change governance structure. This review provides the academic background against which LCC actions on the ground in Thailand will be evaluated. Thereafter, a brief summary of the urban climate governance literature is provided, with a focus on horizontal and vertical collaboration beyond the municipal boundaries. Lastly, the literature is critically assessed with regard to its relevance for the research topic at hand, that is, the implementation of LCC programs in small- and medium-sized cities in Thailand.

2.1. NEW DIPLOMACY - MULTILEVEL GOVERNANCE

"The nation state is dead. Long live the nation-state."

This is the title of an article published in the *Economist* in 1995. In it the author argues that the often forecasted decay of the nation-state will take much longer than anticipated, if it will take place at all. The nation state has dominated international relations and foreign policy-making since the birth of modern (contemporarily by some referred to as 'old') diplomacy in 1648 with the peace of Westphalia. The institutionalization of diplomatic channels after the Congress of Vienna, and the eventual establishment of the League of Nations and the United Nations, all served to underpin the central role of national governments as the sole legitimate actors representing national interest in the international arena (van der Pluijm & Melissen, 2007).

Since the publication of this article, the degree of global interconnectedness has increased manifold, and new threats that require international cooperation, such as global terrorism or global environmental problems, have come to the fore (Kjellén, 2004). The nation state, even though it surely still is alive and plays a very prominent role in international relations, has arguably been weakened. Some say that state-based 'old' diplomacy is in trouble, and that 'its 17th-century Westphalian political institutions' are inapt to solve interdependent 21st-century global problems (Chan, 2016). This argument is well supported by Bulkeley (2005), who makes the argument that the state is hollowed-out, since 'functions of the state are redistributed upwards, to international and

transnational organizations and institutions, downwards, to cities and regions, and outwards, to non-state actors'. As Bernstein et al. (2010) put it in their reflection on the 2009 Copenhagen Accord: 'we contend that it is not either the multilateral Copenhagen or the non-state Copenhagen, but rather their combination that must be understood' (p. 170). Government has been replaced by governance, whereby governance comes in various shapes and forms.

The 21st century saw the scholarly and practical consolidation of those multilevel, multiactor and multimethod governance arrangements that look for better ways to understand contemporary climate change politics (van der Pluijm & Melissen, 2007) and a consequent undermining of the hitherto dominant neoliberal institutionalist approach to analyze the international climate regime (Okereke, Bulkeley & Schroeder, 2009). Lemos and Agrawal (2006) follow the same logic and argue that the line between public, private and social actors is blurring, and that those hybrid governance systems constitute a 'new diplomacy' that creates different forms of authority promising to mend shortcomings of the traditional, singular ones through merging the best of each approach. What most of the early literature on new diplomacy and global governance had in common was their focus on the role of NGOs, the private sector and supranational organizations, leaving out cities as stakeholders helping to shape those new emerging governance arrangements (Keck & Sikkink, 1999; Bulkeley, 2005; Van der Pluijm & Melissen, 2007). However, governance and decentralization reforms around the world have also involved a rescaling of decision-making away from the central towards local governments (Batterbury & Fernando, 2006).

Local government organizations thus have received more and more authority to govern themselves, but also to contribute to the governance of global policy issues, such as climate change. This development is by some scholars referred to as the process of 'glocalization', where the boundary between spatial units and policies dissolves and where, for example, local nuclear armament can threaten global stability and global climate change can threaten local livelihoods (van der Pluijm & Melissen, 2007). It is progressively more acknowledged that local governments and communities are shaped by, and help shape, international environmental governance discourse (Kaufmann & Martin, 2014), and that they are 'increasingly becoming arenas of globalization, rather than passive victims of global forces' (Gustavsson, Elander & Lundmark, 2009 p. 59). In short, cities are heralded as new key loci of climate change mitigation efforts by media, practitioners and scholars alike. Whether this indeed is the case is debated by other scholars, who claim that subnational actions further fragment an already complex governance issue and that the mostly uncoordinated actions prevent large steps forward and allow nations states to decrease their own ambitions (Hsu et al., 2015). Ongoing

experimentation with climate change solutions at different levels and by different actors is on the one hand seen as pivotal in overcoming the stalemate in the interstate negotiations that characterizes the UNFCCC. On the other hand, it is regarded, when not institutionalized, as only providing impermanent topical solutions rather than the desired and needed system change tackling the root causes of climate change (Hsu et al., 2015). Other authors stress that such experimentation with climate change solutions and designs is important, but a right balance between experimentation and institutionalization has to be found in order to effect effective climate change mitigation and coordinate actions in order to scale-up small-scale experiments' potential (Fankhauser & Hepburn, 2010).

In summary, it can be said that nation state action is increasingly supplemented by market and civil society engagement in attempts to govern socio-ecological systems in a sustainable manner, and is complemented on all government levels, from the international to the local (Hsu et al. 2015). Alternative climate governance is blurring the public/private boundary and is now at the core and not the periphery anymore (Bernstein et. al, 2010). The term 'non-state actors' hereby does not solely refer to non-territorial stakeholders such as multinationals and NGOs, but also includes territorial ones such as cities and provinces (van der Pluijm & Melissen, 2007), and are referred to as non-nation state actors (NNSAs). The declining role of the state as the sole legitimate actor in the international arena, and the focus put by some scholars and practitioners on cities, has important implications for the legitimacy and effectiveness of new diplomatic channels and institutions for climate change mitigation.

2.2. PARADIPLOMACY

This thesis focuses on urban climate governance, and especially so its networked dimensions, as one manifestation of the 'new diplomacy' (Keating, 1999). Therefore, the role of cities in pursuing their climate change policies vis-a-vis peers in other provinces or states, or even vis-a-vis countries or NNSAs, is of great interest.

Paradiplomacy is a relatively new theoretical framework in the academic field of International Relations and part of 'a broadening universe of international affairs, in which states are no longer the sole actors' (Keating, 1999). It can be seen as an attempt to break the state-centric 'conceptual jail' of International Relations by focusing on analytical units beyond the nation state to better be able to understand and research the dynamics and transformation of world affairs (Chan, 2016). The term

was coined in the 1980s by Duchacek and Soldatos (Acuto et al., 2016), and refers to diplomatic efforts of subnational entities to pursue their very own foreign policy objectives while circumventing the central government level traditionally in charge of international relations. Keating (1999) posits that incentives for subnational entities to pursue paradiplomacy are either economic, political or cultural in nature, therewith ignoring the environmental dimension that arguably lays at the heart of many city diplomacy efforts today. The evolution of paradiplomacy challenges a core assumption of International Relations that dominated the field since its inception in 1648 with the Peace of Westphalia, namely that countries alone are the legitimate representatives of its people in the international arena (van der Pluijm & Melissen, 2007).

Paradiplomacy is by some scholars seen as undermining the legitimacy claim of their respective central governments, always externally and sometimes also internally. Foreign policy, along with defense and fiscal policy, has traditionally been exempted from the drive to delegate government responsibility to lower government levels because they are seen as core central government concerns. As a consequence thereof, central governments often observe the participation of subnational entities in foreign-policy making rather suspiciously. Central governments frequently argue that subnational foreign policy making is in contrast with the broader national interest (Wolff, 2007). On the other hand, some scholars question whether the state indeed is challenged by city diplomacy or whether its actions are rather supplemented by actions at city level in a previously un(der)regulated policy area (Taveras, 2016; Bulkeley, 2010). Van der Pluijm & Melissen (2007) posit that in reality the state-city relationship is probably located between what is argued for by Wolff and Bulkeley, respectively, and can be described as ‘competitive cooperation’. Most of early scholarly work on paradiplomacy has focused on the federal level and autonomous entities within states. Whereas Wolff (2007) alleges that paradiplomacy is limited to federal states, regions and provinces, as well as to quasi-autonomous entities within a country, other authors assert that cities are important players too, and call it ‘city diplomacy’ (Lee, 2015; van der Pluijm & Melissen, 2007).

Research on city diplomacy is very recent and only started around a decade ago, when scholars tried to make sense theoretically of what they saw taking place on the ground in form of, for example, city twinning (van der Pluijm & Melissen, 2007). Research on city diplomacy received ‘renewed and sprawling attention in the last few years through work in the field of urbanism, development studies and International Relations with a focus on environmental city networks’ (Acuto et al., 2016). Conceptually, this is also a challenging development because cities have in modern times not been a unit of analysis in International Relations (Wolff, 2007). The emergence of cities in the international

arena brings a number of questions to the fore, like 'where exactly do they fit, what are they doing, and how can we account for their responses' (Bulkeley, 2015). Answers to these questions might be found by looking into the past, as city diplomacy arguably existed way before modern diplomacy was born in 1648 (Kern & Bulkeley, 2013). Some scholars argue that cities even pioneered foreign policy in the absence of nation states as early as the Greek antiquity. Later, Italian city states and also the Hanseatic League intensively pursued their very own foreign policy objectives, among others by entering long-lasting and powerful city networks (van der Pluijm & Melissen, 2007). Daalder (2015) argues that 'today's international politics is beginning to resemble the Hanseatic League, with global centres trading and working together to address common problems in ways that large nations do not'.

One can also look back in the nearer past to find well-established examples of city diplomacy, such as the 'Sister Cities International' scheme and instances of the establishment of interest representations of metropolises and provinces at regional, national and international organizations (Daalder, 2015). Contemporarily, there are around 125 multilateral arrangements of subnational governments (Taveras, 2016), and the largest local government organization in the world - United Cities and Local Governments (UCLG) - founded a city diplomacy committee in 2010 with the aim to muster multilateral and bilateral support for city diplomatic efforts (UCLG, n.d.). Certain quasi-autonomous cities, such as Hong Kong and Macao, are even officially members of inter-state organizations, such as the World Trade Organization (Taveras, 2016). In a more recent development, the city government of Mexico City even dedicated an article in its new constitution to city diplomacy, stating that the city 'will have a strategy for international action to promote its presence in the world' (Taveras, 2016), which can be seen as symbolizing the tendency of global cities to become increasingly independent within their country (Daalder, 2015). Despite of this tendency, it must nonetheless be stressed that the degree to which cities can become internationally active is strictly related to the national legal framework and especially devolution of power and function to lower governance levels (Acuto et al., 2016).

According to van der Pluijm & Melissen (2007), city diplomatic activities can be clustered into one of the following categories, even though they recognize that many thematic overlaps exist: security, economy, development, networks and culture. The environmental dimension is not seen as playing a major role in city diplomacy activities and is only mentioned as being a difficult to classify topic that falls under the economic dimension's 'push-diplomatic' activities of knowledge-sharing. City diplomacy is either conceptualized two-sided or multiple-sided. Two-sided, hereby, refers to direct

contacts between a city and another organization, such as a national or regional government, another city, or a multinational organization. Examples of two-sided diplomacy are for example the interest representations set up at the EU in Brussels by cities such as Gothenburg, Lodz and Liverpool (Tavares, 2016). Multiple-sided diplomacy refers to the involvement of various parties representing cities and are most commonly found in the form of city networks, such as the Global Covenant of Mayors for Climate & Energy, created by a merger of EU-led Covenant of Mayors and the UN-led Compact of Mayors early in 2016 (van der Pluijm & Melissen, 2007). Over the past few decades, multiple-sided arrangements have arguably increased in importance while direct two-sided city diplomacy practices have simultaneously lost relevance (Acuto et al., 2016). The most important argument supporting this claim is the vast number of city networks that have sprung up in various issue areas in the past few decades. Contemporarily, there are around 125 multilateral arrangements of subnational governments, one of the latest additions being the Global Parliament of Mayors which was founded by sixty mayors in The Hague in September 2016 (Taveras, 2016). Most of the research on city diplomacy has focused on metropolises, such as London, New York and Amsterdam (van der Pluijm & Melissen, 2007), and singular city networks, such as ICLEI (Bulkeley, 2005). It is widely acknowledged that metropolises often lead city diplomacy efforts (Taveras, 2016), but city diplomacy is not limited to them. Cities, regardless of their size, are said to have some kind of structure in place that governs inter-city relations, both nationally and internationally, and even small cities are acting internationally (Acuto et al., 2016).

2.3. CITY CLIMATE DIPLOMACY

The concept of city climate diplomacy, in turn, is an even more recent phenomenon and, as opposed to Keating (1999) and van der Pluijm & Melissen (2007), not only includes the environmental dimension as incentive for cities to pursue diplomatic relations, but emphasizes it above all others as decisive factor for cities to enter foreign affairs. It should not be seen as a different concept from city diplomacy, but rather as one manifestation that focuses on climate change as main topic for horizontal and vertical cooperation. The development of city climate diplomacy is framed alike around the world by scholars and practitioners, and focuses on positioning cities as main GHG emission producers and highlight their climate change mitigation potential (Beerman, 2014).

The focus of many city diplomacy efforts on climate change mitigation begs the question why cities ignore the free-riding problem associated with mitigation actions (Kousky & Schneider, 2003). Reductions of greenhouse gas emissions represent a global non-excludable benefit, that is, each

subnational entity that engages in mitigation activities has to bear the full costs while only reaping minimal direct benefits (Krause, 2010). Especially the efforts of small- and medium-sized cities are slight when seen as a share of total climate mitigation action needed and rationalists therefore argue that cities would not take action at all to mitigate global climate change (Lee, 2014). That they nonetheless implement mitigation action is often traced back those very cities' potential to prevent the lock-in of carbon-intense infrastructure makes their efforts count. According to the emerging scholarly literature on city diplomacy in general, and mostly drawn from research on province or state involvement in international affairs, three incentives can be made out that catalyze city diplomacy in general, which are: 1) self-interest, 2) citizen pressures and 3) solidarity (van der Pluijm & Melissen, 2007). Whether these drivers are the same for city climate diplomacy is unknown, or, as Beerman (2014) puts it: 'in-depth knowledge about drivers, processes and impact of trans-local cooperation on climate action is still missing'. Lee (2014) hypothesizes in his theoretical research on climate paradiplomacy that cities engage with networks based on the degree of globalization and their vulnerability to climate change, whereas Sippel & Jennsen (2009) maintain that incentives and challenges are city-specific and cannot be generalized. How the city climate diplomacy of small- and medium-sized cities looks like in Thailand, and why and how they interact with networks and engage with actors beyond their country's borders during the LCC development and implementation phases is researched in this thesis.

One of the key advantages of city climate diplomacy, when compared with UNFCCC state-based negotiations, is the possibility to pursue a common interest without having to overcome the 'tug-of-war between powerful industrial countries and developing countries' (Lee, 2013) and could be considered a form of devolution of international affairs (van der Pluijm & Melissen, 2007). Cities are regarded as non-partisan and pragmatic actors in international affairs that do not have an obsession with predetermined positions but rather pursue shared interests, which is why they are regarded as being able to work together to pursue mutual benefits (Chan, 2016). Many cities and city interest organizations have adopted climate mitigation targets and transparently published those targets on different fora, such as the carbonn Climate Registry (cCR) and the Non-State Action Zone for Climate Action (NAZCA). Whereas some authors stated that local governments mostly set targets close to national mitigation targets, most authors stress that city action often is more ambitious than national one and goes beyond the mitigation targets set by national governments (Kern & Alber, 2008). In December 2016, for instance, the mayors of Paris, Mexico City, Madrid and Athens followed the lead of Tokyo and went ahead of all national governments by banning the use of diesel-powered cars in

their cities by 2025, putting new, significant pressure on their respective national governments and other major cities to follow suit (McGrath, 2016).

Subnational entities, and especially also cities, have thus entered the international climate governance stage and are allegedly strategically networking and collaborating directly with their peers and other subnational entities in other sovereign countries (two-sided, as in city-to-city cooperation, for instance between Bangkok and Yokohama), or join networks (as for example ICLEI), in order to reach their own objectives that can be either in line with the national interest or go beyond or even against it (Amul & Shrestha, 2015). Since cities have increasingly started to organize themselves in transnational climate networks in the past decade, it has become much easier for nation states to address cities as a coherent group (Fischer et al., 2015) and allowed cities to speak in a voice at international climate meetings, such as the COP21 in Paris. City networks, such as ICLEI, C40 and UCLG, represent aggregated city interests, also officially as members of the UNFCCC Local Governments and Municipal Authorities Constituency, at international meetings and have pressed for the adoption of measures at the international stage that would acknowledge cities as key actors in the global fight against climate change and facilitate adoption of urban climate change mitigation measures. These efforts led to the explicit inclusion of cities as key implementation partners in 26 of 126 INDCs handed in by October 2015 (Fischer et al., 2015). In addition to the INDCs, cities are more and more often also directly addressed in national climate change policy frameworks (Clapp et al., 2010). According to Fischer et al. (2015), thousands of local government organizations, and hundreds of major cities, have joined the various COP meetings, exerted pressure, and made their own climate change pledges. For a timeline of the evolution of city climate diplomacy within the UNFCCC process, see Annex A. Despite of this seemingly impressive number, it is worth noting that hundred thousands of municipalities exist around the world and that Thailand alone, for instance, has more than 2300 already. Furthermore, a lot of activity can be traced back to initiatives by only a handful of powerful policy entrepreneurs, such as the former mayors of New York and London, Michael Bloomberg and Ken Livingstone, respectively, and certain powerful capital cities, such as London, Paris, Tokyo and Mexico City. Instances of two-sided city diplomacy by small- and medium-sized cities in the global South are not researched well, and are rarer due to the limited resources available to smaller cities (I3; I4).

However, it is important to note that city diplomacy efforts do not solely refer to their involvement and representation at prestigious international climate meetings, which is what most people would think of when extending the definition of diplomacy to cities.

Arguably a more important dimension of city climate diplomacy is indeed the creation of multiple-sided city networks and their drive to share with one another, and learn from, experiences made in the urban climate governance realm (Amul & Shrestha, 2015). McGuirk et al. (2014) state that 'urban-based local governments have emerged as internationally networked climate activists'. These networks and diplomatic efforts must not be thought of as strictly global initiatives (Acuto et al., 2016) and can either be international, such as ICLEI, regional, such as the Asian Kitakyushu City Network, or national, such as the Municipal League of Thailand. These types of networks have increasingly penetrated the global South in recent years - sometimes even as a result of two-sided city diplomacy, as in the case where Amsterdam supported the setting up of the Rwanda municipal organization after the genocide (van der Pluijm & Melissen, 2007).

As opposed to the municipal voluntarism that has characterized early engagement of cities with the global climate mitigation efforts, scholars claim that contemporarily cities are much more strategically planning and framing low-carbon policies as notions of carbon control, resilience, security and resource scarcity in the international arena (Bulkeley & Betsill, 2013). City networks have been identified by scholars as providing the resources and 'political space within which policy entrepreneurs can operate with some degree of protection from politics as usual' (Bulkeley, 2010, p. 234), that is, allow policy entrepreneurs to create innovative and experimental urban responses to the climate change challenge and share the results of those experiments with their peers within and outside their borders. Networks pool resources and allow smaller entities to engage in city diplomacy. However, some authors stress that the rapidly increasing number of network arrangements overwhelms resource-constrained cities, especially smaller cities in the global South, and hinder them to be active members of such networks (Acuto et al., 2016). Kern & Alber (2008) posit that those networks are mainly networks by and for pilot cities.

But public city-to-city networks are not the only form of collaboration municipalities can pursue. Building on work by Bäckstrand (2008), Andonova, Betsill & Bulkeley (2009) tried to bring order to the research on multilevel urban climate governance by adding the transnational dimension next to the local and vertical one. They came up with a typology of transnational climate governance, where they distinguished three different types of actors, namely public networks, private networks and hybrid networks, as well as three key network governance functions, which are information sharing, capacity building and rule-setting. Next to the most prominent city networks, which are public in nature, hybrid networks can play an important role in city climate diplomacy too, where a local government for example collaborates with multinationals or with international donor agencies. With

regard to network functions, information sharing has been recognized as the main driver for the thrust of transnationalism that has started in the 1990s. Information is seen as the main resource that networks have at their disposal to steer members towards the network's goal. Capacity building and implementation, in turn, mainly refer to the provision of non-information resources and include provision of finance, expertise, labor, technology and monitoring capacity. Lastly, rule-setting refers to the generation and diffusion of rules. It is highlighted by the authors that rules do not necessarily have to be backed-up by powers transferred to them by governments and are often non-hierarchical (Andonova, Betsill & Bulkeley, 2009).

By 'seeking to step beyond the local as a frame of reference', including an analysis of horizontal and vertical collaboration allows one to draw conclusions as to why LCC programs are, or are not, implemented (Bäckstrand, 2008). City climate diplomacy, for the purpose of this thesis research, consequently does not only refer to the two-sided and direct pursuance of foreign policy interests by subnational entities, but also to pursuing climate goals by engaging with networks (Acuto et al., 2016). As opposed to Andonova, Betsill & Bulkeley (2009), however, this thesis does not exclusively apply the typology developed in transnational interactions, but rather focuses broadly on horizontal and vertical collaboration of cities in general. It analyzes the impact this collaboration has on a city's decision to initiate and implement a LCC policy, while acknowledging that the landscape of urban climate governance does not correspond neatly with the administrative boundaries of a municipality, and that urban responses to climate change have to be understood as a multilevel analysis. As Kern & Alber (2008) state, effective multi-level policy arrangements depend on 'a fruitful combination of horizontal and vertical collaboration'. City politics does not take place in a vacuum, and the 'extent to which cities can actively engage in changing emissions pathways depends, in part, on how cities fit within national and other layers of governance' (Clapp, 2010).

Vertical collaboration, on the one hand, means interactions between local government organizations and government organizations further up in the hierarchy, such as provincial, national or supranational governments. This form of collaboration is relevant for LCC stakeholders, since the macro-level framework determines the control a local government has over LCC functions and resources at its disposal, as well as its responsibilities in contributing to national climate change mitigation efforts, and can thus either be beneficial, neutral or detrimental to a city's LCC efforts. Therefore, the international, regional and national macro-level legal framework and context, and the extent to which the city engages with actors on higher government scales, are likely to have a considerable impact on a municipality's decision to initiate and implement a LCC program. National

governments can either chose to govern through enabling, provision or regulation, whereby enabling has to be seen as the least intrusive (Kern & Alber, 2008). However, even when a central government does not show willingness to cooperate or support cities' climate protection efforts, local climate mitigation action can still be successful (Bulkeley & Betsill, 2013). Which governance mode is chosen depends to a large extent on the degree of devolution. The more powers and functions are delegated to cities over the course of decentralization reforms, the more authority and capacity a city has in implementing a LCC program. At the same time, vertical collaboration also refers to a municipality's ability to access and influence higher government levels and shape national or regional policies (Corfee-Morlot et al., 2011), and 'allows citizens to participate in global decision-making through local governments' (Chan, 2016).

Horizontal collaboration, on the other hand, traditionally means direct two-sided interactions between one local government organizations and neighboring ones, but also horizontal cooperation nationally and internationally (Kern & Alber, 2008). It furthermore refers to interactions with other local government organizations via multiple-sided city networks (Bulkeley, 2010). In addition to the traditional meaning of horizontal collaboration, another kind of interaction is added, namely the one between cities and other non-state actors, both domestically as well as transnationally (Bulkeley & Betsill, 2013), that was defined above as a hybrid network. This kind of interaction can be observed often in city climate diplomacy and oftentimes increases the resource base available to city officials for implementation of climate change mitigation activities. Governing choices are much more limited for transnational networks when compared to national governments, and mostly focus on knowledge diffusion to, and capacity-development of, local decision-makers (Kern & Alber, 2008). Horizontal networks are seen as being self-governing (Kern & Alber, 2008).

In a review of the multilevel urban governance literature, Kern & Alber (2008), Bulkeley (2010) and Bulkeley (2015) generalized some findings from the urban climate governance literature, which are summarized below. Bulkeley posits that most local governments focus their mitigation efforts on actions in the energy sector and that, in the global South, actions on transportation and commercial buildings are sometimes included as well. Kern & Alber (2008) came to the same conclusion, and also claimed that waste sector mitigation activities are less frequently used when compared to other sectoral action. Furthermore, Bulkeley (2010) states that a change in governance style away from self-governing and enabling towards regulation can be observed, but that, at the same time, the networked dimension of the urban climate governance steadily has gained in importance. Kern & Alber (2008) posited exactly the opposite in their research and stated that most measures

undertaken in relations to climate change mitigation focus on the self-governing and enabling mode, which might be owed to their focus on cities in the global North. Lastly, with regard to municipalities outside of Northern Europe, Bulkeley (2010) states that local governments have mostly limited control over climate change relevant sectors and budgets and therefore rely on land-use planning, as well as voluntary educational and awareness campaigns. Generalizing, Kern & Alber (2008) go a step further and claim that a lack of funds is the most urgent problem local authorities face when deciding on whether or not to implement LCC activities. With regard to horizontal collaboration, Kern & Alber (2008) furthermore found that networks created by and for cities are networks limited to pilot cities, and that passive network members are difficult to mobilize. Bulkeley (2015) identified a trend of increased coordination between different urban initiatives and international organizations working on the topic of urban climate governance, as well as a movement that aims at trying to harmonize urban responses to climate change. Acuto et al. (2016) suggested that no comparative advantage in conducting successful diplomatic relations was found for cities having established a dedicated foreign affairs office, and that international activities were often more successfully managed by local departments (such as environment or economic planning). With regard to vertical collaboration, Kern & Alber (2008) state that climate change mitigation action was predominantly a voluntary task for local governments and that central governments limited themselves to an enabling role, by, for example, devising award schemes, guidelines and benchmarking. They observed that governing through enabling seems to dominate in federal states, such as Germany, where the state or provincial level can add another more comprehensive enabling layer, and that tools, such as competitions and awards, can incentivize authorities to become active. They also recognize that these tools are frequently used by NGOs, and not only by nation states (Kern & Alber, 2008). Bulkeley (2015) concluded that the urban dimension has become more present on the international climate protection agenda. This review briefly summarizes some generalized findings from the literature and serves as the base with which findings from Thailand will be compared in the discussion chapter at the end of the thesis.

Merging the hitherto traditional urban governance research mode that focused on local government actions alone (e.g. Bulkeley, 2010) with a more multilevel analysis, focusing on horizontal and vertical collaboration, provides an interesting lens through which to study urban climate governance and city-state interactions in the climate change realm. Acknowledging the influence of stakeholders beyond the municipality on a city's decision to contribute to global climate change mitigation efforts sheds light on the importance of best-practice sharing and local-global collaboration. The implications of city diplomacy in the form of interactions with other actors beyond the municipal

boundary on the design and performance of urban low-carbon policies is a topic of interest in the thesis research and will be analyzed at the hand of the selected Thai municipalities and their LCC program. To learn more about this process, the policy arrangement approach (PAA) will find application and is presented in the next subchapter.

2.4. POLICY ARRANGEMENT APPROACH

As introduced in the previous subchapter, multilevel urban governance is conceptualized for this thesis as the horizontal and vertical collaborations that take place between a city's government and other national and international collaborators related to LCC policies. Horizontal collaboration, on the one hand, refers to interactions between municipal governments and a host of different actors that are assumed to provide different kinds of resources, such as knowledge or budgets. Contacts with spatially or ideologically distant actors furthermore often lead to discourse diffusion. Vertical collaboration, on the other hand, refers to the macro-level legal-political context and interactions between municipal governments and government levels further up in the hierarchy. The institutional context in the form of rules and regulations either furthers or hinders a city's ambition to implement local LCC policies, by increasing its control over, and resource-base for, LCC relevant sectors and policies.

A fitting intermediary concept that operationalizes city climate diplomacy and helps analyze the findings was found in the PAA. The PAA was chosen because it allows for the analysis of changes in the LCC policy over time, the nesting of the policy in the institutional context (Ochieng et al., 2017) and the multilevel-analysis analysis of a policy (Arts & van Tatenhove, 2005), therewith permitting for a longitudinal study on the impact of vertical and horizontal collaboration on LCCs. It was deemed a better fit than the institutional policy analysis model of the Advocacy Coalition Framework, because it incorporates not only belief systems as key explanatory factors for policy-making (Veenman et al., 2009). According to the PAA, a policy arrangement can be defined as the way in which a certain policy field – here LCC - is shaped in terms of substance and organization (van Eerd et al., 2014), whereby discourse relates to the substantive aspects of the policy, and actors and power to organizational aspects. Rules, in turn, are regarded as having both organizational as well as substantive aspects (Veenman et al., 2009). A policy arrangement can be defined as temporary policy stabilization via institutionalization, which concomitantly implies that change is possible and steadily occurring (Arnouts et. al., 2012; Ochieng et al., 2017). Changing policy arrangements can theoretically be traced back to three exogenous factors (shock events, developments in adjacent arrangements

and political modernization processes) and one endogenous one (actions of policy entrepreneurs; Arts & Leroy, 2006, cited in Arnouts et al., 2012). One, several or all of these factors can lead to either a sudden or gradual change of a policy arrangement. The PAA will be used to investigate the evolution and stabilization of the LCC policy arrangement in Thailand along the four dimensions of the PAA: actors, rules, power, and discourse, with a focus on how horizontal and vertical collaborations impacted the shape of LCC policy arrangement.

Firstly, the actor dimension entails all relevant stakeholders, and their coalitions, in the urban low-carbon programs of the case studies under investigation, and allows for a multilevel analysis of stakeholder interactions. Coalitions not necessarily solely refer to a shared belief system, or discourse, but can also be based on resource availability and power relations (Wiering & Immink, 2006).

The rule dimension, secondly, corresponds to the legislative framework at the regional and national level which impacts the urban climate governance arrangement and delineates the 'action situation'. In this thesis, due to the impossibility of in-depth immersion in the selected cases, only formal rules in the form of legislation are looked at. Legislation includes, inter alia, policy plans, overall policy frameworks, agreements and other instruments (Park, 2015).

Thirdly, the discourse dimension refers to the inter-subjectively shared beliefs of actors that define and give meaning to certain phenomena (Hajer, 1995, cited in Ochieng et al., 2017). Discourses entail concepts and sets of ideas that give meaning to the real world (Wiering & Arts, 2006), and their analysis is useful as it helps to trace 'how a certain subject or topic is talked and thought about and how it is represented to other (Hall, 1992, cited in Ahebwa, 2012). It is analyzed to what extent global and local discourses led to the institutionalization of the discourse in form of informal and formal LCC policies and how the LCC discourse has been communicated over time, putting different foci on different concepts broadly encompassed by the LCC policy arrangement. Concepts of interest for this study include, inter alia, sustainable cities, best-practice-sharing, participation, urban mitigation and adaptation, co-benefits and cooperation.

Lastly, the power dimension defines the resources different actors have at hand for and their ability to mobilize them in order to enforce their interest upon others. Power is defined as resources, and resources are classified as budget, knowledge, capacity, control, and communication & networks. The classification is adopted from Park (2015) and capacity was added as resource. Different actors have, due to a certain dominant discourse or prevailing legislative framework, different types of resources

available that they command. Certain policy arrangement stabilizations are exemplified by certain dominant actors, which in turn have become dominant by their supreme access to resources vis-a-vis other actors. Of special interest for this research is to what extent vertical and horizontal interactions of municipalities with other actors impacts the different stakeholders' resource distribution.

In addition, the decision to design and implement low-carbon policies in Thai municipalities, as well as the design-choices, are arguably shaped by endogenous factors found locally within the policy arrangement (role of mayor or other policy entrepreneur in spearheading such policies; a city's authority over relevant sectors, entry of new policy actors etc.) and exogenous ones found in the multilevel national and international context (horizontal collaboration, e.g. participation in city networks; vertical collaboration, e.g. supportive national legislative framework and interactions with higher government levels etc.). Changes of the LCC policy arrangement are traced by analyzing changes in the four dimensions of the PAA over time. Via the compilation of the interview and document analysis data in the PAAs four dimensions, the PAA is deemed a suitable theoretical framework to analyze the LCC policy in Thailand and investigate which of the key variables (dimensions) help to understand why and how Thai cities have implemented LCCs.

2.5. INTERPLAY OF CONCEPTS & RESEARCH QUESTIONS

Summing up chapter 2, it can be said that multilevel climate governance has gradually gained in importance and contemporarily complements traditional, neo-institutionalist and rationalist understandings of international climate policy. Among the many actors and levels that are prominently contributing to climate change mitigation, cities are seen by many as being at the forefront of the global efforts to tackle climate change. A discourse change can be observed at the international level and cities are more and more often implementing local climate mitigation policies and are engaging with urban climate governance stakeholders outside of their municipality. This horizontal and vertical cooperation is claimed to be a strategic choice of local government leaders. Such strategic cooperation can be called city climate diplomacy. Stakeholders in the urban governance realm range from upper governmental levels via national municipal networks and NGOs to international donors, city climate networks and think tanks. The vertical and horizontal interactions between local governments and other urban climate governance stakeholders, and the impact of these interactions on the design and efficiency of the LCC program within the multilevel governance arena, are the research topic of this study. The PAA will be used to conceptually investigate and order the research results by tracing the LCC policy arrangement stabilization and

changes in Thailand, describing the stakeholders involved and assessing their contribution on design and implementation of LCC programs, setting the legal regional and national background in which LCC programs developed by analyzing the rules impacting LCC and by defining and assessing the resources available to the stakeholders at all levels involved in the LCC program of the selected case studies. In this way, the following research question and its sub-questions will be answered.

1) *Why and how did the LCC policy arrangement in Thailand emerge and develop and how did it manifest itself at the local level?*

   To answer this research question, the four analytical dimensions that are said to make-up a policy arrangement will be described and analyzed to what extent the interplay between actors, discourses, rules and resources gave shape to the LCC policy arrangement in Thailand. The research will thus be concerned with identifying central actors in the LCC policy domain, investigating the emergence and change of the LCC discourse, explaining how power is distributed among LCC actors and analyzing what and how formal rules impact the LCC policy.

2) *How does Thai city climate diplomacy look like and how did horizontal and vertical collaborations between the various actors shape local LCC programs?*

   To answer this research question, the city climate diplomacy activities of Thai cities are characterized and assessed with a focus on a small- and medium-sized city.

3) *What lessons can be drawn from the findings?*

   Based on the findings of the previous two research questions, relevant practice implications are extracted and policy recommendations formulated.

The following chapter will introduce the methods that were applied in gathering and analyzing the data required for answering the aforementioned research questions.

3. METHODS

This chapter justifies the case selection and introduces the methods that found application in gathering the data and elaborates on the data analysis process.

This thesis is the result of six and a half months of research that included a six week data collection phase in Thailand from February 11 to March 24, 2016, and relies both on primary and secondary data. The research followed a deductive approach, that is, tried to deduce whether the theories and hypotheses laid down in the literature based on case studies in the global North find application in a developing country context and in small- and medium-sized cities. To that end, the study analyzed the low-carbon city programs of selected Thai cities and explored to what extent those cities are pursuing climate diplomacy by collaborating horizontally and vertically with other LCC stakeholders. At the same time, the research included inductive elements in so far that it identified trends and patterns from the data collected during the fieldwork, generalized some of the findings and concluded that there are certain key deviations from the dominant academic literature applicable to LCC program development and implementation in small- and medium-sized cities in Thailand. A qualitative case study research design was used. The case study research design was deemed the most useful for answering the research questions, because it allowed for the integration of exploratory and confirmatory analysis and made it feasible to use process tracing, which offered the opportunity to match the theory-derived claim with the actual case on the ground (Maoz, 2002). Furthermore, due to the limitations in budget, professional experience and time that go hand in hand with the writing of a master's thesis, a case study design allowed the analysis of a small number of cases in a cost- and time-efficient manner, as well as adapting the research direction to the realities on the ground (Maoz, 2002).

3.1. CASE SELECTION

In order to determine the local potential of varying urban low-carbon initiatives, as well as the integration of LCCs with domestic and international issue networks, two in-depth case studies were selected. Information-oriented selection was done, that is, choosing critical cases for study that are illuminative manifestations of the LCC policy arrangement under study, which means that the objective of the sampling is to gain an in-depth insight about the phenomenon at hand (Flyvbjerg,

2006; University of Southern California, n.d.). Therefore, subchapters 4.1. and 4.2. provide a 'thick' description of the case studies chosen.

Thailand counts more than 2300 municipalities, but only a few are implementing a LCC program (approximately 100; I1), and even fewer are collaborating vertically and horizontally with other actors. To answer research question 1, it was important to select cases that have a relatively well-developed low-carbon city program in place in order to be able to empirically investigate the low-carbon projects. To answer the second research question, it is furthermore pivotal that the chosen cities collaborate horizontally and vertically to research the impacts those collaborations have on the local LCC program. A number of transnationally working organizations that are engaged in low-carbon city projects in Thailand and are piloting their own low-carbon city initiatives in Thailand had been identified via internet searches.

Via the application of selection criteria (well-established; well-networked), the potential case study pool was narrowed down to seven (highlighted in Annex B). Two further criteria, namely the expected willingness to cooperate with me and the ability to converse in English, led to the fact that the focus fell on one small municipality (Muang Klaeng), which is seen by many LCC stakeholders as the LCC model in Thailand and one medium-sized municipality (Chiang Rai), considered as regionally renowned LCC with unorthodox projects focusing on urban ecosystem restoration. The two selected municipalities (highlighted in blue in figure 1) were visited during the fieldwork period in addition to two other municipalities (Phitsanulok and Pak Kret, highlighted in orange) that were previously visited during a field trip as part of a larger research project on linking LCCs with carbon markets. One other municipality (Nonthaburi, highlighted in green) was visited by the researcher, but the information gained was deemed insufficient for an in-depth analysis of its LCC program. Information gained during the talks and group interviews with

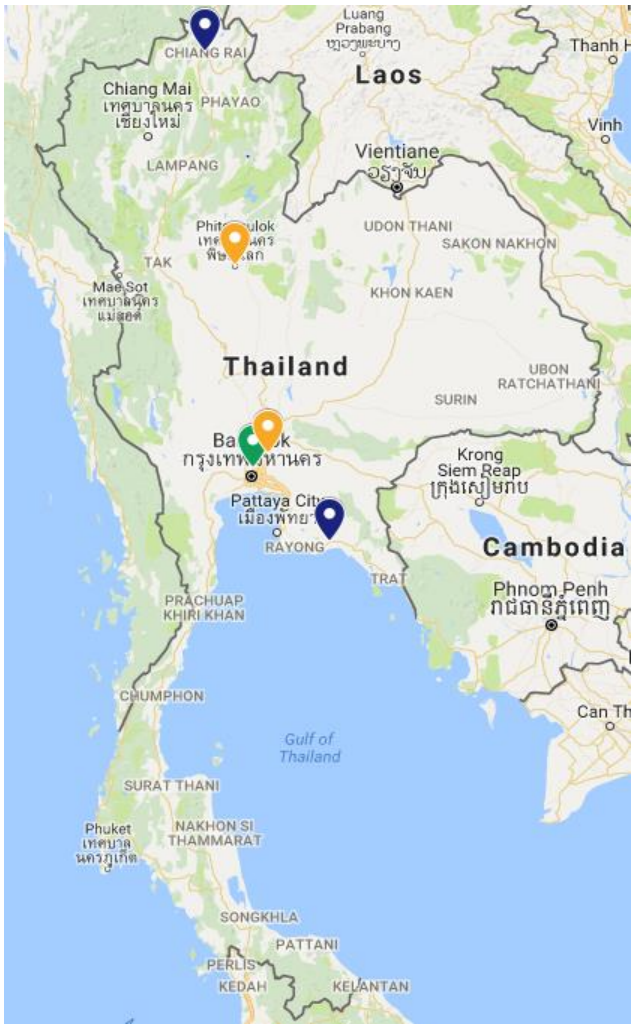

Figure 1 - Visited LCC - Location

representatives of the latter three cities are used as well in the remainder of the thesis.

3.2. DATA COLLECTION

3.2.1. LITERATURE REVIEW AND ANALYSIS

Parts of the thesis relied on secondary sources. Academic literature was consulted for a literature review in order to provide the theoretical framework and a state-of-the-art discussion about the concepts used to frame the findings. Academic meta search engines Google Scholar and EBSCOhost were consulted. The analysis of policy documents was a key method for identifying, compiling and comparing policies that impacted urban low carbon initiatives within Thailand. Problems were encountered to find English-language sources. Policy documents of international organizations, such as the World Bank, APEC, and ADB, were consulted to partly fill the gap in available documentation. Likewise, grey literature was of importance in filling knowledge gaps and helped to identify and trace the evolution of low carbon initiatives.

Additional documents were also requested and received after some of the interviews (e.g. brochures, project descriptions, unpublished research) and played an important role in better understanding the on-going and past LCC efforts in Thailand.

3.2.2. SEMI-STRUCTURED INTERVIEWS

Interview data was gathered in either group (x4) or individual interviews (x10). Due to time constraints, one interviewee filled out a custom-made questionnaire that resembled the interview guide. Complementary to the literature study, semi-structured interviews were deemed an appropriate method within this study's research design to answer the research questions.

The interviews lasted between 40 minutes and several hours, averaging around 70 minutes. An interview guide was used as a starting point for the interview. Before the interview, extensive research into an organization's background with regard to their LCC activities was undertaken to be able to use the time allotted for the interview efficiently. A detailed document was created that summarized those findings and could be consulted in case further clarifications were needed. Based on the availability of information, some questions were left out and others were asked. Furthermore, since most respondents had very different roles and responsibilities in their respective organizations, the interview guide was adjusted for each interviewee. Due to the novelty of the topic, and the

paucity of freely available documentation especially in English, the research focus shifted slightly over time. In the beginning, questions focused on a municipality's LCC program and the extent to which those municipalities are engaged in climate diplomacy. When it became apparent that cities are often rather passive recipients of foreign ideas/aid, more emphasis was put during the interviews on the role of intermediary organizations in spreading and institutionalizing the LCC policy arrangement in Thailand. During the interviews, extensive notes were taken, focusing on the key responses relevant for the research progress. Most interviews were recorded at the place of work of the interviewee, but some were also recorded in less optimal situations, for instance during site visits or in crowded cafés. Most interviewees spoke English and communication was not troublesome. A few interviews suffered from the language barrier. The interviewer reacted and rephrased the questions in an easy-to-understand manner, and also by adjusting the velocity of speech. One interview took place in Bangkok, for the other interviews travels were unavoidable (Muang Klaeng, Nonthaburi, Pak Kret, Chiang Rai, Chiang Mai, Phitsanulok).

The interviewees can be clustered in three main groups: local government stakeholders (L 1-7), intermediary stakeholders (I 1-6), private business (P1) and central government stakeholders (C1), and are referred throughout the remainder of the thesis with the abbreviations. A table with the organizations and positions of the interviewees can be found in Annex C.

3.2.3. SITE VISITS AND OTHER EXCHANGES

For the first two weeks of the fieldwork period, I assisted with the organization of a stakeholder workshop in Bangkok on the topic of linking LCCs with carbon markets in Thailand (35 stakeholders from various backgrounds) that was taking place at the end of February 2016. During the workshop, group and caucus discussions were held, for example on identifying key barriers to LCC development in Thailand and on linking LCCs with carbon markets. Data in form of notes and photos of, for example, posters, were collected. Furthermore, many presentations were held that provided insights into the workings and evolution of the LCC discourse and programs in Thailand. During the workshop organization phase, as well as while searching for potential interviewees, I was in email contact with several important stakeholders that provided interesting input with regard to the topic as well, such as for example the director of the IGES regional center, and the director of ICLEI Southeast Asia.

Observational data was gathered during field visits to five different Thai municipalities that implement a low-carbon city program. In all five municipalities, observations were made concerning the previously collected claims of low-carbon city projects in the city, in the form of unguided and

guided observations, when we/I were shown around the municipality and to some low-carbon projects (including a low-carbon butcher house, community waste collection facility, waste up-cycling plant, low-carbon hotel, low-carbon farms, biodiversity learning center, cultural learning center, school gardens and arboretums, community gardens, use of green transportation, climate change learning centers). During the observations, notes were taken when necessary. The knowledge of English was good in Pak Kret and in Chiang Rai. In Phitsanulok and Muaeng Klaeng, a translator and electronic translating devices were sometimes consulted to communicate with the persons showing us/me around.

3.3. DATA VALIDITY

The variety of sources and source types consulted allowed for triangulation of the data and a comparison of the contents in order to increase the validity of the findings. Internal validity is increased by having used a cross-sectional case study approach, comparing the LCC policies of two different municipalities in Thailand (Lupovici, 2009), and by having thoroughly familiarized myself through site visits and in-depth interviews with the substance of the LCC policy and its local context (Leng, 2002). Furthermore, by having selected critical cases via information-oriented selection, external validity has increased in so far that it allows for the generalization of certain findings to other forerunner cities in the country or region (Lupovici, 2009). Due to the qualitative and context-sensitive nature of the research, and due to the interview method chosen, meeting reliability and falsifiability criteria emphasized by positivist researchers are not a key concern of this research (Lupovici, 2009). Nonetheless, a certain degree of reliability of the findings is gained by comparing it to other explorative pilot studies in Southeast Asian countries (e.g. Lasco et al., 2004 & Asian Institute of Technology, 2013) on LCC development and city diplomacy in small- and medium-sized cities. Also during the first two weeks, comparison of the data and notes among three, and at a later stage four researchers, allowed for triangulation through multiple analysis (Ritchie & Lewis, 2003).

3.4. DATA ANALYSIS

The collected interview data was digitized and compiled in one document. The first step in the process of inductive analysis was a close reading of the data collected in order to very well familiarize myself with it (Hammersley & Atkinson, 2007). I identified recurring patterns and trends in the responses given during the interviews, and focused on whether anything stood out for being surprising or puzzling by contradicting those patterns and trends with the previously expected results

and theory used. The identified trends and patterns were color coded and highlighted in the document (Hammersley & Atkinson, 2007). Recurring trends and patterns were grouped under the umbrella dimensions of the PAA, namely 'resources', rules/regulations', 'actors' and 'discourse'. In addition, the interview data was color coded for the concepts of 'horizontal collaboration' and 'vertical collaboration'. Surprising elements that stood out and did not belong to any of the trends identified were highlighted differently. The initial coding was adjusted several times upon rereading the interview summaries and after being able to better delimit the different PAA dimensions from one another.

The findings from the literature and interview analysis are presented in the following two chapters, where one subchapter is dedicated to each of the PAA's four dimensions, starting with the actors and discourses.

4. ACTORS & DISCOURSES

As previously mentioned in chapter 1 & 2, the evidence base that cities are leading climate change mitigation efforts and are actively collaborating with other actors to reach their goals is very incomplete and biased towards large cities in developed countries. This chapter set out to contribute to establishing a better evidence base for the claims by describing and comparing two cases of LCC programs in one small- (Klaeng) and one medium-sized (Chiang Rai) municipality in Thailand and investigating why and how those cities engage with the LCC discourse and implement LCC programs by conducting interviews with key stakeholders involved. At the hand of these two examples, a better understanding about how the LCC discourse found a foothold in Thailand, as well as about the main actors involved, is gained. The research focused on the impact a city's horizontal and vertical collaboration - that is, city climate diplomacy - had on the initiation, design and implementation of its LCC program. Consequently, subchapters 4.1. and 4.2. treat the PAA's discourse and actor dimension at hand of Muaeng Klaeng's and Chiang Rai's LCC programs, which are further elaborated on with insights gained through interviews with other key LCC stakeholders outside of the municipalities in subchapters 4.3. and 4.4. to get a better understanding about discourse and actors in Thailand generally.

4.1. KLAENG - AN INTRODUCTION

Klaeng lies within Muaeng district in Rayong province. The Muaeng district is in turn divided into fifteen subdistricts, which are again subdivided into 146 villages. In addition, there are fifteen so called tambon administrative organizations - a form of local government organization (more in chapter 5.1.). Klaeng is categorized as a town, covering territory of the subdistricts Thang Kwian and Wang Wa and officially has around 18,000 inhabitants, divided into thirty communities. Including the unregistered inhabitants, the actual population size approximately doubles (L2). Many of the unregistered inhabitants are seasonal guest workers from Cambodia and Myanmar who come in search of employment to Klaeng. Klaeng is the district capital (and therefore called Muaeng Klaeng) and commercial hub for the surrounding sub-districts. Its economic profile is still shaped by the agricultural activities in its hinterland, but increasingly commerce and the hospitality industry gain in importance. Whereas in previous years, agricultural production was diversified and focused on vegetable and rice production, these days rubber and durian plantations dominate the agricultural

sector. Durians have increased tremendously in value (THB 5000[2] per ton in 2015) over the past years due to a staggering demand from China's middle class. Consequently, many fields have been transformed to durian plantations and 50 % of total harvest is exported via the industry harbor in Rayong to China. Only the edible parts are exported, which leaves an enormous amount of organic waste to be dealt with in the municipality (P1). This shift away from rice and vegetable production towards cash crop monocultures has also led to a decrease of food sovereignty in Klaeng, and signifies that staple foods often have to be imported to the municipality, thereby heightening the 'food mile' carbon footprint. In addition, organic waste from the agricultural sector contributes a larger-than-average share to Klaeng's municipal solid waste mix. These two problems - amount of organic waste and 'food mile' - informed the mayor's prioritization of LCC activities.

The wide range of hospitality and commercial options available in a place of Klaeng's size was interesting to observe. It offered several big hotel complexes, in addition to a new Tesco Hypermarket and other amenities such as an enormous Cineplex, McDonald's and Starbucks one would expect in only much larger municipalities. In addition, the great number of well-maintained public green spaces was notable, as was the small tram-like vehicles that represent the public transport sector in Klaeng. During the guided visit of the town's LCC program, a modern sports and leisure compound was visited, as was the municipality's waste recycling center and a privately-run low-carbon farm and fertilizer production facility.

The LCC program in Klaeng is comprised of different sustainable city projects, whose results were quantified in terms of tCO_2e emission savings. The projects that were part of the LCC program are introduced in the following subchapter, but before that it is important to get a better understanding of how the LCC concept is defined and understood by local stakeholders, especially since no generally accepted definition of low-carbon city exist. The Asian-Pacific Economic Community (2014) defines LCCs as 'towns, cities and villages which seek to become low carbon with a quantitative CO_2 emissions reduction target and a concrete low carbon development plan irrespective of its size, characteristics and type of development', whereas the Thailand Greenhouse Gas Management Organization (TGO; 2014) defines a LCC as a 'province, city, or municipality that pursues a systematic process to achieve GHG emission reductions'. During all interviews, the interviewees were asked about their definition of a LCC. Interestingly, the local government representatives gave a

[2] Approx. EUR 125 (exchange rate June 2015)

straightforward, practical answer and said that a LCC is the same as a sustainable city and the outcome is the same too, namely improved environmental quality in the city (L3, L1) - nobody cares what name tag one puts on it as long as local benefits are created (I1). For Klaeng's former mayor, being a LCC means being sustainable, whereby sustainability is defined as longevity. Longevity is reached, according to him, by providing the body with clean air, pure water, and good food. These three items are the ones that, when combined, allow for a long and healthy life. Therefore, all actions undertaken in his city, whether framed as LCC, sustainable city, or green transport city, are aimed at improving the quality of food, air and water, thus taking a very holistic approach (L1). Notably, the ASEAN ESC Award is giving out prices in three categories to small- and medium-sized cities in the region, and those categories are 'clean land', 'clean air' and 'clean water' (Suphot, 2015), seemingly mirroring the former mayor's understanding of sustainability.

The main interviewee - Somchai Chariyacharoen - has been identified, both by other interviewees as well as the document analysis, as one of the leading figures in the LCC development process in Thailand. He served as mayor of Klaeng municipality from 2001-2014. After not being reelected, he continued to engage with the LCC discourse by funding a low-carbon farm that integrates waste recycling, fertilizer production and production of alternative energy. The farm has taken over the responsibility for parts of the waste management from the municipality, especially organic waste collection. This LCC farm, called *Maepim*, is a well-known institution in Thailand and the region and serves as a private learning center that was visited by some 2000 people in 2014 and 2015. I conducted two interviews with Somchai Chariyacharoen: one in his function as LCC farm owner and one in his role as former mayor of Klaeng municipality. I was extensively shown around the farm and the city by the former mayor, as well as by Mr. Satien, the director of the municipality's waste recycling facility. I also interviewed Ms. Nuchanart Sukawadee, who was the LCC project manager in Klaeng until it was terminated in 2014. The same year, she transferred to the larger municipality of Tapma, where she initiated a very small LCC program as well.

Against the background information compiled above, the following section describes the evolution of the LCC discourse and actor composition in Klaeng in a stepwise manner and sheds light on how Klaeng became the LCC model city in Thailand.

4.1.1. KLAENG'S LCC PROGRAM – THE SCRIPT AND THE CAST

Klaeng municipality initiated sustainable city activities in 2001 with the introduction of **ISO 14001** for holistic environmental management, the same year the main interviewee (L1) was elected as mayor

(Siyapan, 2011). Following the ISO standard mandates the organization using it to set yearly targets for holistic environment and energy management and meticulously collect a variety of environmental data, which provided a comparative advantage over other municipalities in the competition for international attention (Todoc & Suwanhong, 2008) The ISO standard has been used in Klaeng throughout the former mayor's term of office until 2014 and can be traced back to endogenous factors, namely the belief of the former mayor that improving the local environmental conditions is beneficial for the community (L1), as well as an exogenous shock event, namely the collapse of the *Pra Sae* river's ecosystem that runs through the municipality. The introduction of the ISO standard can be seen as the very first step towards Klaeng becoming the Thai LCC model city in 2011. At the same time, however, TEI has been identified as the one introducing holistic environmental management to Klaeng. It inquired with Thai municipalities whether they would be interested to get assistance with the implementation of a holistic environmental management strategy. Based on the application documents handed in by a few mayors, Muaeng Klaeng and Laemchabang were selected as cities to receive support. The mayor's application stood out, both in terms of length and the ideas presented, which went beyond the sole implementation of ISO 14001 (L1). As a consequence of this shown leadership and dedication to municipal environmental management, TEI connected Klaeng's mayor to Kenan Institute Asia, which sent him on a funded study trip to the USA, where he learnt about new ideas of how to improve the environmental quality in a city, especially by increasing green spaces. This proved to be only the first of many visits to a city abroad to learn more about urban sustainability practices. For a year thereafter, TEI supported Klaeng municipality with the implementation of the ISO standard and covered for the first year the costs for the auditor required to receive certification. The years thereafter, the costs for the auditor were covered by the municipality (L1). Over the course of the cooperation between TEI and Klaeng, a strong personal relationship between Dr. Chamniern, the former head of TEI, and the former mayor developed (P1), which proved to be decisive for many of Klaeng's future LCC projects.

Leading up to 2003, the mayor came up with a new low-cost concept for organic waste collection and recycling at Klaeng municipality with the objective to reduce the burden put on the municipal coffers for the use of the landfill in a neighboring district. A simple, open-air conveyor belt was initially used to separate organic waste and for the subsequent transformation into fertilizer and livestock feed. Rather than relying on high-cost technical solutions, the low-cost solution allowed for an easy replication of best practices and the diffusion to other municipalities (P1). Over the years, this basic waste management system evolved in a far-famed integrated solid waste management system that became the heart of all of Klaeng's sustainable and low-carbon city initiatives (Todoc & Suwanhong,

2008, WWF, 2014). The mayor's idea of 'carbon income' also derived from this project: each ton of waste that did not have to go to the landfill saved the municipality and its 14 local government collaborators THB 690[3], which accumulated over the years to savings for the participating local governments in the range of THB 150 million[4] (L1).

The first direct instance of LCC development occurred at the same time, when Klaeng was identified by TEI as leading urban environmental efforts in Thailand. It was selected as a partner for ICLEI's **Cities for Climate Protection** (CCP) campaign, next to the municipalities of Chiang Mai, Nonthaburi, Phuket, Rayong and Tungsong. ICLEI Southeast Asia, sub-contracted and paid TEI to administer the CCP campaign in Thailand. The CCP ran from 2002-2005 and had as its objective to assist municipalities to adopt policies and implement quantifiable measures to reduce local GHG emissions (Chamniern, 2011). Klaeng was only contacted in 2003 after the election of the new mayor and the successful first year of ISO 14001 implementation. No objective selection criteria were applied, as was the case in most of the initiatives involved (I3, I2, C1, I5), and the decisive selection criteria for TEI was the personal network of Dr. Chamniern and the shown willingness of the mayor to cooperate (I5). As part of the CCP, the mayor attended an ICLEI conference in Mexico City and undertook two study trips to Manila to learn about the production of biogas. Following the CCP campaign, ICLEI Southeast Asia representatives visited Klaeng municipality in 2006 and decided to continue working with Klaeng on the issue of managing municipal transport in a sustainable way. The municipality bought four tram-like buses (average speed 12-18 km/h) with its own funds that provide transportation for pupils going to school and people wanting to visit the parks and public recreation areas. These buses continue running as of today and have a capacity of 45 each. No public transportation existed prior in Klaeng, and the trams were envisioned to help reduce traffic jams and air pollution. The buses run on liquefied petroleum gas (LPG) instead of diesel and transport is provided free of charge to everyone (P1). Assuming that instead of 45 individual vehicles only one bus is riding, the municipality calculated that per bus, 16 tons of CO_2 can be saved per year (P1). Likewise, as a mitigation measure, the waste collection trucks switched from diesel to biogas fuels (Satien) and yearly CO_2 savings are calculated.

[3] Approx. EUR 16 (average exchange rate 2004-2014)

[4] Approx. EUR 3,571,428 (average exchange rate 2004-2014)

Thereafter, Klaeng participated in the **Sustainable City Competition** jointly organized by the Department of Environmental Quality Promotion (DEQP) and NMT. This was one of the first instances that the central government acknowledged already existing grass root activities and best practices at the local level in the field of urban environmental governance. In 2005, the prize was handed out for the first time and Klaeng won for its project of restoring and cleaning up the *Pra Sae* River running through its city center, further consolidating its reputation as forerunner when it came to urban environmental management. Key factors that led to the decision being taken in favor of Klaeng were citizen participation and horizontal collaboration with other districts along the river. This project gained international acclaim for Klaeng and brought in a nomination for the 'Dubai International Award for Best Practices to Improve the Living Environment'.

In 2007, Klaeng became a Regional Learning Center on Urban and Environmental Management for Thailand's Eastern Region as part of a collaborative effort with TEI, UNDP and UN-Habitat (UNDP, 2015).

The first time that the central government became directly involved with the sustainable city discourse in Klaeng, and arguably also Thailand-wide (more in chapter 5), was in 2009, when Klaeng won the first price in an energy-efficiency competition organized by the **Department of Alternative Energy Development and Energy Efficiency** under the Ministry of Energy. The prize money of THB 8.2 million[5] was used to buy a large biogas tank for the municipality to produce energy from waste. This tank is situated at the waste recycling plant within Klaeng municipality (Satien). More importantly, the **Thailand Greenhouse Gas Management Organization (TGO)** visited Klaeng in the same year, together with researchers from King Mongkut University, to learn more about its ongoing environmentally sustainable activities. TGO made a budget of around THB 3 million[6] available to conduct research and finance LCC pilot projects in one model municipality. They asked the former mayor whether Klaeng would like to become the Thai LCC model city. The mayor agreed to write a project application for the LCC program on the condition that TGO would finance the purchase of a conveyor belt for the waste recycling facility as well as a communal rice mill to incentivize citizens to go back to growing rice and vegetables and reduce the 'food mile' and increase food sovereignty (L2).

[5] Approx. EUR 170,830 (exchange rate June 2009)

[6] Approx. EUR 62,500

TGO agreed and thus became Klaeng the LCC model city in Thailand, and evolved into the so-called 'Klaeng Model', wherewith the LCC discourse became institutionalized above the local government level. TGO, the university and the municipality piloted a GHG inventory in 2010 for the year 2009 and developed a handbook on LCC development and GHG inventories modeled on Klaeng to be circulated among future LCCs in Thailand as part of TGO's LCC initiative. Many of the elements that already existed in Klaeng, such as a four strategy approach, were taken over. As point of reference, find the GHG emission profile of Klaeng's city-wide GHG inventory (figure 2; from Pongloe et al., 2015).

A year thereafter, in 2011, the year the mayor identified as the start of a LCC boom in Thailand (L1), Klaeng was suggested by TEI to the ***Deutsche Gesellschaft fuer Internationale Zusammenarbeit*** **(GIZ)** as pilot city for their project of promoting solar energy at the municipal level. Whereas the central government previously had sent the mayor on a study trip to a large-scale solar farm at Lopburi, GIZ invited him to participate in three study trips to Munich and Berlin to learn about solar roof tops that were more feasible to implement at the municipal level. However, no external finance was made available and only one pilot solar rooftop project was installed in Klaeng. Despite of this, the project was eventually rolled-out to 32 Thai cities. It furthermore joined, and heavily influenced, NMT's LCC program. NMT took over the four strategy LCC approach piloted by Klaeng, namely 1) city of trees; 2) city of energy efficiency; 3) city of sustainable consumption and 4) city of waste minimization.

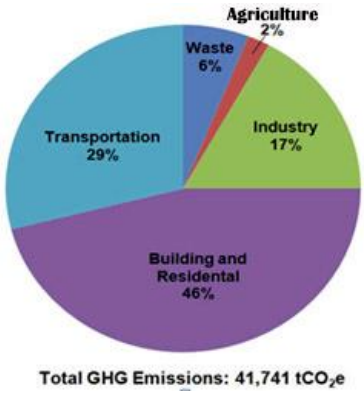

Figure 2 - Klaeng Emission Profile

Also in 2011, **Toyota Motors**, via TEI, awarded THB 5 million[7] to Klaeng (and two other municipalities) for the construction of a 'Stop Global Warming' learning center in traditional Thai style that was built next to Klaeng's public school and used to teach pupils and visiting municipal staff on the importance of climate change and sustainable development (Satien; Toyota Stop Global Warming, n.d.). The learning center is not used often anymore since the change of mayor in 2014 and has become dysfunctional (Satien; I5).

In addition to the activities mentioned above, the LCC discourse got further anchored in the city when Klaeng became an **ASEAN ESC model city** for its 'low-carbon society' activities. The ASEAN ESC

[7] Approx. EUR 113,640 (exchange rate June 2011)

secretariat provided trainings for municipal officers and organized a study visit for local government officials to learn more about urban organic agriculture (ASEAN-ESC Secretariat, 2011).

In the same year, the **Institute for Global Environmental Strategies** (IGES) approached Klaeng and offered funds for creating public relations materials (L2). Furthermore, a memorandum of understanding was signed between Klaeng and IGES for Klaeng to provide training program on environmental management to other municipalities (UNDP, 2015). One year thereafter, in 2012, IGES conducted a study on the system that Klaeng has put in place for integrated waste management as a model of best practice that could be diffused to other small- and medium-sized cities in the region (Menikpura, Sang-Arun & Bengtsson, 2012). IGES concluded that the waste management system in Klaeng reduced GHG emissions by up to 99 % when compared to sanitary landfilling without gas recovery and by 97 % when compared to open dumping (Menikpura, Sang-Arun & Bengtsson, 2012).

In 2012, Klaeng was furthermore selected as one out of four Thai cities as best practice model city in the 'inclusive urban and public services' category within the **Partnership for Democratic Local Governance in Southeast Asia** (DELGOSEA) project, financed by the European Commission and the German Konrad-Adenauer Stiftung, and implemented by TEI and NMT in Thailand. Klaeng was selected as best practice example for its LCC program and its best practices were to be diffused to Wakatobi municipality in Indonesia. This project can be seen as the last project under the leadership of TEI, which imploded, due to a change in management board and an outflow of staff. NMT and TGO thereafter are increasingly active in promoting LCC activities nationwide and filled the void.

In 2013, Klaeng teamed up with TGO and UNDP to become a model city for **'Achieving Low Carbon Growth in Cities through Sustainable Urban Systems Management in Thailand'**. The objective of UNDP's project is unique insofar that the creation of global environmental benefits was prioritized, at least on paper. The municipality received a grant over USD 350,000 to upscale its organic waste to biogas and public transportation projects (UNDP, 2015). Furthermore, the initiative was actively coordinating its efforts with already existing ones rather than reinventing the wheel. Cooperation with NMT LCC project, as well as with TGO's LCC initiative, ASEAN ESC Model Cities Program and GIZ's Clean Air for Smaller Cities in Asia, were explicitly pursued.

The last activity falling under the LCC umbrella concept was initiated in Klang in 2014, the last year of mayor Somchai's term. An expert jury nominated 14 cities throughout the world due to their outstanding climate change mitigation efforts to become **WWF's 'National Earth Hour Capital'**, and one of those cities was Muaeng Klang - by far the smallest of all the nominees (WWF, 2014). Muang

Klaeng was nominated by another interviewee (I5) who started working at WWF after quitting TEI and managed the Earth Hour City Challenge in Thailand.

Almost all environmentally sustainable projects came to a halt when mayor Somchai narrowly lost the election in 2014, according to him due to election fraud. This change of mayor is also the reason why Klaeng eventually did not join TGO's LCC program in 2014, even though it piloted all the measures. Now former mayor Somchai turned his knowledge, capacity, and network gained during his term of office into a private business (P1), taking over a part of the organic waste collection and recycling for Klaeng and surrounding sub-districts, creating carbon-income while at the same time establishing a private-learning center with visitors from other city governments, schools and other organizations throughout the country and region.

4.1.2. HORIZONTAL AND VERTICAL COLLABORATION

As can be seen by the stepwise breakdown of the LCC development process above, a myriad of actors were involved in introducing the LCC discourse to Klaeng and in operationalizing it. Both endogenous (vision of mayor; commitment to sustainability; local support; personal network) and exogenous factors (horizontal collaborations with national and international non-governmental actors; vertical collaboration with governmental actors) together led to the establishment and certain design-choices of Klaeng's LCC program.

Klaeng's mayor had a clearly defined sustainable city vision, and the municipality aimed to be 'a green, sustainable, and low-carbon city with low levels of waste, high-energy efficiency and sustainable levels of consumptions', with a strong focus on horizontal collaboration, since it wanted to become 'a learning center for Low Carbon Cities for other local governments within Thailand as well as the Greater Mekong region' (WWF, 2014). Former mayor Somchai proved his dedication to environmental management early on. He therewith positioned his municipality as first choice with Thai intermediary organizations and consequently gained considerable intra-regional competitive benefits through this active early engagement with sustainable city discourses (Lasco et al., 2004). Klaeng, with the support of international organizations, which in turn mostly contracted Thai intermediaries (with the notable exception of IGES), thus became the frontrunner in sustainable urban management and also the LCC model municipality in Thailand.

This position was arguably achieved without actively pursuing city climate diplomacy. The absence of diplomatic strategies can be explained by the absence of a need to compete for resources. Horizontal

collaborations via hybrid networks abounded, and LCC best practice cities could chose the ones most promising for their own objectives. Therefore, it is important to note that Klaeng did not have to actively reach out to receive support, but rather was contacted by international actors first that were interested in piloting their LCC projects (L1). Such horizontal cooperation allowed Klaeng to introduce and implement international best urban sustainability practices to its constituency and become well-known in the field throughout the region. These interactions exemplify that local LCC policies do not take place in a vacuum, but are nested in a multilevel governance arrangement and are influenced to a great extent by international discourses and actors. Initial dedication and motivation by a local government official seems to be the precondition for kick starting such an evolutionary process, but horizontal interactions, both direct and indirect, with actors beyond the Thai border, turned out to be decisive in driving the process forward. Collaborations led to an increase of resources in terms of knowledge (sponsored visits to best-practice cities abroad; new ideas), capacity (provision of trainings and workshops), networks and communications (improved level of English; reputation; learning centers) and budgets (grants; prizes; additional carbon income). Visits by the mayor and other municipal officers to cities abroad, and the visits by foreign experts to Klaeng, seemed to have had a lasting impact on the design-choices of the municipality's LCC program and its LCC project prioritization.

Vertical collaborations with ministries and public agencies can be seen as laying the groundwork for horizontal cooperation by making a municipality's efforts stand out. The awarding of the Sustainable City Award in 2005, devised by the Department of Environmental Promotion, helped Klaeng to become known for its environmental efforts within Thailand and to stakeholders involved in sustainability and urbanism discourses. The ministries and public bodies tasked broadly with protecting the environment are interacting and are aware of each other's activities. Winning a DEQP competition arguably consolidated Klaeng's reputation as forerunner municipality with the other public bodies as well. Due to the continued dedication of the mayor to holistic environmental management, other competitions organized by public organizations, for example on energy-efficiency, were consecutively won by Klaeng, even further fortifying its reputation and making the municipality even more likely to be contacted by international actors through being recommended by an intermediary or public organization. In addition, public bodies heavily lobbied on behalf of the local LCCs with the Department of Local Administration (DLA) to increase the control of functions and budgets for local governments and to include climate change mitigation indicators in its evaluation schemes and project proposal requirement (C1; I1). At the same time, it must also be recognized that local practices in Klaeng have heavily influenced national policy-making, and potentially even

regional ones, as can be seen by the influence former mayor Somchai had on the initiation of both TGO's and NMT's LCC projects.

As identified by one of the interviewees (I5), who worked for an intermediary organization, municipalities often used the competition between different ministries/international donors very strategically in a tit-for-tat manner to reap the largest possible power gains. This is exemplified by TGO's visit to Klaeng in 2011, when they were looking for a municipality to pilot their envisioned LCC program with. Klaeng was able to demand that TGO would pay for a rice mill and conveyor belt in exchange for Klaeng's consent to become its pilot city, thereby both enlarging its budgetary resources, as well as its networking ones (L2).

Concluding, it can be said that the decision to start and end Klaeng's LCC program was the consequence of endogenous factors, mainly the dedication and vision of the mayor, or the absence of it, respectively. Horizontal and vertical collaborations, in turn, were pivotal in directing, upscaling and institutionalizing the local LCC program and provided state-of-the-art tools and ideas. By doing so, local LCC actors, as well as intermediary organizations, increased their resource base and therewith power in the LCC playing field, gained influence to alter the direction of the national discourse and potentially even affected policy-making. Chiang Rai's pathway of becoming a LCC proceeded differently and with a considerable time-lag. How it differs, and where it showcases characteristics of the Klaeng model, are introduced in the next chapter.

4.2. CHIANG RAI - AN INTRODUCTION

Chiang Rai is categorized as a town (70,000 officially registered inhabitants) and is located within Muang Chiang Rai capital district and is the capital city of the province with the same name (Chiang Rai Municipality, 2012). Chiang Rai is Thailand's northernmost town and located 830 km North of Bangkok near the 'Golden Triangle', the region that used to be infamous for its opium production. It serves as a hub for transborder transportation and economic activities, as well as a well-known tourist center in Northern Thailand (L3). The city and province have recently witnessed rapid economic growth and tourist influx due to increasing permeability of the borders with Myanmar and via Laos with China. The coming-into-force of the ASEAN Economic Community (AEC) in 2015 further increased economic and touristic pressures put on the environment in the municipality (Chiang Rai Municipality, 2012). The volume of waste and wastewater has increased manifold, as has the built infrastructure and traffic. To tackle these problems, Chiang Rai engaged with the sustainable city discourse and later LCC discourse in the first place, as desired by the constituents.

While in Chiang Rai, it could be observed that the city's sustainable city projects were well advertised and visible throughout the city. Hills in the city center have remained forest-covered, bicycles were spotted frequently and bicycle paths were marked on some roads. The 'Green Line' - a tram-like vehicle like the one found in Klaeng - runs on biogas and offers free tours along the main sights of Chiang Rai for tourists to reduce the traffic volume and exhaust fumes from individual tours, and is actively promoted by the municipality's tourist office. Due to its location on the border with Laos and Myanmar and the tribal hilly areas in Thailand's north, an orange-brown haze covered the whole of the city during my stay there. This haze is the result of the traditional slash-and-burn practices followed by many poor farmers in the neighboring countries and tribal people in Thailand. This haze has a very negative effect on the city's air quality and cannot be tackled efficiently by the municipality itself.

In Chiang Rai, LCCs are conceptualized just like in Klaeng, i.e. trying to become a LCC is not at all different from trying to become a sustainable city. The interviewees from Chiang Rai stated that the results - an increase of local environmental quality - are the same no matter what name is given to the concept. This is interesting to note, especially since the vision of the mayor of Chiang Rai is 'happy city, low carbon city', and begs the question why LCC was chosen in the first place.

The main interviewee, Suranid Ong-La, is a leading and well-known figure in the LCC field in Thailand. She serves as the municipal clerk (highest ranking civil servant in a municipality) of Chiang Rai municipality since 2008. Her assistant, Kesinee Sangphakarn, was present during the interview as well and gave some input and assisted sometimes with translating terms. She also showed me around the municipality for several hours after the interview to visit three of the town's environmental learning centers.

4.2.1. CHIANG RAI'S LCC PROGRAM – THE SCRIPT AND THE CAST

According to the main interviewee (L3), the LCC discourse started at the base when the communities, of which there are 62 in Chiang Rai, expressed their wish to the municipality to tackle environmental problems. Chiang Rai initiated activities under the umbrella concept of sustainable city in 2008, when the former mayor Wanchai Chongsuttanamanee tasked a working group to come up with a plan to mitigate climate change and operationalize his vision of a 'livable city focusing on good environment, in conformity with the Buddhist way, and well-being of the people…' (Ong-La & Kamuang, 2012; Chiang Rai Municipality, 2012; L3). Seven development strategies were to be deployed to reach the mission, and one of them had as its objective the transformation of Chiang Rai into a LCC while at the

same time adapting to climate change (Ong-La & Kamuang, 2012). The new mayor, who was elected in 2016, gave out the vision of a happy and low-carbon city and decided to continue the work on climate change mitigation within his municipality (L3). The LCC program is institutionalized in a sustainable city committee headed by the municipal clerk and composed of different municipal departments and the private sector that meets on a monthly basis. This institutionalization was identified as one of the main reasons why election cycles do not affect the LCC program as much as in other cities (L3). Just like in Klaeng, the LCC program in Chiang Rai entails a number of sustainable city activities, with the LCC component being the attempts to quantify those ongoing activities in terms of CO_2e savings.

Chiang Rai first came into contact with the concept of urban greening and related terms, such as urban biodiversity and carbon sink, on visits by the municipality's mayor and civil servants to foreign cities where they saw and learned about urban green spaces (L3). Consequently, they initiated some projects in Chiang Rai but in an unsystematic way based on trial and error. TEI suggested a more systematic approach and brought the municipality into contact with the Japanese **Keidanren Nature Conservation Fund** (L3). This fund supported the piloting of biodiversity conservation measures on Doi Saken Mountain in 2008 as part of a larger program on enhancing urban biodiversity in Thai cities (Keidanren Nature Conservation Fund, n.d.). Chiang Rai thereafter (2008-2012) designed and implemented a program titled **'Enhancing Urban Ecosystem and Biodiversity in Chiang Rai City'** initially focused on conserving and restoring urban biodiversity in four different ecosystems to mitigate urban climate change, namely mixed deciduous forest ecosystems, agricultural ecosystems, urban ecosystems and wetland ecosystems. This project is at the heart of Chiang Rai's LCC strategy (Chiang Rai Municipality, 2012). Four different strategies are followed to conserve each of those ecosystems within the municipality's boundary. The most widely known and acclaimed of these projects is the above mentioned Doi Saken forest conservation project, which helped Chiang Rai to earn model city status within first Thailand and later ASEAN. It also received several international awards and recognition, such as the UN-Habitat Good Practices Certificate of 2011 and the invitation to present their approach at the COP 10 in Nagoya in 2010 of the Convention on Biological Diversity.

Biodiversity was singled out as the key mitigation strategy not due to a determined mitigation potential, but rather because it was seen as the best way to conserve the environment in general and it was regarded as easier to engage with people, especially with schools and communities (L3). Biodiversity preservation and restoration are regarded as more accessible for schools and the general public than the more technical ones, such as for instance wastewater management or energy-

efficiency. People participation is seen as very important for the success of a LCC program, and, contrary to what was experienced in Klaeng, LCC activities do not depend on the leadership of a single person. It was claimed during the interview that everybody has an interest in preserving the environment and increasing the municipality's livability solely owed to the fact that everybody lives in Chiang Rai (L3). The sense of ownership of the LCC program was thus acutely felt by Chiang Rai's citizens. To a greater extent than in Klaeng, LCC activities are very actively attended and residents are aware about the environmental efforts of the municipal government (L3; observations).

Over time, urban climate change adaptation came to be perceived as more important than climate change mitigation in Chiang Rai (L3). Especially challenges of water supply and floods of the *Mae Kok Noi* River ought to be addressed. This shift of perception might go hand in hand with the change of emphasis from climate change mitigation to adaptation by TEI, identified by other interviewees (L1; I5). Therefore, in 2009, the municipal clerk (L3) handed in Chiang Rai's application to become part of the **Asian Cities Climate Change Resilience Network** (ACCCRN), funded by the **Rockefeller Foundation** and coordinated in Thailand by **TEI** (L3). The network has as its objective to 'build knowledge and technical capacity of cities to reduce vulnerability and strengthen resilience to climate change' in second tier cities. The application was approved, mainly due to the commitment shown by the municipality, and Chiang Rai became a member of the network next to Hat Yai in Southern Thailand (TEI, n.d.) and joined the ACCCRN project that has been running since 2010 and came to an end at the end of 2016. In the initial phase, workshops and trainings took place in Chiang Rai and a cross-sectoral and multi-stakeholder working group responsible for the development of a climate resiliency plan and its implementation was set up (TEI, n.d.). Based on a vulnerability assessment, interventions were planned and executed. The two interventions chosen were funded by the Rockefeller Foundation and are the restoration of the inner *Kok* River and the development of a holistic climate resilience plan (TEI, n.d.).

The introduction of the LCC discourse and the focus on urban climate change mitigation actions came the Chiang Rai relatively late when compared to Klaeng, namely in 2011, that is three years after the start of environmental city activities in the municipality. Like almost all other Thai municipalities (more than 2000 were contacted), Chiang Rai was invited to express their interest in participating in the **National Municipal League's** project **'The Promotion of Low Carbon City Across Thai Municipalities in Celebration of His Majesty the King's 84th Birthday'** that was to start in February 2012 and last until January 2015 (I1). Unlike most of the contacted municipalities, however, Chiang

Rai was among the one hundred municipalities that reacted to this call and was selected as one of 84 (in honor of the king's 84th birthday) that set out on a path towards becoming a LCC (I1).

Thus, Chiang Rai decided to follow NMT's four strategy approach and either re-labeled their ongoing activities as falling with one of the four NMT pillars or came up with new projects, such as the promotion of bicycle use or raising the public awareness on the importance of on-site separation and recycling. The four NMT pillars are modeled on Klaeng's LCC experience and are: 1) city of trees, 2) city of sustainable consumption, 3) city of waste minimization and 4) city of energy-efficiency. Interestingly, the urban ecosystem and biodiversity project is framed in a Chiang Rai municipality LCC brochure as helping the municipality to reach both its climate mitigation and adaptation goals (Chiang Rai, 2012). In the consultation process that led to the NMT LCC project proposal, the municipal clerk suggested to NMT to include the learning center approach in its strategy, which they eventually did (L3). The learning center approach was previously introduced to Chiang Rai by the ACCCRN via TEI. Five municipalities that successfully were awarded the LCC label by NMT were selected to serve as learning centers in on thematic area they excelled in to share their experience with other municipalities (Kamuang, 2013; L3).

Just like Muaeng Klaeng, in the same year Chiang Rai joined NMT's LCC project, it also was selected by **TEI** and in cooperation with the **United Cities and Local Governments for Asia and Pacific** (UCLG-ASPAC) to participate in a EU and Konrad-Adenauer funded project titled **'Partnership for Democratic Local Governance in Southeast Asia' (DELGOSEA)**. Chiang Rai became one of four Thai pilot cities that were to learn about best practices from other cities in the region. Chiang Rai learned from the best practices in cooperative horizontal waste management from Kartamantul, Indonesia, and piloted a project on solid waste management cooperation with four bordering local government organizations - two municipalities and two tambon administrative organizations. To enhance their knowledge further, local government officials and stakeholders traveled to the Thai municipalities of Phitsanulok and Phichit to learn from their successful waste management projects. The first activity under this DELGOSEA project was the very innovative 'Miss-Recycle-Beauty Pageant-Chiang-Rai' contest, launched by mayor Winanchai to raise awareness on the importance of recycling (DELGOSEA, 2012).

In 2014, Chiang Rai was awarded both the **ASEAN Sustainable Model City Award** (administered by IGES) for its effort to become a low-carbon city, as well as the national **Sustainable City Award** (Suphot, 2015), three and eight years, respectively, after Klaeng won these prices. Also in 2014, the DELGOSEA learning center was promoted and supported by central government agency ONEP as a

good practice to be shared throughout ASEAN, thereby upscaling the experience made in Chiang Rai from the local to the regional (DELGOSEA, 2014). In the same year, the team at the 3E Research Unit conducted a GHG inventory for Chiang Rai as part of TGO's municipal carbon footprint project, and the highest emission saving potential was determined to be found in the transportation sector.

4.2.2. HORIZONTAL AND VERTICAL COLLABORATION

Even more so than in Klaeng, the LCC development started at the base in Chiang Rai, when the mayor gave out a mission in 2008 and tasked a committee to operationalize the task communicated by the constituency to make Chiang Rai more environmentally sustainable. The city's government intentionally pursued an enabling urban governance mode to increase the ownership of its communities over the sustainable city projects, and participation is regarded as key ingredient to all its activities (Ong-La & Kamuang, 2012). However, horizontal and vertical collaboration with actors beyond the municipality's border sped-up the process and helped to give the sustainability efforts an objective and structure, as well as promoting Chiang Rai as best practice city throughout the region and world.

Horizontal collaboration allowed Chiang Rai to become more powerful by accessing new resources. Cooperation with TEI, and by default with international organizations TEI was in contact with, permitted the municipal clerk and the sustainability committee to receive training and funds from the Japan-based Keidanren Nature Conservation Fund to order their hitherto incoherent trial-and-error efforts to conserve urban ecosystems. Dedication by the committee, together with the support received, allowed the municipality to introduce a very novel and innovative approach to urban sustainability, which earned it regional and international reputation as a best-practice city for urban biodiversity protection. The active experimentation with a rather novel approach to conserve urban ecosystems allowed Chiang Rai quickly filled a hitherto unoccupied niche in a field dominated by activities in the energy and waste sector, which drew great interest from a range of national and international actors. The urban biodiversity project is the cornerstone of all environmental activities in Chiang Rai, and also of its LCC program, and is relabeled to serve whatever programs' objective. Telling is the title of the project description handed in by Chiang Rai for the International Guangzhou Award for Sustainable Cities, which reads: Urban Ecosystem and Biodiversity Conservation towards 'Sustainable City and Climate Change Resilience' (Ong-La & Kamuang, 2012), whereas in Chiang Rai's LCC brochure, the title reads: 'Urban Ecosystems and Biodiversity Conservation toward Low Carbon City' (Chiang Rai, 2012).

Just like in Klaeng, Chiang Rai is also strategically playing several international organizations off against each other. The main interviewee (L3) stated that they do not even have to reach out to access resources, since outside actors contact Chiang Rai in the first place and ask whether they may invest in their town, and that is also true for city networks. Therefore, it is not a missing budget that limits the LCC development, but rather a lack of manpower that would be able to implement and monitor all those different projects they are approached with (L3). Since Chiang Rai's LCC program heavily relies on low-cost biodiversity conservation activities that do not require high up-front investments in waste or energy-efficiency infrastructure, horizontal collaborations mainly increased the cities knowledge, capacity and network resources. However, Chiang Rai is at the same time home to five different learning centers, ranging from urban biodiversity conservation over urban organic agriculture to climate change resilience. The high costs for building those structures were covered with funds from international actors, such as Toyota Motors or the Rockefeller Foundation. As opposed to the other LCCs that were visited, and possibly due to the later involvement of Chiang Rai in the national LCC discourse, international aid organizations play a less prominent role in shaping Chiang Rai's LCC program. The only organization active was USAID with its CityLinks project, linking US-cities with Thai ones to build climate leadership. However, before the program could officially start off in 2014 and link Chiang Rai with Cambridge, MA, USAID stopped its activities in Thailand due to the coup d'état.

As opposed to L1 in Klaeng, L2 said that learning from other cities within Thailand played an important role in shaping its LCC program, and visits to Klaeng (waste management), Udon Thani (waste-water management) and Tung Song (land-use) were seen as especially relevant (L3). At the same time, Chiang Rai itself serves as regional learning center for urban biodiversity conservation and climate change resilience and receives many national and foreign municipal delegations who want to learn more about this topic (L3). Moreover, it serves as model city for NMT's fourth strategy - city of trees - and hosts workshops and trainings for fellow NMT members. Therefore, Chiang Rai has transformed from being mainly a resource-taker to a resource-giver, whereby resources refer mainly to knowledge and capacity.

Vertical collaboration with different national government stakeholders played a less important role when compared to Klaeng. The public actor most involved in Chiang Rai's LCC program is the Biodiversity-Based Development Office (BEDO), who supported them with technical expertise and funds for their reforestation and urban greening activities.

Concluding, it can be said that endogenous factors played a more important role in Chiang Rai than in Klaeng. Nonetheless, climate city diplomacy in form of horizontal collaborations with international actors, but especially also with other cities in Thailand, can be observed. Best-practice sharing has helped Chiang Rai to develop capacities and gain new ideas of how to manage its environment. Less explicit LCC activities are implemented in Chiang Rai, and most activities solely focus on biodiversity conservation, even though attempts were undertaken in cooperation with local research institutes to calculate the carbon sink capacity of big trees in Chiang Rai, thereby adding a LCC dimension to the project.

4.3. WHERE THE LOCAL MEETS THE GLOBAL - ACTORS

Whereas the previous two subchapters zeroed in on the local dimension and analyzed the actor dimension at hand of Klaeng's and Chiang Rai's respective LCC programs, this subchapter expands the analytical horizon of these insights with data applicable to the wider Thai context concerning the actor dimension.

In the following, the central actors influencing the LCC policy arrangement in Thailand are identified and assessed with regard to their interest and overall power in shaping the LCC development in Thailand. According to their interest in the LCC discourse along the interest axis, actors were either classified as being supportive of the LCC development process (medium- to high interest) or as being indifferent towards it (low interest). No opposition to the LCC policy was identified. Depending on their position along the power continuum, the more resources they could contribute to LCC development, the more powerful they were. Resources were defined in terms of budget, knowledge and capacity, and communication & networks (see sub-chapter 5.2.). Two LCC policy stabilizations were identified, the first one around 2004/05 (figure 3) and the second one from 2011 onward (figure 4).

When looking at the figures, it becomes clear that the institutionalization of LCC activities, first at the local level in forerunner cities such as Klaeng and several years later at the central government level in Thailand, has changed the stakeholder composition of the LCC discourse in Thailand and shaped new forms of interactions among stakeholders.

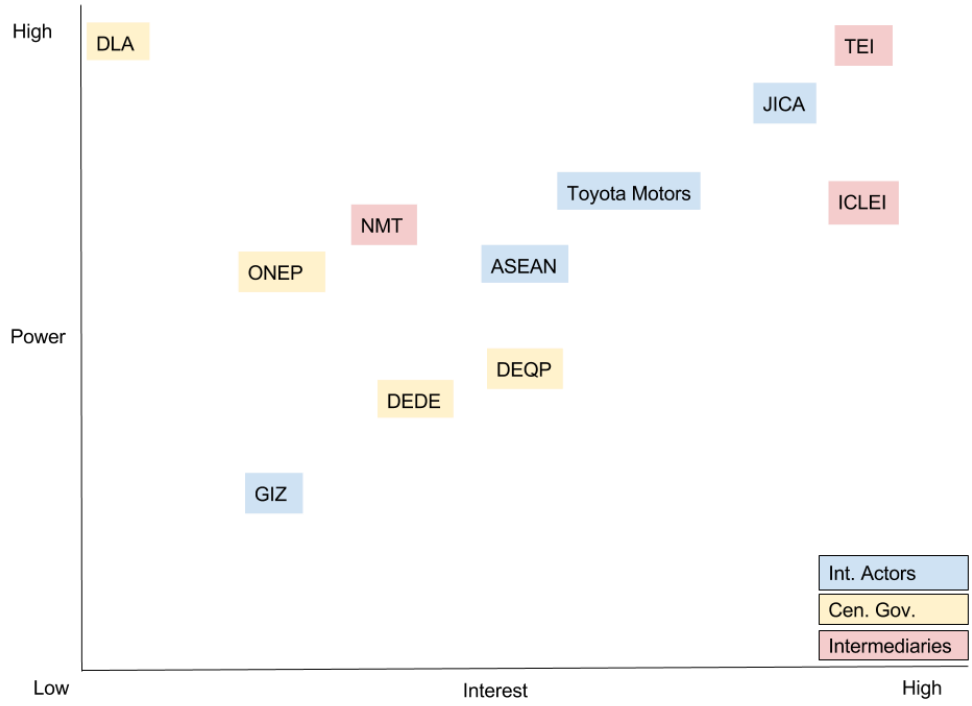

Figure 3 - Actor Composition LCC Policy Stabilization 2004/05; source: author

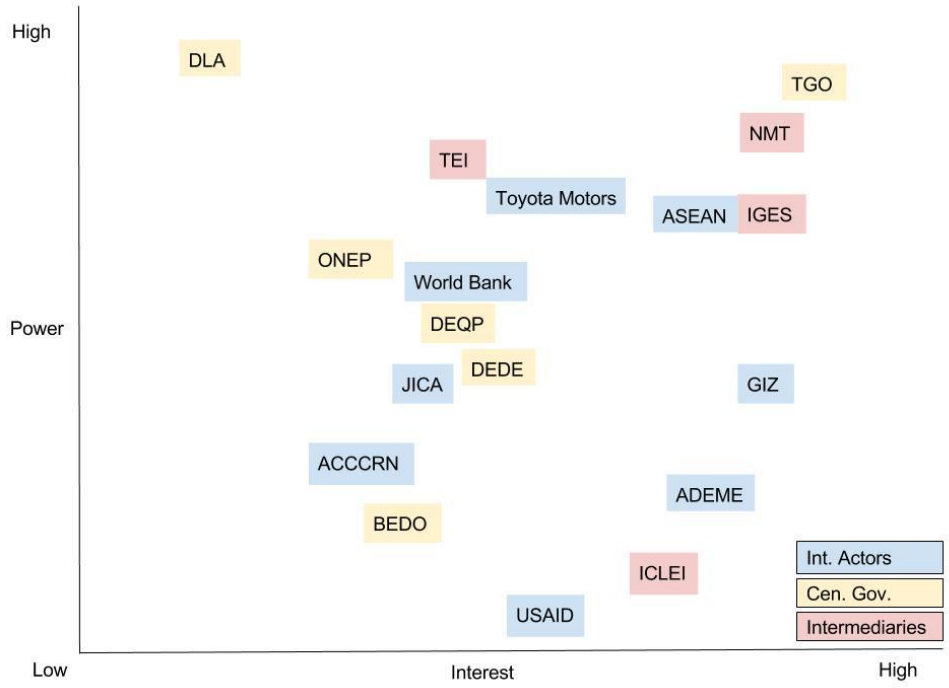

Figure 4 - Actor Composition LCC Policy Stabilization 2011; source: author

Whereas in the beginning, one very dominant NGO (TEI) cooperated with a few ambitious local governments in developing sustainable city capacities and raising awareness about climate change, more and more actors became involved, first international and especially Japanese organizations, and later central government bodies. Local governments, led by Klaeng, implemented urban environmental initiatives early on, before either regional initiatives or the central governments put the city and climate change on their respective agendas. However, the focus never laid on urban climate change mitigation nor was the term LCC used until much later. Two of the interviewees even echoed the battle cry of city leaders, namely that cities act while states talk (L1; I1). One interviewee (L1) labelled the central government, as well as 97 % of all other Thai municipalities, as a 'NATO' zone, claiming that there is 'No Action, Talk Only'.

Thus even though local governments often took the initiative and implemented LCC actions before the central government, it also became clear that the great majority of local government organizations did not show interest in urban climate change mitigation, and that action is limited to a handful of very active forerunner municipalities. Response rates to calls for applications, for example to TEI's ISO 14001, NMT's LCC initiative or TGO's carbon footprint, were reluctant at best (I1, I5; TGO, 2014). The interviewee from TEI even stated that interactions with some of the forerunner municipalities involved in their LCC activities looked more like a barter, where municipalities only cooperated, by, for example, providing electrical usage data, when they got assistance promised for doing certain other things in return (I5). It furthermore became clear that internationally funded projects drove most initiatives forward, as did pilot projects executed vertically by central government organizations. Despite of this, it is argued here that a first LCC policy stabilization occurred from 2004 onward, when local frontrunner governments cooperated with ICLEI in its CCP campaign. TEI was for a number of years the absolute dominant LCC actor and served as an intermediary between a variety of international organizations and local governments.

However, the claim by local LCC stakeholders that central governments are not interested in the LCC discourse ought to be taken with a grain of salt. Public bodies mainly have limited budgets available and consequently tried to 'establish islands of excellence' to demonstrate the economic feasibility and co-benefits gained by a municipality for its constituency when it becomes more environmentally sustainable and low-carbon. Due to the budget limitations, the prime measures used by public bodies to spread the sustainable city discourse and its implementation were the organization of competitions (I2). The exact same strategy is also pursued by ASEAN's ESC initiative administered by IGES, and TEI-managed DELGOSEA. Experience-sharing and study trips are low-cost measures to

spread the awareness, knowledge and capacity of LCCs to other city in Thailand and the region, in the hope that a train-the-trainers mentality leads to exchanges between experienced and less-experienced cities (I2). Central government organizations were said to have too many directions to focus on LCC in addition to their already existing project portfolio (I2). TGO, however, entered the LCC playing field with a clean plate very late when it was founded in 2008. LCCs were seen by TGO as a logical further step beyond sectoral policies, and the work already done for the past two decades by the central government in the energy and industrial sectors (C1). Decisive action in cities now is recognized as very important if carbon lock-in is to be prevented (C1). Reasoning like that, it has gradually dug out a niche vis-a-vis other government agencies tasked with governing the environment and has since become the most relevant central government partner for local governments and international actors for LCC projects (I2, L5). With its policy initiatives directly focused on LCCs, and it's teaming up with the World Bank's Networked Carbon Market Initiative, TGO helped to position the LCC discourse more prominently within the government and helped diffuse the discourse to a much larger number of municipalities in Thailand. This new dominance of TGO, going hand in hand with the implosion of TEI in 2011, it is argued here, has led to a disempowerment of the local governments that initiated LCC activities and curtailed their leeway of conducting city diplomacy. It eventually created a LCC policy stabilization from around 2011 onward, with the formulation of central LCC policy plans. NMT, a public body under the Ministry of Interior, can be seen as managing the transition phase from one stabilization phase to the next, taking over responsibilities previous held by TEI and supporting TGO as mediator between the local and central government level.

Lastly, international organizations were active in the LCC discourse throughout and supported both local governments and intermediary organizations in increasing their resource base. After the first explicit LCC actions introduced to a handful of local governments by ICLEI/TEI from 2002-2005, Japanese actors took over the lead and pursued a sectoral urban waste management strategy. From 2009 onward, a number of other international actors, such as WWF, DELGOSEA, ACCCRN, IGES, GIZ, ADEME, and USAID, initiated projects directly linked to reducing urban GHG emissions, often with an explicit focus on small- and medium-sized cities. The flurry of activities cumulated in 2011, the year defined by one interviewee (L1) as the year of the 'LCC boom' in Thailand. To what extent TGO or NMT hopped onto the LCC bandwagon at this time is not known, but it is reasonable to argue that city diplomacy efforts in the form of the establishment of hybrid networks in this period contributed significantly to putting LCCs on the agenda of public bodies in Thailand, institutionalizing LCC policies

at the central government level in an attempt to end experimentation and streamlining the experiences to upscale the city climate mitigation contributions.

In summary, it is argued that the new entry or exit of key actors was pivotal in initiating and giving shape to the LCC policy in Thailand. New actors influenced the discourse, resource availability of actors and triggered new rules and regulations that touched upon LCC development. Since the entry of the LCC discourse to Thailand at the beginning of the 2002, the policy has undergone continuous changes and eventually stabilized from around 2010 onward at the national government level. The actor composition changed considerably. Initially, a national intermediary was the dominant actor in the field and facilitated horizontal and vertical collaborations between local governments and (inter)national actors. Other actors entered the playing field, especially from 2009 on and drastically increased the resource base of local actors and helped to diffuse LCC policies to more and more local players. The implosion of the hitherto dominant intermediary in 2011, together with the entry of a new influential actor in 2008, led to a power shift away from local governments and the intermediary organization towards public bodies, namely TGO and to a certain extent NMT. This led to the stabilization of the LCC policy at the central government level and an institutionalization of the diverse LCC experiments at the local level.

4.4. TRANSLATING GLOBAL CLIMATE CHANGE TO LOCAL CONTEXTS - DISCOURSE

After having identified the central actors in the LCC policy arrangement in Thailand in the previous subchapter, the following subchapter adds the second PAA dimension to the LCC policy arrangement analysis. The PAA's discourse dimension refers to when and how the LCC concept entered Thailand and became popularized, as well as how it is conceptually understood by different actors. As mentioned in the chapter introduction, this subchapter deals in more detail with by whom and how the LCC discourse spread to Thailand beyond the two case municipalities studied in depth. The shifts in discourse are closely related to actors entering and exiting the LCC playing field.

A number of interviewees agreed that climate change was perceived as an important topic by neither governmental actors nor the society. The only actor working explicitly on climate change at all at the end of the 1990s was TEI (I5). Preceding the LCC discourse were the discourses on climate change and on urban governance that gained importance in Thailand separately and from two different sources. The climate change discourse was popularized in Thailand by international networks and

organizations, and here especially Japanese actors, who organized courses and visits to learning centers in Japan and Europe to sensitize key stakeholders working in the field of environment in Thailand on the importance of climate change mitigation actions (I1; I2). Local frontrunner governments like Klaeng were already active in the field of good environmental urban governance, but did not explicitly pay attention to climate change mitigation activities, which basically meant quantifying the CO_2 emission savings of their ongoing activities. The central government, and more specifically DEQP, decided to further incentivize those cities active in environmental governance by launching the Sustainable City Competition in 2003. TEI, together with NMT, developed the criteria and indicators for the award scheme, focusing on good urban environmental management. Initially, no indicators for climate change mitigation were included, but upon her return from Japan in 2005, interviewee I1 started to include climate change mitigation indicators, which are to be updated every two years, and thereby slowly raised awareness about its importance among the participating municipalities. This is a good example of how one single change agent influenced the LCC discourse in Thailand. The Sustainable City Competition, which is still running as of today, brought the interest of many municipalities to the fore to become more active in the field of mitigation (I1). Those municipalities were already quite active and tried to improve local environmental quality, but did not have a good understanding about the climate change concept. In the communication with local governments, all intermediary organizations refrained from the use of LCC, and rather framed their activities as 'sustainable city' activities to appeal to local government officials (I3, I5; I2). One interviewee (I5) went on to highlight the importance the movie an 'Inconvenient Truth' had on the consolidation of the climate change topic among central government actors and the general public when it was released in 2008.

Likewise, a change of international donor discourse has mandated organizations active in the LCC development process to cooperate from around 2009 onward (I3), which led to the creation of new actor coalitions and better cooperation between the various initiatives (I3; I6; UNDP, 2015). Most international actors have committed to use international standards, such as ISO 14064 for GHG inventories and Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) 1.0. (I2; I6; I5). Surprisingly, information-sharing between the LCC stakeholders, especially in the beginning, was very limited. One of the leading scholars on city climate mitigation activities and networks (I4) was not aware of the ongoing TGO LCC activities. Likewise, the head of the 3E Research Unit, implementing TGO's carbon footprint program, did not know the person in charge of the LCC program in his hometown, Chiang Mai (I2). Such instances of non-awareness among key stakeholders abound, and resulted in two or more initiatives being active in one municipality simultaneously

without knowledge of, or coordination between, different projects (I3). Yet another change of international discourse and policy allowed municipalities, and their representatives, to become more active. NMT, for instance, was only able to tap into funds provided by the European Commission for its LCC project after the Commission changed its policy in 2011 and allowed local governments, rather than only NSA as handled earlier, to hand in funding proposals (I1) - a trend already identified in chapter 2. Other actors, yet again, had to withdraw completely from Thailand, as happened with USAID and its CITYLINKS program, due to the 2014 coup d'état that dissolved a democratically elected government.

In summary, it can be argued that the urban sustainability discourse trickled down to the local level in Thailand in the mid-2000s, and precedes the LCC discourse, which entered the stage in 2002. The LCC discourse was first introduced to local governments by ICLEI via TEI, and later taken on by ASEAN environment council meetings. The LCC discourse reached the central government level in 2010/11 and was infused by the local level and the regional/global level simultaneously. Different foci were pursued with the LCC programs under TEI in the early phase, where the focus was more on building capacity of urban government stakeholders in general and ingrain sustainable city ideas locally. The foci from 2010/11, when the main stakeholders shifted to the central government level in form of TGO in cooperation with the public body NMT, and an explicit substantial focus on LCC activities in especially small- and medium-sized cities. The interplay of actors and discourses triggered LCC legislation at the regional and national level, which in turn impacted the power dynamics among the LCC stakeholders. The introduction and execution of certain projects, and the entry of new actors onto the playing field, are closely interlinked to the changing LCC discourse and the different emphasis put on climate change mitigation actions by different actors/projects within the rather well-established sustainable city discourse. For a graphical depiction of the changing LCC discourse, see figure 5 below.

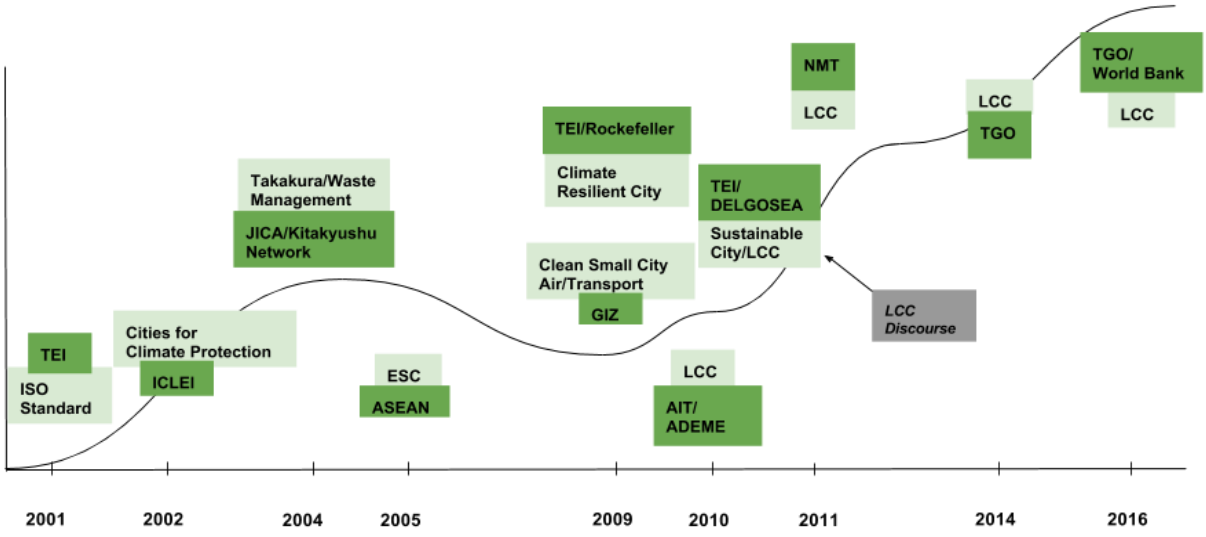

Figure 5 - Evolution of LCC Discourse; assessment based on interview data

5. RULES & RESOURCES

After having analyzed the discourses and actors dimensions' contribution to the emergence of the LCC policy arrangement in Thailand, the consecutive chapter adds the PAA's rules and resource dimensions into the LCC policy arrangement analysis. Rules are seen as strongly influencing the macro-level legal-political framework in which LCCs act locally, and can drastically in- or decrease resources available to different actors, while at the same time changing the access rules for actors to the LCC policy arrangement. Changes in the resource base, in turn, enable certain actors to become more active in the rules dimension and give direction to legislation, while at the same time determining whether actors can enter or have to leave the LCC playing field. Subchapter 5.1. below will deal with the rules dimension, whereas subchapter 5.2. analyzes the resource dimension.

5.1. RULES

In the following sub-chapters, rules and regulations at the regional and national level that impact LCC development in terms of the availability of resources and the composition and dominance of LCC actors are presented and explained.

5.1.1. ASEAN AND SUSTAINABLE CITIES

Thailand is a member of the Association of Southeast Asian Nations (ASEAN). During a high level meeting in 2005, the ASEAN environment ministers endorsed the ASEAN Initiative on Environmentally Sustainable Cities (AIESC). This initiative focuses on small and rapidly-growing cities in ASEAN countries and aims to support a selected few pilot cities in each member country to pursue urban sustainability goals. In order to raise the ambition of the AIESC pilot cities, the ASEAN Environmentally Sustainable City (ESC) award scheme was devised and for the first time handed out in 2008. Among the winners were Phitsanulok and Chiang Rai, two of the LCCs visited during the fieldwork period. Interestingly, the sustainable city discourse was quickly upscaled during the first East Asia Summit Environment Ministers Meeting in 2008, when ASEAN environment ministers met with their counterparts from Japan, Korea, China, India, Australia, New Zealand, USA and Russia. During this meeting, environmentally sustainable cities were recognized as immediate priority area for cooperation among the countries present and it was decided to establish a High Level Seminar on Environmentally Sustainable Cities (HLS-ESC) that meets on a yearly basis and has taken over the

AIESC. It follows a similar approach, namely promoting environmental sustainability in selected pilot cities and emphasizing knowledge exchange and networking among the participating cities. Upscaling made North-South knowledge transfers possible and allowed Japan-based IGES, one of the key LCC stakeholders in Thailand, to be contacted to form the HLS-ESC secretariat and administer the efforts at the regional and country level (ASEAN, n.d.). Due to this rule, a new key LCC actor was introduced to the Thai context. Notable is the ESC slogan, which reads 'From Islands of Excellence to a Sea of Change' (IGES n.d.) and neatly sums up the strategy chosen in Thailand as well, i.e. focusing in the face of limited budgets on pilot cities to show the economic and administrative viability and environmental attractiveness of LCC programs to local government administrators.

ASEAN policy roadmaps are fairly explicit with regard to sustainable urban development when compared with Thai national ones. The ASEAN Socio-Cultural Community (ASCCC) Blueprint Mid-Term Review 2009-2015 foresees the development of environmentally sustainable urban areas in ASEAN under Section D.5 of the plan. Even though the focus lays on 'major cities', the blueprint acknowledges the need to work towards sustainable cities, no matter whether they go under the name of low carbon society, compact cities, eco-cities or others, hinting at conceptual indifference at the regional level towards the varying city concepts. For this research, it is especially relevant to highlight the networked dimension of the low-carbon city efforts: sharing of best practices and experiences among municipalities is recognized as a key strategy of reaching the objective (ASEAN, n.d.). The follow up plan, the ASCCC 2025 launched in March 2016, dedicated a sub-chapter to Environmentally Sustainable Cities (C.2.) and Sustainable Climate (C.3.), which, when combined, can be read as a regional LCC policy guideline, and foresees climate change mitigation actions at the local government level. The current blueprint echoes the aims of the previous one and also stresses the need for networking among forerunners to build a pilot network (ASEAN Secretariat, 2016). The early regional policy plans preceded Thai national ones, which are explained in more detailed in the following subchapters.

5.1.2. THAILAND: HOLISTIC FRAMEWORKS AND SECTORAL PLANS

Whereas many developing countries lack appropriate climate change regulation, Thailand has developed intersectoral and sectoral plans (ONEP, 2015). In the following sub-chapter, a number of key policies that had an impact on the discourse, actor and resource dimensions of the LCC policy in Thailand are analyzed, starting with intersectoral plans.

Thailand's government committed the country to an unconditional 20 % GHG emission reduction when compared to the business-as-usual scenario (550 $MtCO_2e$) by 2030 in its NDC communicated to the UNFCCC secretariat. Since the energy sector accounts for a share of between 67 % and 73 % of total GHG emissions, mitigation efforts are primarily focused on this sector, including transportation (ONEP, 2015). Local governments are not mentioned at all, neither explicitly nor implicitly, as actors that are obliged to contribute to the country's mitigation ambitions (ONEP, 2015). The 11th National Economic and Social Development Plan (NESDP; 2012-2016), in turn, calls for the creation of a low-carbon society within the overall development strategy of 'sufficiency economy', and, amongst others, foresees a shift of natural resource management to local levels. Local communities are explicitly recognized as key agents of change that are to be better involved in managing the environment and natural resources locally, and the establishment of 'eco-cities', emphasizing urban planning and the integration of cultural, social and ecological factors, are laid down as a key intervention. Clearly defined immediate actions suggested by the NESDP are limited to large cities and the reduction of air pollution (Office of the National Economic and Social Development Board, n.d.). The Climate Change Master Plan 2012-2050, in turn, addresses cities by stating that it encourages 'all related parties to take part in reducing GHG emissions on the basis of sustainable development and co-benefits' and to 'motivate every sector and level to be able to create implementation plans for climate change' (Pipitsombat, 2013). The plan goes a step further and envisions cities to be promoted and supported for their development towards low-carbon cities (Pipitsombat, 2013). Several targets were formulated for sustainable urban management, such as the increase of number of municipalities with more than 10 m^2 of urban green space per resident and less open waste dumps (Sirinipaporn, 2015). However, no specific implementation plans are included, and it is therefore left open to the government ministries and agencies of how to institutionalize this mandate as they see fit, and prioritize the actors and strategies they want within their field of action (C1).

Other policies and plans by varying ministries and public organizations fill the overarching framework provided by the NDC, NESDP and Climate Change Masterplan, focusing on singular sectors.

The National Transport Master Plan by the Office of Transport and Traffic Planning and Policy (OTP) only peripherally addresses cities. New public and mass transit projects are limited to the Bangkok Metropolitan Area (Chutinthorn, 2014). However, the plan aims for the promotion of non-motorized transport and improved public health in cities by reducing transport emissions (Chutinthorn, 2014). Especially bicycle use has been taken up as a LCC activity in many of Thailand's LCCs, and receives

special assistance by the central government, and this engagement was referred to in two of the visited cities. The royal family has set itself to the task of promoting cycling by organizing effective and well-advertised campaigns, such as the nationwide 'BIKE FOR DAD' mass bicycle ride in honor of the king's 88th birthday.

The 20-Year Energy Efficiency Development Plan (2011-2030) by the Ministry of Energy aims to reduce energy intensity by 25 % by 2030 compared to the 2005 baseline. Cities only play a minor role, but can nonetheless be regarded as key locations for meeting the plan's target to change energy consumers' behavior via the introduction of labelling schemes and minimum energy performance standards. Energy promotion responsibilities are to be distributed among all 'spheres in society' and 'greater roles will be entrusted to local administration organizations'. Government agencies at all levels are furthermore expected to set good examples by undertaking energy conservation activities (Ministry of Energy, 2013). All of the five visited municipalities implemented energy efficiency activities, for example by replacing inefficient incandescent light bulbs with light emitting diodes (Phitsanulok) or setting best practice examples by introducing a maximum air-conditioning temperature (Pak Kret). In general, a municipality's leverage in implementing meaningful LCC energy efficiency activities is limited. Only a few buildings are under the direct authority of the municipality.

In addition, the related Renewable and Alternative Energy Development Plan (2012-2021), issued by DEDE, aims for an increase of the share of renewable electricity production to 25 % and stipulates a role for municipalities in meeting the overall mission of becoming a low-carbon society. In its plan, one of the focus areas is the increase of capacities for waste-to-energy technologies to produce electricity from municipal solid waste. However, the contribution expected to be made by municipalities is low when compared to the overall target. Very relevant for improved LCC development is the aim of the plan to accelerate the amendment process of the Joint Venture Act B.E. 2535 (1992 CE) to allow private-sector co-investment in waste technologies at the local government level, which had been identified by two interviewees (C1, L6) as a key problem in attracting expertise and investment in local LCC activities from the private sector. The plan also stipulates that fast-growing tree species are to be grown on non-utilized land in municipalities to prevent wild dumping (DEDE, 2013). All of the visited municipalities have implemented some sort of municipal waste management strategy and collaborate with the private sector in waste collection and recycling activities.

Lastly, TGO decided for itself - and inspired by the 'Klaeng Model' - that cities are to play a greater role in the country's effort to prevent 'carbon lock-in'. Cities are seen as the next step beyond the

work the central government already did in the energy and industry sectors with regard to climate change mitigation (C1). Its LCC initiative was first studied and later also operationalized, in Klaeng, which became TGO's LCC pilot city in 2011 (Asia LEDS Partnership, 2013; L1). The initiative was upscaled in 2014, when TGO tasked the 3E Research Unit at Chiang Mai University to pilot the Klaeng LCC Model in three municipalities by conducting a carbon city footprint (CCF). In the second year, the project got upscaled spatially and downscaled content-wise and a carbon footprint for municipal organizations (CFO) only was applied to a further 29 cases. In 2016, the LCC project was again upscaled, both spatially and with regard to content, and the carbon city footprint this time was applied to 31 municipalities throughout the country (Sate, 2016). Based on TGO's experience with the carbon footprint at the local government level, Thailand's Market Readiness Proposal was prepared by a US-based consultancy and handed in by TGO for evaluation to the World Bank Networked Carbon Market Initiative with a focus on the strengthening of its LCC efforts and the issuing of urban carbon credits. The proposal basically foresees yet another upscaling of the already ongoing carbon city footprint initiative and mandates participating municipalities to prepare a local GHG abatement plan and develop a project design document. The LCC MRP was only accepted by the cabinet in January 2016 (workshop). The preparation phase - to be supported by the PMR - is expected to last from 2016-2018 and is funded by the World Bank. Thereafter, TGO will be solely responsible, also financially, for the actual implementation of the LCC scheme under the MRP (TGO, 2016).

The next subchapter deals with the government structure in Thailand and its impact on LCC policy development, both at the central and local government level.

5.1.3. RULES GOVERNING GOVERNMENTS: A LEVEL TOO MANY?

Government agencies at the national, provincial and municipal level all play different roles in managing climate change related sectors in small- and medium-sized cities in Thailand (GTZ, 2009). Thailand's administrative services are divided into three levels, namely the central, provincial and local level, and all have different interests and responsibilities when it comes to LCC development.

At the central level, the government consists of ministries and departments. Each ministry (for example the Ministry of Natural Resources and Environment) can consist of different departments (for example ONEP). Ministries can also create associated autonomous public organizations, which, in the case of the Ministry of Natural Resources and Environment, are the for LCCs relevant TGO and BEDO. At the provincial level, Thailand counts 76 provinces. The provinces are divided into 878

districts (*amphoe*) and further subdivided into 7,255 subdistricts (*tambon*) and 60,307 villages (*muban*; Nakamura, 2013). At the local level, the administrative structure consists of more than 2,300 municipalities, which are further divided into 30 city municipalities (*thesaban nakhon;* at least 50.000 inhabitants), 178 town municipalities (*thesaban mueang;* at least 10.000 inhabitants) and 2,232 subdistrict municipalities (*thesaban tambon;* no minimum requirement). Furthermore, 76 provincial administrative organizations and 5,335 subdistrict administrative organizations exist for local communities that are not part of a municipality. Each municipal government is headed by an elected mayor (executive branch) and an elected city council (legislative branch). One of the case studies (Klaeng) is categorized as subdistrict municipality and one as a city (Chiang Rai). For a graphical overview, see figure 6 below.

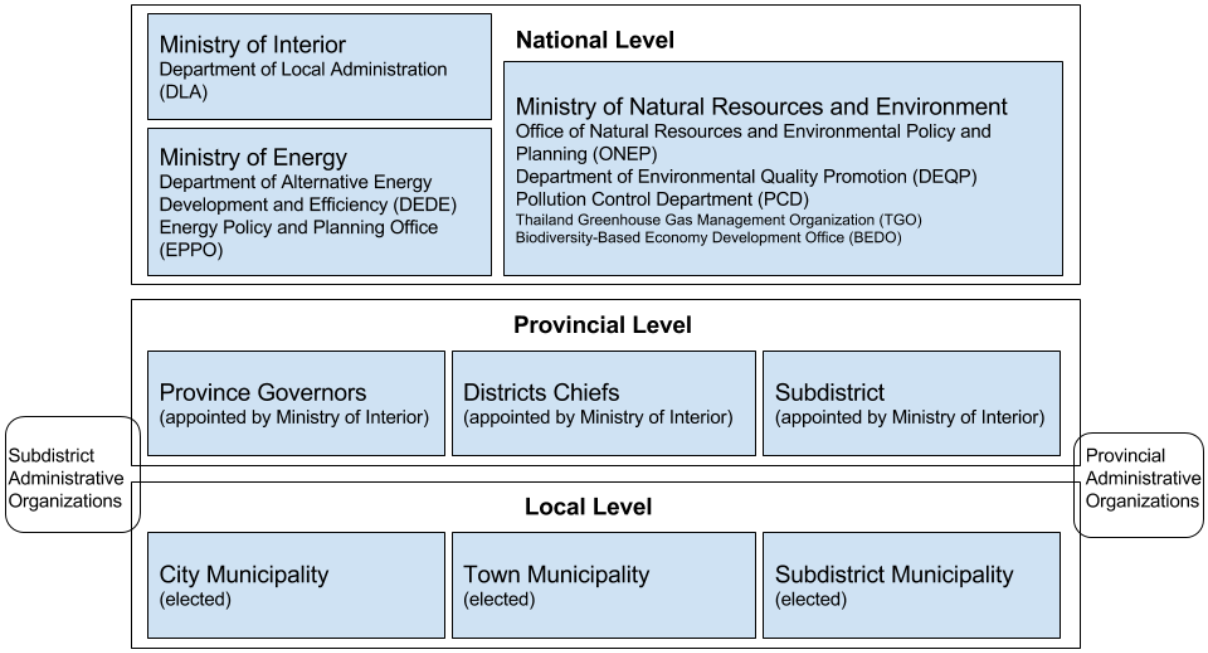

Figure 6 - Government Structure; source: author

Each of the local administration levels identified above has its own representative organization: the Provincial Administrative Organization Association of Thailand, the National Municipal League of Thailand (NMT) and the Tambon Administrative Organization Association of Thailand, respectively.

As became apparent during the interviews, the very complex multilevel government structure described above is one of the key hurdles for successful vertical and horizontal collaboration and LCC implementation (I2; L1). Especially between different types of local government organizations, a lot of territorial, administrative and financial overlap exists (Office of the National Economic and Social Development Board, n.d.). For example, due to the rapid urbanization that Thailand witnesses, more

and more cities expand into former agricultural lands, thereby engulfing the surrounding sub-districts and creating new peri-urban areas. Despite of this, those engulfed sub-districts remain an independent source of authority with their own budget, thereby creating an overlay of administrative and financial responsibilities (Chamniern & Villeneuve, 2004). Furthermore, current laws prohibit a sharing of the budget among local governments with different designations, for instance between a municipality and a provincial administrative organization, which makes horizontal collaboration and an integrated spatial management of the environment difficult (Chamniern & Villeneuve, 2004). The central government recognizes the existence of these problems and would like to merge and combine municipalities, sub-districts and districts for the sake of increased efficiency, but they face a strong opposition, both from the appointed district bureaucracy and elected local government officials (I2).

In addition, local government levels have shown varying interest in the LCC discourse: whereas a few municipalities showed interest in pursuing LCC policies and are forerunners in this field, provincial and subdistrict administrative organizations show little interest in the LCC discourse (I2). The lack of interest in LCC and climate change mitigation in general at the provincial level has been recognized as a key barrier for more cities to engage in LCC actions, because they feel that they cannot contribute meaningfully to mitigate GHG emissions (Lasco et al., 2004). Some activities, such as energy production, afforestation and transport management are best to be organized at the province level (Lasco et al., 2004). This has also been recognized by some of the LCC stakeholders in Thailand, and one interviewee stated his expectation that LCCs in small- and medium-sized cities are not here to stay but are a stepping stone toward low-carbon programs in big cities and provinces (I2). However, other interviewees highlighted that big cities oftentimes have no interest in knowing their GHG emission profile (C1): they know that their emissions are huge, and, as was the case in Bangkok in 2008, consequently do not want the results to be published (I4). Another interviewee (I3) likewise argued that the contemporary focus on climate mitigation actions in big cities is misleading and unproductive, because big cities have the knowledge, capacity and funds to mitigate their emissions if only they so desire. Small- and medium-sized cities, on the contrary, lack all of those resources and thus ought to be the focus of international support in order to be able to make an informed decision on whether or not to pursue climate change mitigation strategies. GIZ helped put more focus on the province level when piloting a province level GHG inventory in Khon Kaen province (Nakamura, 2013) - the first of its kind in Thailand (I2). At the central government level, TGO's Greenhouse Gas Information Center is responsible for national and sectoral GHG inventories and since 2013 also for municipal ones. It also intends to experiment with provincial GHG inventories in the future (I2).

The following subchapter deals with the devolution of resources to local governments in Thailand and the impact the decentralization reform has on LCC implementation.

5.1.4. DECENTRALIZATION REFORMS AND POWER SHIFTS

Since the mid-1980s, decentralization has gained impetus and around 80 % of all developing countries - among them Thailand - have implemented decentralization policies (Moelino, Wollenberg & Limberg, 2009). The country has initiated extensive decentralization reforms in 1997, when yet another new constitution (the ninth in only 50 years) was promulgated, which foresaw a transfer of functions and budgets from the central government to local governments.

The DLA under the Ministry of Interior is the government agency broadly responsible for the implementation of the decentralization plans and is regarded as the potentially most powerful government agency for the implementation of LCC programs at the city level. It controls both the transfer of functions and budgets to local governments, as well as agenda-setting powers by having direct authority, as opposed to the indirect authority wielded by public organizations, to actually influence local governments beyond enabling governance strategies. Historically, LCCs were not a high on its priority list, which has been identified by a number of interviewees as one of the key obstacle to a wider diffusion of the LCC discourse in Thailand (L1; C1; I1). Several organizations, especially TGO and NMT, lobbied with the DLA to make LCCs a DLA policy priority (C1; I1). These efforts seem to have been partly crowned with success, since in June 2016 a memorandum of understanding was signed between TGO and DLA to further promote TGO's 'carbon footprint for organization' and 'city carbon footprint' and help diffuse knowledge and capacity among Thailand's municipalities (Partnership for Market Readiness, 2016).

With regard to the budget devolution under the decentralization plan, research undertaken in the region shows that most funding for urban climate mitigation projects comes from domestic sources (UNDCF, 2013). The share of the national budget designated to municipalities was to increase to 20 % by 2001 and 35 % by 2006. However, by 2015 only 24 % had actually reached the local governments (L1). The seven taxes local governments are authorized to collect - of which the by far most important is the land and buildings tax - are not enough to ensure the provision public services by municipalities (Mahakanjana, 2014). In addition to these taxes, local governments further can levy and distribute income from fees and permits, but this revenue stream does not provide a steady income (L6).

Therefore, it is necessary that the central government contributes a share for making it possible for municipalities to provide the public services they are obliged to perform (Chamniern & Villeneuve, 2004). The most important source of shared revenue stems from the value added tax, which accounted for on average 18 % of local government revenue between 2001 and 2008. Grants from the central government form the single most important income source for local governments and accounted for 35 to 40 % of total revenue in 2003 (Chardchawarn, 2010). The DLA is in charge of distributing grants and finances to local governments. Grants are divided into general and specific grants. On the one hand, general grants are an unconditional subsidy that supports local governments to provide the services that have been transferred to them (Chardchawarn, 2010). Specific grants, on the other hand, are conditional: local governments have to write and hand in project proposals and submit them to the central government for evaluation, where the DLA has to assess and approve every project individually (L5). Specific grants can be handed out to municipalities for big projects in the area of environmental quality promotion, but mitigation actions are so far not recognized as to contribute to local environmental promotion. Therefore, LCC stakeholders can often not apply for specific grants or alternatively have to frame LCC activities as directly contributing to improving the environment locally or under the cover of being beneficial to tourist infrastructure development (L6; C1). One interviewee (I1) stated that she is actively trying to change this by lobbying with the Ministry of Interior to include climate change mitigation indicators to make explicit LCC projects eligible to receive special grants.

With regard to functions, their transfer from the central government to local governments has progressed only slowly and the central government still controls many. 245 functions were supposed to be transferred from the central government to governments at the provincial and local level. However, by 2008 only 181 functions had actually been devolved to local governments. But even though those functions have been transferred to local governments on paper, local administrators state that they nonetheless have to follow strict regulations articulated by central government agencies (Chardchawarn, 2010). Furthermore, energy and transport policy, arguably offering the highest GHG emission reduction potential, is still regulated at the central government or provincial level in a sectoral manner, and local governments have little control over activities in those sectors (C1, L5). Non-promotional activities in the transport sector, such as the green trams in Klaeng or the green tourist line in Chiang Rai, are mostly symbolic. Meaningful sectoral control is often only given in the waste management sector in Thailand for smaller municipalities. Greening public spaces is another sector in which all of the visited municipalities were active in. However, densely populated

cities, such as Nonthaburi, do not own much land, which limits the municipality's capacity to green spaces.

5.1.5. CONCLUSION

Concluding chapter 5, it can be said that explicit climate change mitigation regulations and policies aimed at local governments first were stipulated at the regional level by ASEAN, where the LCC discourse was institutionalized through the creation of the working group on Environmentally Sustainable Cities. There is no such cross-ministerial working group in the Thai context and LCC activities fit the mandates of several public bodies that implement certain activities on an ad-hoc basis. This makes it difficult for local and international actors to find the right central government agency to talk to. The central government started to refer to cities as stakeholders in the climate change mitigation playing field from 2011 onward. The involvement of local governments in Thailand's climate mitigation efforts are broadly phrased and all LCC efforts at the local level are hitherto voluntary and were often initiated before the LCC discourse became of interest to the central government. Interestingly, many of the LCC measures foreseen by the national legislation were indeed found back in the LCC pilots. It is argued that local LCC experiences triggered the gradual increase in importance placed on LCC within national legislation, and local best-practices can be seen as having influenced national policy-making.

Moreover, the very complex government structure led to administrative overlaps of budgets, territory, and authority. This oftentimes inhibited meaningful vertical and horizontal cooperation between different organizations. Since much of the climate change mitigation potential in urban areas depends on actions taken outside of their administrative borders, such as landfill management or power generation, integrated management strategies are of key importance. Outdated laws, such as the one prohibiting the sharing of local government organizations' budgets have to be revised. Furthermore, based on the site visits and interviews, it became clear that taking decisive LCC action is easier at small scales (I6). Klaeng, which only covers to territory of two sub-districts, can pursue its strategies much more straightforward than a municipality such as Chiang Rai that consists of several villages and sub-districts. Klaeng refused to be upgraded from township to town, since the former mayor followed a 'small is beautiful' strategy and wanted to keep the administrative procedures as simple as possible and avoid a larger bureaucracy that would go hand in hand with a categorization as town (L1). Aggravating the difficulties is the fact that local government organizations have different agendas and priorities and are not necessarily interested in pursuing LCC activities.

Lastly, with regard to decentralization reforms, it can be said that even though municipal authority over functions and budgets has decreased tremendously since 1997, a lot of functions are still not transferred and the budget allocated by the central government to local governments is insufficient. For low-carbon city projects, no special grants can be applied for, since mitigation actions do not qualify for subsidies. Therefore, alternative financial source are tapped for the implementation of LCC projects, some of which are introduced in subchapter 5.2.1. on finance.

5.2. POWER DYNAMICS AMONG STAKEHOLDERS - RESOURCES

In this subchapter, the resource dimension of the PAA is presented. Resources for this purpose are defined as finance, knowledge, capacity, and communication & networks. The entrance or exit of stakeholders, together with a change in discourse and new rules often changed the resource base the different stakeholders had available for LCC activities.

5.2.1. FINANCE

With regard to finance for LCC development, one interviewee (I1) mentioned that decentralization efforts under the ongoing decentralization reforms are limited to funds and personnel. She stressed, however, that those are not the key factors that determine successful LCC development. Several of the interviewees agreed that a lack of funds indeed is not the limiting factor for LCC development (L3; L1; I3). One interviewee (L1) stated funds for LCC projects abound - he terms them 'carbon income' - in municipalities, especially so in the waste sector (P1). Another local government interviewee (L3) stated that funds are not a problem, because a lot of different national and international organizations very eagerly provide funds for LCC projects. In this context, the different view on the importance put on a perceived lack of budget as a key barrier to LCC development by local stakeholders and intermediary organizations and the central government and its implementation organization at Chiang Mai University is interesting. Whereas the former stressed over and again that a lack of funds is not a limiting factor for their LCC development, the latter identified a lack of finance as a key barrier to LCC implementation.

With regard to funds from the private sector, a very prominent actor with a continuously high spending volume in LCC development and community-based environmental awareness campaigns is Toyota Motors. Toyota organizes a LCC competition for municipalities each year, handing out prices to the winners. It furthermore covered the costs to build global warming learning centers throughout Thailand to raise climate change awareness and also invested in Chiang Rai's urban reforestation

activities and provided free bicycles and bicycle stations throughout the city (L4; Toyota, 2006), all within the framework of the 'Stop Global Warming' project. This private sector LCC project is the longest running in Thailand (since 2005) and not reliant on fiscal year budgets and donor money. Co-investment from the private sector in LCC projects, conversely, face legal barriers that are difficult to overcome, which is why co-investment, even though the LCCs would like to make use of it more often, is rarely seen on the ground. A public-private partnership for municipal public transport was envisioned, for instance, in Phitsanulok, but due to government regulations this collaboration did not came into being (L6). Likewise, as part of the Bangkok-Yokohama city-to-city partnership on sustainable urban development (Amul & Shrestha, 2015), JICA introduced investors from Yokohama to Bangkok, who intended to co-invest in waste management technology projects, but again, the current laws prohibited such an investment (C1).

Other funds can be accessed via horizontal collaborations between municipalities and international organizations. In general, and also due to Thailand's rapid economic development, international aid flows to the country have recently decreased. TEI, for example, used to receive around 20 % of its funds from international donors, but this share has decreased to below 10 % (I5). International aid organizations often finance pilot projects with grants and support the upscaling of those pilots during the remainder of the project (Workshop). Technology transfer takes center stage in these efforts. For example, JICA financed a state-of-the-art waste recycling center in Pak Kret municipality (L7), whereas GIZ financed the installation of a solar rooftop pilot in Klaeng and invested in a waste to energy project in Phitsanulok (L6), and ADEME provided a EUR 20,000 grant to pilot cities participating in the Asian Institute of Technology's 'Action towards resource-efficient and low-carbon cities in Asia' project, among them Nonthaburi. After helping with the initiation of such projects, those actors often withdrew from the management, leaving it up to the municipalities to continue the efforts and create revenue. The AIT LCC project leader (I3) mentioned during the interview that the EUR 20,000 grant presented small money for the medium-sized cities chosen and by itself cannot be seen as decisive incentive for the municipal governments to join this program, especially also since they were required to co-finance the project with at least 35 % (I3). International interstate organizations also often hand out grants of a larger magnitude to certain pilot municipalities that are implementing LCC actions, as is the case with UNDP's investment of USD 350,000 in Klaeng to upscale their integrated waste management plan, but expect the municipalities to invest almost as much themselves (UNDP, 2015). Intermediary organizations, on the other hand, mostly pay in-kind and do not provide finances directly to municipalities. ICLEI (in turn funded by the Canadian Organization Development Institute - CODI; I5) and the Rockefeller Foundation, for instance, both

paid TEI directly to coordinate the Cities for Climate Protection Campaign and the Asian Cities for Climate Change Resilience Network respectively.

Networks played a menial role in providing finances to LCCs in Thailand. Normally, municipalities have to be ICLEI member to come into consideration for its support programs, but ICLEI Southeast Asia made an exception in Thailand due to the legal framework that forbids Thai municipalities to pay membership fees to overseas organizations. The law forbidding municipalities to pay membership fees is not well known, and the central government interviewee (C1) could not fathom why there is a notable lack of ICLEI members when compared to neighboring countries, such as the Philippines (31 members) or Indonesia (13 members; ICLEI SEA, n.d.). The former mayor of Klaeng stated that he also was not aware of this law and paid 13,000[8] THB for the first year of membership with ICLEI, but was then contacted by the DLA, who informed him about the law and forbade future payments (L1). For the second year, the mayor paid the fees from his own pocket (I5), and thereafter stopped with the payments. The TEI project manager (I5) of the CCP campaign does not know how Bangkok and Phuket have dealt with this law and managed to become a member of ICLEI.

The two intermediary organizations most active in LCC development in Thailand, TEI and NMT, are financed from a variety of sources. TEI gets its funding for its LCC-related projects from diverse actors, ranging from ICLEI over government institutions to the private sector. NMT, in turn, is dependent on the membership fee every municipality is obliged by law to pay to its interest association, and it is checked regularly by the financial auditors whether that obligation has been fulfilled (I1). Project-based funding can be acquired by different NMT committees, as has been done by the LCC sub-committee, who tapped into funding from the European Commission, TGO, Konrad-Adenauer Stiftung and the Thailand Bicycle Association, among others (I1).

Concerning the option of issuing carbon credits at the urban level, knowledge about the concept was limited at the local level in Nonthaburi and Chiang Rai. The former mayor of Klaeng was very critical of the concept and said that ‘carbon credits are in the cloud’ and not realizable in the near future, whereas carbon income in the form of avoided costs or even profit from LCC activities is present everywhere, especially in the waste management sector. He went on to say that there is no scalability of LCC activities at the municipal level, especially not in Thailand, where there are more than 2300 municipalities, of which the large majority falls into the category of below 10,000

[8] Approx. EUR 260 (exchange rate June 2005)

inhabitants. He also pointed to the fact that TGO has prepared urban carbon markets for six years now and, as of March 2016, not one materialized, whereas low-carbon initiatives flourished (L1). This point of view was echoed by another interviewee (L2), who is aware of the urban carbon credit concept, but does not see an added value for municipalities. The central government interviewee (C1) in turn stated that TGO only suggested the issuance of urban carbon credits because if they wanted to receive funding from the World Bank for their LCC program, they needed to establish a link with market mechanisms. Interestingly, the MRP proposal was not written by TGO itself, but by a consultancy based in New York. This was a requirement by the World Bank, which provided the budget to the consultants to prepare the MRP, including the LCC chapters. It is noteworthy that municipalities were not involved in the drafting of the document, which can help explain the mismatch between the aspirations of TGO to introduce a working urban carbon market in Thailand and the actual disenchantment with the concept at the LCCs.

5.2.2. KNOWLEDGE

As opposed to insufficient funds, lack of knowledge and awareness of LCCs was identified by all interviewees as a key barrier to a greater diffusion of the LCC discourse and policies among more Thai municipalities (C1; I2; L1; I5). Two interviewees (L1; I5) stressed that knowledge hereby does not refer to 'university knowledge', but rather to years of experience of doing things at the local level and understanding local needs. Another (L1) went on to state that graduating from university is not sufficient to run a municipality successfully, and that other actors helped him to fill the knowledge gap with their experience. A general scientific understanding of what climate change is, and especially of what activities at the city level contribute to this process, is sorely missing (I1; I6; I2; L1). Put differently, few local stakeholders are aware of the causality between methane emissions and degrading organic waste or putting grease down the drain and degrading river biodiversity.

Therefore, in the Thai case, the interviewees from TGO (C1), NMT (I1) and IGES (I6) highlighted that it is pivotal to start any LCC action with a municipal GHG inventory to demonstrate to local stakeholder that there is a tangible link between certain municipal practices and their consequences on the climate (I2, C1, I6). At the same time, being able to conduct a GHG inventory at the municipality allows for a prioritization of mitigation actions and a quantified monitoring and verification of the actions eventually taken. However, albeit learning how to use international GHG inventory software was rather easy for TEI staff due to their intensive knowledge of environmental issues, teaching the use of the software to the cities chosen as pilots proved very difficult. In spite of the availability of

GHG inventory data in the LCCs, measures that maximize co-benefits were in general chosen over the ones with the largest GHG emission saving potential (L3; L1).

Another factor that was identified by several interviewees as allowing for an increase in understanding of climate change at the urban level is the involvement of communities and youth. This strategy was pursued initially in Klaeng and is at the very heart of the LCC activities in Chiang Rai. Based on past experiences with LCC project implementation, TEI and NMT also made sure that LCC activities they coordinated fulfilled participatory criteria, furthermore aligning their activities with international donor requirements and discourses on people participation and cooperation. TEI, for example, suggested to Toyota Motors to focus on school and community LCC activities within its 'Stop Global Warming' project to support municipalities most efficiently in their ongoing LCC efforts. NMT, in turn, institutionalized public awareness campaigns in its LCC initiative by focusing on promoting sustainable consumption as one of its four pillars. Both Phitsanulok and Pak Kret municipality implemented well-working waste management and recycling centers, relying on proactive community participation and volunteers. Nonthaburi sequenced its LCC activities in such a way that initially awareness raising campaigns are prioritized above all other measures (L5). One interviewee (I1) furthermore stressed that you have to come up with non-traditional ideas to make people aware and care about the climate. NMT, for example, uses nifty poems to communicate the importance of climate change to its members and the public. Toyota Motors and Chiang Rai, on the other hand, decided to utilize the enormous deference Thais feel towards members of the royal family to enthrall the public for its LCC projects and decided, for instance, to only plant lilac-blooming plants in Chiang Rai's wetland ecosystem learning center in honor of Princess Maha Chakri Sirindhorn, whose favorite color that is (L4).

Awareness about the climate change problematic was often triggered by visits of domestic LCC stakeholders to cities and conferences abroad. The interviewee from NMT (I1), for example, was made aware about the importance of climate change during a study trip to Japan, where she also visited a Global Warming Learning Center in Tokyo. This experience triggered her to become active in this field at home, and upon her return, she co-initiated the 'Stop Global Warming' project in cooperation with Toyota Motors. The same is true for Dr. Sate (I2), who pinpointed his PhD in Japan as being the first moment in time that he got introduced to the importance of the concepts of both LCC and climate change, mostly by observing the day-to-day behavior and activities of local people, who have internalized a low-carbon way of life (I2). However, also home-grown best practices can have a decisive effect on increasing the awareness for LCCs. The NMT LCC project leader (I1) said that

she was made aware about the climate change mitigation potential of cities by visiting Klaeng and talking to former mayor Somchai, therewith highlighting the role local policy entrepreneurs play in establishing LCC policies in the first place.

A last 'knowledge hurdle' identified by three interviewees (I3, I5, I6) was the fact that the knowledge of English at the local level is very limited, which makes it difficult for international organizations to directly interact with municipalities. They have to contact intermediary organizations first that serve as connectors between them and the local governments. Those intermediary organizations are thus often regarded as key players by the other stakeholders, since they are the gatekeepers to the LCC playing field in Thailand. In addition, GHG inventory guidelines, LCC manuals and other international best practices, as well as software developed for LCC development, are often only available in English. Therefore, the first step for many intermediary organizations is to laboriously translate the accumulated knowledge into Thai. One interviewee (I6) identified the above-average English skills of municipal leaders as decisive selection criteria applicable to all model cities they worked with. This implies that selection of pilot cities by non-Thai speaking stakeholders is limited to cities where leading municipal officers and/or the mayor speak English (as was also the case for this research).

5.2.3. CAPACITY

Capacity was also identified by most interviewees as pivotal in implementing LCC projects on the ground and was often found lacking, especially so in small- and medium-sized cities (I4, I3). Capacity is defined as being able to put knowledge into practice and effect actions on the ground. Even when knowledge and funds are present, a lack of capacity is often preventing meaningful LCC project implementation. Capacity is generally built in one of three ways: 1) by inviting local stakeholders to workshops or conferences 2) by sending technical experts or volunteers to the local governments and 3) by sending local government officials or delegations to other cities - domestic or international - to learn from best practices in urban environmental governance. Consequently, capacity is often built alongside knowledge, which is frequently diffused through the same channels. Capacity-building measures are normally reserved, due to lack of manpower and funds, to pilot cities that proved willing in the past to tackle environmental problems. As a consequence thereof, best practices are not equally dispersed between Thailand's 2300 municipalities, but rather accumulate in a small number of model cities that are approached over and again by different stakeholders who would like to support them or implement their own environmental sustainability programs in the municipalities. This can be seen as a form of path dependency that can only be disrupted by drastic internal

changes, such as the end of policy cycles. This unequal distribution caused the establishment of a tight social network of key persons in the LCC discourse that are intimately acquainted.

One interviewee (I5) stressed the importance of first raising awareness of climate change mitigation among officials before trying to build capacity. Many international actors assumed that knowledge is present and started building capacity right away, which brought about a very slow and incomplete learning process, failing to reach many a project's objective. Oftentimes, local governments were more than willing to commit themselves to climate mitigation goals or join LCC programs. It was much more difficult, however, to actually get the municipality to get to work on these commitments, conditioned by low local capacity (I5). One interviewee (I6) went so far as to say that, despite of all capacity building activities undertaken by her intermediary organization, none of the municipalities they worked with was eventually able to conduct a GHG inventory or set up a MRV system independently.

Capacity, when build, is besides often limited to high ranking officials and the mayor, and refers mostly to technical capacity, as for example being able to measure or calculate GHG emissions from different activities or applying different software. There is a high fluidity within municipalities of high ranking city officials, because higher pay-scales can only be reached in larger municipalities (L2), and also because local civil servants are expected to rotate every 3-4 years to permit knowledge diffusion. Thus, when a municipal clerk in charge or working on a municipality's LCC program leaves the municipality, the program is often discontinued due to the outflow of capacity (L3; L1). At the same time, this of course also offers an opportunity to start a LCC program in another municipality by transferring capacity and knowledge (Chamniern & Villeneuve, 2004), as has happened when a high official initiated a small LCC project in Tapma municipality after transferring there from Klaeng (L2). In addition, the requirements of some LCC projects introduced to local municipalities are rather strict and warrant dedication to the project from the municipal officers in charge. NMT's LCC program, for example, requires update reports on a range of indicators every three months (I1), which often overstretched the personnel capacities of municipal departments. This is especially relevant when one keeps in mind that a range of LCC projects with different criteria are implemented within a municipality's LCC program that all require the measurement of different indicators and the application of different tools.

This often also leads to a lack of monitoring capacity that concomitantly translates into a lack of ownership regarding the LCC activities introduced from outside to the municipality. When confronted with the climate change mitigation targets found on different platforms, such as the NAZCA platform

or the 'Carbonn Cities Climate Registry', local government officials were often not aware that such goals existed, and certainly were not explicitly working towards fulfilling them (L5; L3). In the case of Nonthaburi, IGES filled out the form for them to put the goals on NAZCA, which was a one-time action without follow-up or adjustments based on the ongoing activities in the municipality (L5).

Lastly, another problem is that the mayor's vision and importance dedicated to LCC topic can change with new election cycles (I1). When a committed mayor is not re-elected, all the work done over years on LCC development can stop within an instance, as was the case in Klaeng (L2), and capacity built in a key player becomes useless. A few municipalities have addressed this problem by anchoring the LCC policy in 'committees', as has happened in Phitsanulok and Chiang Rai (L6; L3), to pool and institutionalize capacity in a more than ad-hoc manner. Another safeguard that was introduced in all case study municipalities is the formulation of a long term mission and yearly, mid-term and long-term plans, which allow for the introduction of long-term thinking beyond election cycles into local governments mindsets and budget planning (L5, Chamniern & Villeneuve, 2004). In this way, certain LCC actions can be prioritized above others and can be sequenced logically, while at the same time a budget is assigned to activities from the outset. Nonthaburi made use of this method by anchoring awareness raising activities in their year plan, prioritizing a change of building codes and the introduction of voluntary LCC and sustainability recommendations for house owners in a three-year plan while all the time pursuing a sustainable change of the transport sector towards low-carbon options through promotion of bicycle use, public transportations and creation of new green spaces on disused infrastructure areas in their ten year plan (L5). Despite of this positive development, it must be stressed that it is in the end up to the mayor alone whether to continue with, or cancel, any previously developed plans, as happened in Klaeng.

5.2.4. COMMUNICATIONS AND NETWORKS

Communications and networks refers to a stakeholders ability to draw interest and support to its ongoing LCC activities by mobilizing resources through network membership or bilateral exchanges on best practices. Communications furthermore refers to the publication of promotional and informational materials to mobilize support from the public and potential collaborators.

The most powerful actors in this regard for LCC development in Thailand are the intermediary organizations NMT and TEI. Intermediary actors and networks that are engaging with cities and support them with the implementation of LCC programs, have no legal authority and rely on the network functions of information-sharing and capacity-building. They serve as connectors and

mediators between the local level and the (inter)national (I6) and thereby control who is going to receive funds and expertise in the form of trainings or tools. This is especially critical, since objective selection criteria for participation in an organization's support program seem not to exist (C1; I3; I6). Personal networks were identified as most pivotal by almost all interviewees from intermediary organizations when deciding which municipalities will be suggested to international donors/implementers or networks for receiving assistance (I3; I6; I5; I1). Thus, even though intermediary actors lack legal authority, in their role as gatekeepers between the local and international level, they have the ultimate power to control the flow of funds and knowledge through their networks and ability to communicate their efforts well with international actors. Facilitating these horizontal and vertical collaborations was decisive in spreading the LCC discourse from a handful of pilot cities to around 100 forerunner cities.

NMT, on the one hand, tries to be regarded as the focal point for all things related to the LCC discourse in Thailand and is actively networking with other local government associations and city networks. The general inactivity of Thai cities in international city networks can be traced back to the law prohibiting local governments to pay membership fees to overseas institutions. NMT as a public organization, however, is not bound to this law and can be seen as representing aggregated Thai city interests within those networks (Acuto et al., 2016). TEI, on the other hand, was the leading player in the field of environment for many years in Thailand, and initially also with regard to climate change and urban governance. TEI was established in 1993 and predates many of the central government agencies and other NGOs working in environmental protection in Thailand. Due to its experience and long-standing commitment to the environment, TEI is very well known internationally and continually worked on increasing its visibility. When asked why TEI is a member of many international networks, such as UCLG-ASPAC, ICLEI, CityNet or CITYLINKS, one interviewee (I5) said that they strategically became members to increase their international visibility and reputation, and that this goal alone justified paying the membership fees. Until other central government and intermediary organizations gained in importance from the late 2000s onward, all kind of organizations, both public and private, contacted TEI first to ask for help in identifying suitable cases for whatever environmental project they had in mind, and often signed TEI on as national implementing organization (I5).

It must be stressed that TEI and NMT by themselves are not powerful networking agents, but rather that individual persons within the organizations, and here especially interviewee I5 and Dr. Chamniern at TEI and interviewee I1 at NMT were influential with the LCC stakeholders. When all

three of them left TEI in 2011 due to a change of board, a lot of expertise and networking resources were lost for TEI and other actors, particularly NMT and TGO, gained a comparative advantage.

Next to intermediary organizations, the personal networks that were built over the course of the past few years by mayors and long-serving government officials are a great resource of power in the LCC discourse as well and transform certain frontrunner cities into recipients of all kind of knowledge, capacity and budget that pours in from other actors. As mentioned before, local government figures that spearhead the LCC development in Thailand, notably Somchai Chariyacharoen from Klaeng and Suranid Ong-La from Chiang Rai, are leading diffusion efforts of best practices by providing trainings, inviting other officials to visit and learn from their municipality's experience and produce promotional materials, even in English, to spread the knowledge and experience gained with LCC development. The interviewee from Nonthaburi, for example, replied when asked why they have promotional material in English that those materials were produced to attract international donors and gain support. Furthermore, these materials are shared with other cities (the materials are also published in Thai) who would like to learn about the best practices in urban environmental management from Nonthaburi. The former mayor of Klaeng was visited by a large number of TV teams, researchers, international organizations, city officials from Thailand and abroad and others and promoted the 'Klaeng Model' throughout the region very successfully. He strategically used Klaeng's power as the frontrunner city of the sustainable city discourse in Thailand to attract ever-more resources from a variety of actors and to engage in city climate diplomacy.

International city networks are also powerful intermediary actors in so far that they translate international, theoretical discourse to the needs of their target audience and members, namely cities (I5). By doing so, these actors often have a direct impact on the design of LCC programs. Furthermore, international networks often build capacity of national intermediary organizations, by, for example, providing training on how to do GHG inventories or by introducing standardized software based on best international practices. One of the main goals of ICLEI is the institutionalization and quantification of local urban LCC experiments and an aggregation of lessons learnt (I4). By providing systematic tools and step-by-step guidelines, ICLEI supported its CCP pilots to find a starting point to understand and tackle a vastly complex topic (I5). At the same time, ICLEI is diffusing news about recent developments at the city-climate interface to its members, which helps stakeholders to stay up-to-date (L1). The other way round, ICLEI also communicates best-practices from its members to a worldwide audience via its website. Certain city networks active in Thailand have a very narrow topical focus. One of the more recent additions, the ACCCRN, for instance,

prioritizes climate change adaptation over mitigation and infuses this discourse also to the municipalities it works with, which can eventually lead to a different allocation of importance and budget to the topic of related issues. When looking at the PR materials from Chiang Rai municipality, it becomes clear that a different vocabulary entered its environmental management strategy upon contact with the ACCCRN, such as 'reduced vulnerability' and 'disaster preparedness' (TEI, n.d.a).

International aid organizations often connect local governments or staff from intermediary organizations with frontrunner cities in their home country, as has happened in Klaeng and GIZ, who sent the mayor to Berlin and Munich to learn about solar roof-tops, or JICA, who invited the NMT interviewee (I1) to attend an intensive course on climate change in Tokyo. Instances of network creation by establishing direct North-South city cooperation can also be observed, and was facilitated for example in the case of Nonthaburi by ADEME, who two-sidedly connected Nonthaburi with Nantes in France. Furthermore, direct links were established between Nonthaburi and Firenze, as well as Barcelona, to exchange experiences as part of the European Commission's Asia Urbs program.

One interviewee (I5) highlighted that in the beginning communication between different actors and networks was very bad, but has improved a lot recently. As a consequence thereof, local governments were often overwhelmed by all the different tools and software they were expected to use. This struggle is exemplified well by Nonthaburi, which initially started with the CCP software in 2002, later switched to ADEME's own BilaneCarbon Tool for the GHG inventory, thereafter switched to the global standard of GPC 1.0. when cooperating with IGES, just to later having to switch again to the software developed by NMT, while simultaneously using the one by the 3E Research Unit (TGO). At the same time, the GPC 1.0. had been further developed by ICLEI and has become much more complex, so that new trainings are needed. The 3E Research Unit already struggled in collecting the data needed for the GPC 1.0. before the more complex 2.0. was released and produced easier to understand tools for the municipalities (I2).

5.2.5. CONCLUSION

Concluding sub-chapter 5.2., it is argued that knowledge is the most important resource for local governments and an increase of this resource would have the widest-ranging effects on a further diffusion of the LCC discourse throughout Thailand to more local governments. Knowledge helps to understand the stakes, as well as the benefits, involved in becoming a LCC. Budgets, as opposed to claims in the academic literature, is not seen by the local interviewees as a limiting factor for LCC implementation. Carbon income from local low-cost LCC projects abounds, as to funding

opportunities provided by diverse actors through vertical and horizontal collaboration. Capacity-building, in turn, seems to be the key activity of actors beyond the municipality's boundary, often neglecting the need to start with increasing the awareness among municipalities of the importance of LCC programs, which often translates into a lack of commitment and ownership. Capacity-building measures are often conducted in vain, due to, amongst other, a high volatility of personnel changes between Thai municipalities and election cycles. Furthermore, many of the tools and software used by international organizations are too complicated for a small- or medium-sized city context in a developing country. Control over sectors and functions has to be increased and the decentralization plan has to be executed as envisioned to increase the budget and capacity resources of local governments. As of now, LCC actions are often symbolic in character and focus on promotional activities and the waste sector. Horizontal and vertical collaborations with other LCC stakeholders beyond the municipality border were pivotal in increasing local government's LCC resource base and allowed them to implement new projects and upscale and institutionalize existing ones.

6. CONCLUSION & DISCUSSION

This thesis research set out to contribute to a better understanding of urban climate change mitigation design and performance and city climate diplomacy in small- and medium-sized cities in a developing country. To meet this research objective, a literature analysis was complemented by a fieldwork period during which five exemplary LCCs were visited in Thailand and interviews were conducted with key figures in the Thai LCC policy field. The PAA was adopted to structure the research in a coherent manner and explore what factors led to the establishment of, and changes in, the LCC policy arrangement in Thailand. The four PAA dimensions were analyzed and it was zoomed in on how horizontal and vertical collaborations shaped LCC programs - that is, how Thai city climate diplomacy looked like. Subchapter 6.1. summarizes and discusses the findings of both the literature analysis and fieldwork by revisiting the two main research questions. The summarized findings are thereafter set into context and discussed in subchapter 6.2. Subchapter 6.3. reflects on the methods and theories used for this research. Concluding, a number of policy recommendations that were extracted from the findings and discussion are listed in subchapter 6.4.

6.1. – REVISITING THE RESEARCH QUESTIONS

This chapter is revisiting the first two research questions introduced in chapter 1.5. and elaborated on in chapter 2.5. The third research question (what lessons can be drawn from the findings?) is implicitly answered by subchapters 6.2. (theoretical implications) and 6.3. (policy recommendations).

RQ1: Why and how did the LCC policy arrangement in Thailand emerge and develop and how did it manifest itself at the local level?

Based on the research findings, I argue that interplay between the PAA's discourse, rules, resources and actor dimension led to the initiation and stabilization of the LCC policy in Thailand and explains why and how local stakeholders implemented LCCs. The new entry or exit of key actors was pivotal in initiating and giving shape to the LCC policy in Thailand, and strongly influenced the PAA's other three dimensions. A mix of both endogenous factors, most prominently the leadership of local policy entrepreneurs, and exogenous factors, most prominently horizontal collaborations, were decisive in initiating and shaping the LCC programs in the cities visited. In the following, this interplay is summed up and explained.

LCCs were defined differently by different actors. For local stakeholders there was no difference between a low-carbon city, a sustainable city or a climate resilient city: the results of each type of program were the same, namely increased local co-benefits in the form of cleaner air, water and land. Representatives of intermediary organizations and the central government recognized that LCC is too theoretical a term and of no use when trying to persuade cities to implement mitigation actions. Consequently, non-local actors tried to translate the global concept to local contexts and consistently highlighted the local co-benefits that can be gained by becoming low-carbon, which appealed to many local governments and enthused them to engage with the LCC idea. This makes it difficult to clearly distinguish the various related concepts that were promoted over time in Thai cities from an explicit LCC discourse. It is argued here that climate change mitigation was never the prime objective in any of the LCCs that were visited and that pursuing a LCC strategy mainly meant relabeling ongoing activities as being LCC. The extra step taken by municipalities in their strive to become a LCC was the attempt (which often failed) to quantify those activities and calculate their carbon footprint, or more often than not, helping in the data collection necessary for intermediary organizations to do a carbon footprint for them.

Broadly speaking, it can be said that the LCC discourse trickled down to Thailand at the beginning of the millennium in the form of general sustainable city activities. The sustainable city discourse was taken up by intermediary organizations but also by central government bodies and promoted with municipalities throughout the country. Despite of this, the extreme dedication of certain local policy entrepreneurs, such as for example Klaeng's former mayor Somchai, was of pivotal importance in starting LCC programs in Thailand. Without such shows of commitment to urban sustainability, international actors would not have had the chance to become involved via intermediary organizations in the Thai LCC policy in the first place. Over the years, sustainable city activities matured in certain forerunner municipalities. A first LCC policy stabilization occurred around 2004/05, with local governments proactively implementing LCC activities before the central government became interested. First instances of explicit LCC activities entered Thailand from Manila, when ICLEI Southeast Asia and its national implementing partner TEI selected six municipalities to implement its global CCP campaign from 2002-2005. CCP Southeast Asia was first implemented in the Philippines and Indonesia from 1999 onward before it reached Thailand. At the same time, Japanese-based organizations were very active in spreading knowledge about global climate change and urban sustainability to key players throughout Thailand, and implemented many activities focused on urban waste- and wastewater management in various cities. The discourse was further consolidated by various public bodies that organized sustainable city competitions and

helped incentivize more and more cities to think about the environmental dimension of development. During this first LCC policy stabilization, resources were very much concentrated in a handful of frontrunner municipalities and in TEI, the by far most prominent intermediary organization.

A second LCC policy stabilization can be identified around 2011. At the beginning of the discourse stabilization, more focus fell on the importance of building LCC capacities in the fast-growing small- and medium-sized cities in ASEAN by projects by French ADEME and German GIZ that explicitly focused on such cities. At the same time, the international discourse on the importance of local governments, and not solely on non-state actors, entered the Thai playing field, as did the discourse on local participation and cooperation. All of a sudden smaller municipalities were seen as key actors, which led to the fact that international organizations did not predominantly focus their activities on Bangkok or non-state actors anymore. Due to horizontal collaborations between a variety of international organizations and a number of pilot LCCs, the resource base of local governments drastically increased and the LCC discourse got diffused to a broader target group. This phase witnessed better cooperation between the different organization's working on the LCC topic in Thailand. Local governments were actively involved in pushing the LCC discourse onward, and both Chiang Rai and Klaeng's ideas and experience-based recommendations were adopted by NMT and TGO, respectively. It is argued that this second policy stabilization at the central government level is linked to more and more elaborate policy plans including LCC measures at the regional and national level, devised especially from around 2011 onward. Power shifted away from TEI, which imploded in 2011 due to a controversial board change, and saw a range of key actors move away to new employers in the field of environmental governance, especially to TGO and NMT, but also to IUCN and WWF. New resources accumulated in the hands of public organizations, foremost among them TGO and NMT. TGO actively promoted LCCs as its niche in its competition over mandates with other government agencies and promoted itself as the new focal point for all activities related to LCCs in Thailand. It furthermore increasingly served as mediator between local governments and international actors.

Regarding the 'how' of LCC policy implementation, it became clear from the research that meaningful control over most climate change mitigation relevant sectors was not given in the visited Thai LCCs. Furthermore, even though all of the LCCs conducted a sometimes more, sometimes less reliable GHG inventory, project prioritization was not based on mitigation potential but rather on personal preference (Chiang Rai), the maximization of co-benefits (all municipalities), or the creation of carbon

income (Klaeng). Improving local conditions of life were always prioritized over maximizing GHG emission reductions. All of the visited cities officially followed the four strategy approach of NMT, i.e. trying to transform their cities into LCC by becoming more energy-efficient, consume more sustainably, minimize waste and maximize green spaces. The waste sector, with the exception of Chiang Rai, took center stage in all municipalities, whereas energy-efficiency measures were often symbolic in nature. Responsibility for transportation planning lays with the central government and transportation interventions were limited to either symbolic (i.e. one biodiesel tram) or promotional (use of bicycle). All cities also actively tried to increase the urban green spaces as part of the 'city of trees' strategy. Likewise, all visited cities tried to raise awareness about sustainable consumption and led by example by decreasing the carbon footprint of the municipal organization and all buildings and services under its direct supervision. Some cities relied heavily on internal support from communities and volunteers to initiate and continue their LCC programs. Those municipalities were characterized by a high sense of ownership. Other municipalities relied heavily on personal networks of certain key players and horizontal and vertical collaborations. It became also apparent that LCC activities came either at no cost, or even more often, create surplus income for the municipality either by being able to tap into funds provided by international and central government actors or by creating 'carbon income' within the municipality. Especially the waste sector provided ample opportunity to earn returns on potential investments by producing alternative energy forms, such as biogas or diesel, and the reduction of waste that had to be disposed in landfills. The production of fertilizers out of organic waste, and its sale to local farmers, helped local agriculture to become more organic and was identified as a key measure in Klaeng.

RQ2: How does Thai city climate diplomacy look like and how did horizontal and vertical collaborations between the various actors shape local LCC programs?

The city climate diplomacy of LCCs, with a focus on Klaeng and Chiang Rai, are characterized and summarized in the following, paying attention to the impact and interaction between municipal governments and their horizontal and vertical collaborations with other actors beyond the municipal boundary.

Thailand is a unique case in so far that public city networks do not feature prominently in the diplomatic strategies of LCCs, due to a law that prohibits paying membership fees to overseas institutions. Despite of this law, multiple-sided diplomatic interactions between a city and public networks, for instance the collaboration between the Kitakyushu network that does not require its members to pay fees and Nonthaburi municipality, occurred and helped municipalities to increase

their local resource base. Interactions in prominent city network ICLEI's CCP campaign furthermore helped to diffuse the LCC discourse to other municipalities in the region and established first translocal, but indirect, links between municipalities in different countries of the region. None of the municipalities actively engaged with the networks and can be seen as passive network members. Private networks in the form of horizontal collaboration between private actors did neither play a role in the LCC policy stabilization in Thailand nor was it used as a city climate diplomacy strategy by private actors from within the municipalities themselves. Hybrid networks, however, were dominating city climate diplomacy interactions and refer to horizontal collaborations between LCCs and international actors. Some of these collaborations can be regarded as direct, as for example when IGES directly cooperated with Klaeng, Phitsanulok or Nonthaburi. The majority of horizontal collaboration, however, came in the form of indirect horizontal collaborations between local governments and international actors via an intermediary organization. This kind of indirect city climate diplomacy opened up the space for certain intermediary organizations to feature very prominently in the LCC policy development in Thailand and reap many resource gains by serving as national implementer of international organization's projects.

In addition, Thai LCCs oftentimes made use of both direct and indirect interactions with other cities within Thailand, the region and even internationally. Direct interactions are for example self-organized study visits from municipal officers to another model municipality to learn from their experience in managing the urban environment and vice versa. Such direct interactions were mostly limited to intra-Thailand exchanges, but occurred rarely. Indirect interactions refer to study visits, experience sharing and capacity-building by certain model cities for other cities, but this time facilitated by international actors. Chiang Rai, for example, shared its experience by teaching interested municipal officers from around ASEAN on the importance of urban biodiversity conservation within one of its five internationally-funded learning centers. Klaeng, on the other hand, received a large number of city delegation from throughout the region that wanted to learn about its waste management practices. Such exchanges where, amongst others, facilitated by IGES or UNDP, who installed regional learning centers on best urban practices in Klaeng.

Horizontal collaboration most often introduced new ideas (knowledge) as well as concepts and tools (capacity) to the cities and was pivotal during the first LCC policy stabilization as a means to find a solution that was appropriate to the respective context and helped to establish the respective key activity of a city's sustainable city activities. It must be stressed that existing projects were arbitrarily labeled as LCC, or climate resilient, to access outside resources. More often than not, the

municipalities did not use their resources strategically or proactively to further their climate mitigation policies internationally and share experiences made with other actors. On the contrary, the LCC idea was rather introduced to them by actors from outside of the municipality, as were the knowledge-sharing and participation concepts. Despite of this initial inactivity, certain pilot cities strategically used their resources and took advantage of the competition between the international and national actors to access resources. Horizontal collaborations thus strongly impacted the shape of LCC programs in Thailand, mainly by helping to diffuse the LCC discourse and by increasing the resource base of both intermediaries and local governments. Some international actors, especially topical city-networks like Kitakyushu, ICLEI and ACCCRN, prepared tailored tools and software for the use of city officials. Actors such as ADEME and GIZ further tailored their efforts to the need of specifically small- and medium-sized municipalities in a developing country context. In addition, visits by city officials to best-practice cities abroad often triggered LCC projects in the first place by introducing novel ideas of how to manage a municipal organization sustainability and by being able to see that such projects have created co-benefits. At the same time, both case municipalities' LCC programs were promoted throughout the country and region. This promotion was mostly driven, however, by the implementation strategies chosen by international organizations that foresaw mutual learning and best-practice exchange. The learning centers build in the municipalities were thus also foreign-funded. With regard to functions and resources each manifestation of city climate diplomacy provides, two different kinds of interactions can be distinguished. On the one hand, international interstate organizations and aid organizations often directly provide funds to municipalities to cover up-front costs for LCC activities and are often focused on technology-transfer and the purchase of high-end, high-maintenance equipment. On the other hand, indirect interactions between international actors and local governments via intermediary organizations were often characterized by their focus on increasing local knowledge and control, as well as capacity.

With regard to city climate diplomacy within national borders, also referred to throughout the thesis as vertical collaboration, cities were more active players, voicing their opinions loudly and trying to attract more attention to the needs of local governments and the problems they encounter when implementing LCC schemes. Certain intermediary organizations, and here especially the NMT, lobby with central government actors on behalf of their members to facilitate LCC implementation within municipalities. Vertical collaborations, in turn, was also important, especially in the beginning, to increase a city's resource base available for LCC programs, and later vertical collaborations led to the formulation of LCC-relevant policies and the stabilization of the policy at the central government in

an attempt to institutionalize the incoherent experiments that were the consequence of horizontal collaborations.

Overall, it is argued that LCCs in Thailand do not strategically pursue a climate change mitigation strategy by deploying city climate diplomacy. In general, municipalities are either contacted by international actors and central government agencies first, who inquire whether the local governments would be interested in collaborating and receive resources in turn for project implementation, or they are nominated by intermediary organizations to international actors for collaboration. One of the indicators initially hinting at proactive city climate diplomacy pursuits by local governments in Thailand were the quantified mitigation goals published on UNFCCC websites, such as NAZCA and carbonn Climate Registry. However, it became apparent during the interviews that such manifestations of international city diplomacy were handed in by intermediary organizations or international actors only in the name of the municipality and do not represent a municipality's long-term commitment to contribute to mitigate global climate change locally. By positioning their municipality up front when compared with other national competitors, certain local policy-makers set the base for successful collaboration with international actors and the central government. However, to what extent such as positioning was strategic or just coincidental is difficult to assess.

6.2. EMPIRICALLY PUTTING RESEARCH INTO CONTEXT

The aim of this subchapter is to embed the findings summarized in subchapter 6.1. in the on-going academic debates with regard to LCCs and their diplomacy that was introduced in chapter 1 and reviewed in chapter 2. It furthermore highlights how the present study possibly can contribute to a better understanding of how to approach LCC diffusion in small- and medium-sized cities in developing countries and how city climate diplomacy in such cities differs from previously researched ones.

It is of importance to note that the LCC policy arguably was infused to local governments in Thailand from abroad, exemplified by the trickling-down of the climate change discourse and initial LCC actions from international and Japan-based actors. ICLEI's CCP campaign, for example, was initiated in Thailand only a decade later than in Europe or North America. The findings suggest that policy makers in small- and medium-sized cities in Thailand were passive recipients of resources and ideas for explicit urban climate change mitigation that stemmed from horizontal collaboration, rather than proactive 'arenas of globalization' in the climate change realm, as postulated by some scholars

(Gustavsson, Elander & Lundmark, 2009; Anguelovski & Carmon, 2011). They certainly were not strategically framing their LCC programs internationally as 'notions of carbon control, security and resource scarcity', a trend identified by Bulkeley & Betsill (2013) in their review of the urban governance literature.

Internal motivation by local policy entrepreneurs was pivotal for a horizontal collaborator's decision to interact with certain Thai cities, but mitigation was never a priority locally and conceptual indifference was prevalent at the local level with regard to the varying city concepts circulating internationally. This finding is also supported by a hypothesis of Bulkeley (2010), who stated that transnational networks and urban elites in the global North want cities in developing countries to engage with LCC policies - currently the fastest-rising city concept (De Jong et al. 2015) - to further buttress their claims for the increasing importance of cities in international climate governance - worldwide - and that it was this desire that saw more and more cities in the global South hop onto the climate change bandwagon. The findings from Thailand moreover support the claims from Acuto et al. (2016) that increased attention reserved for cities and active advocacy of networks make it almost inevitable for even smaller cities to become internationally active. Thus, as opposed to the more broadly accepted notion that only large metropolises use city climate diplomacy to act internationally (e.g. Krause, 2010; Herrera & Shrestha, 2015), the findings exemplified that even very small cities collaborate with actors beyond the municipality to further their sustainable city objectives.

Bulkeley and Betsill (2013) put forward the argument that municipal climate change action has evolved from being purely voluntary and based on endogenous factors in the 1990s to become more strategic and dependent on exogenous factors in the 2000s, as in collaborations with international actors or other cities. While and Whitehead (2013) follow the same line of argumentation by saying that initially there was an academic and practical focus on whether cities are willing to act (equivalent to municipal voluntarism), whereas later this shifted to whether cities are able act (equivalent to strategic urbanism). This claim can be supported through the findings in Thailand. I argue, however, that the observed trends took place in the country with a decade delay: municipal voluntarism characterized the 2000s in Thailand, with certain policy entrepreneurs proving their willingness to transform their municipalities, whereas a more strategic urbanist approach can be observed from around 2010 onward, focusing on how cities could best tackle climate change locally and diffuse LCC policies to more and more local governments to aggregate the impact.

In the absence of institutionalized LCC policies at the central government level in Thailand in the 2000s, the findings support claims by Anguelovski & Carmin (2011), who posited that local government officials often relied on their own ingenuity and motivation to experiment with sustainable city actions and come to grips with the nascent policy field that was the LCC concept in the absence of guidance and best-practice examples - as perfectly demonstrated by the Klaeng waste management strategy. However, in contrast to what the authors also stated, the findings from Thailand demonstrated that there was no inherent interest in climate mitigation per sè, neither by city officials nor by local NGOs: whereas endogenous factors indeed always started a city's sustainable city activities, most often the desire of the community or a policy entrepreneur, to increase local well-being by improving the environment, explicit low-carbon city jargon and actions only emerged through interactions with international actors beyond the municipal boundary.

Regarding the conceptual indifference by local stakeholders with regard to the varying 'city concepts' introduced in the second paragraph, De Jong et al. (2015) hypothesize that those many concepts are indeed used interchangeably by practitioners and ought to be refined in order for local stakeholders to be able to make more informed decisions about the type of city they want to become. However, the findings suggest that local actions are not changed by adopting another city concept, and that a city like Chiang Rai pursues to become a sustainable, low-carbon, green and climate resilient city at the same time while focusing on the same project, just slightly changing its conceptualization. This questions whether it is indeed necessary to better nuance between the different concepts. This conceptual indifference is also mirrored in the academic literature, where often no clear distinction is made between varying concepts. Storey & Kang (2015), for example, suggest how to best do 'Planning for sustainable and low carbon green cities', and Bulkeley & Betsill (2005) do not distinguish between sustainable cities and LCCs in their widely cited review titled 'Rethinking Sustainable Cities: Multilevel Governance and the Urban Politics of Climate Change'. LCC actions by definition fall under the sustainable city concept, and pursuing only one single sub-concept does not seem to further the goal of a city to holistically manage its environment as efficiently as possible.

6.2.1. HORIZONTAL COLLABORATION

With regard to horizontal collaboration, the findings in Thailand confirm claims from the academic literature that such forms of interactions between international actors and local governments are crucial for the initiation, development and eventual success of urban climate change policy (Kern & Alber, 2008). Contrary to the academic literature, however, the findings in Thailand focus on a very

different type of horizontal collaboration. Whereas public city-to-city networks are recognized as dominating form of city climate diplomacy (Kern & Alber, 2008; Herrera & Shrestha, 2015; Acuto et al., 2016), due to the law that prohibits municipalities in Thailand to pay membership fees to overseas institutes, horizontal public networks were of minor importance in building the resource base of local governments for LCC implementation and share experience.

Therefore, local governments in Thailand heavily relied on horizontal collaboration with international agents in form of hybrid networks, for example on collaborations between an international NGO or donor and a local government. These networks were often limited to a smaller number of network members when compared to public networks, and made it more difficult for members to be passive, i.e. just to join a network as a sign of superficial commitment, something that can be frequently observed in larger city networks (Bulkeley & Betsill, 2013; Krause, 2010). Despite the difference in name, the main functions of hybrid networks are the same, namely knowledge diffusion, capacity-building and rule-setting. The main difference is that these interactions are rather unidirectional, with international collaborators wanting to invest and put their organization's logo in certain promising municipalities, and the flow of knowledge and capacities goes from the international to the local. Increasing local ownership and promoting knowledge and best-practice sharing among peers is not the main objective of hybrid networks. In addition, hybrid networks and their impact on LCCs is much less researched. The findings show, however, that hybrid networks, just like public city-to-city networks, have provided municipalities 'political space within which policy entrepreneurs can operate with some degree of protection from politics as usual' (Bulkeley, 2010), that is, allowed certain pilot municipalities in Thailand to try out a variety of different 'city concepts' and sustainable city activities, among them LCC projects, to see which one best suited their interests and matched their objective of maximizing local benefits. Horizontal collaboration led to an influx of many resources that consequently increased the local power base, which in turn increased a local government's capacity to engage with more and more international collaborators. This led to the fact that a handful of very powerful pilot cities emerged during the 2000s on the sustainable city playing field in Thailand, and that only those municipalities networked with actors beyond the Thai border. This observation is in line with the statement of Kern & Alber (2008), who observed that networks (referring to city-to-city networks only) are for pilot cities only. In accordance with the findings from the literature, small- and medium-sized cities in Thailand mainly received power in the form of information and capacity-building activities from their international collaborators (Andonova, Betsill & Bulkeley, 2009), but relied for funding on the municipal coffers and project-bound loans from central government players.

Interestingly, the findings in Thailand furthermore confirm an observation made by Castan Broto & Bulkeley (2013), who claim that the private sector often intervenes in LCC development in Asia as opposed to on other continents, which they try to explain with a different approach to manage climate change rooted in culture. Private players often were collaborators in horizontal hybrid networks, such as the Rockefeller Foundation sponsoring the ACCCRN and Toyota Motors sponsoring the 'Stop Global Warming Project'. The different kind of international collaborators pursue different kind of objectives and agendas, each putting a varying degree of attention on explicit LCC activities, and a systematic approach to LCC development is missing. Kern & Alber (2009) observed that many cities consequently fail to pursue a coherent LCC policy and rather choose to 'implement no-regret measures on a case by case basis'. Bulkeley (2010) found a similar trend that she characterized as municipalities trying to resist the institutionalization of their LCC programs by city networks. This preference for ad-hoc projects is also found back in Thailand, and institutionalization attempts by the central government level were seen critically by local officials. Even though it could be observed that LCCs in Thailand increasingly set-up sustainable city committees to improve coordination, no such committee was dedicated solely to climate policies, as claimed as a common trend in the literature (Anguelovski & Carmin, 2011).

The literature furthermore postulates that the setting of mitigation targets is the predominant form of expressing a city's willingness to contribute to global climate change actions locally, and is regarded as the prime sign of commitment by local governments (Kern & Alber, 2008). It is debated in the literature to what extent cities are setting LCC targets that are close to the national government or even go beyond them is difficult to assess. The quantified targets for LCCs in Thailand found on carbonn Climate Registry and NAZCA used oftentimes different baseline and target years and make direct links with national targets very unlikely (Kern & Alber, 2008), and in the case of Chiang Rai, the targets published on NAZCA were found to be even outright contradictory (UNFCCC, n.d.). Generally speaking, often only marginal CO_2e emission reductions are aimed for at city level and often include an energy-efficiency component, whereas the NDC aims for a 20 % reduction, questioning whether cities' targets indeed are more ambitious and even go beyond what national governments planned in the research context. Overall, only around two dozen mitigation targets by Thai cities were found on three different fora, out of 100+ that are said to implement LCC actions. The setting of targets requires that a GHG inventory is conducted in a city to establish a baseline or a business-as-usual scenario, and, as found, most cities are incapable of compiling the data by themselves. Consequently, it was found that targets publish on international fora cannot be seen to represent a city's commitment to contribute locally to mitigate global climate change, but rather that

those targets were formulated and published for them by intermediary and international organizations. This seriously makes one doubt the claim that such targets can be seen as prime indicator of a city's commitment, but rather a superficial commitment.

6.2.2. VERTICAL COLLABORATION

With regard to vertical collaboration, conversely to findings in the literature (Marcu, 2015; Hsu et al., 2015), this research's results show that LCCs in Thailand do not actively and intentionally contribute to meeting their country's NDC pledges under the Paris Agreement. On the contrary, cities were not communicating well with central government authorities, and their activities were not in line with central government policies - provided that such policies were known at all at the local level. Likewise, and especially during the first LCC policy stabilization in Thailand, the central government did not even acknowledge any small- or medium-sized city and their mitigation actions at all, and all marginal city-related interest focussed on Bangkok (ONEP, 2010). As opposed to the observations of certain leading scholars (Sippel & Jenssen, 2009; Clapp, 2010, Bulkeley & Betsill, 2013), vertical collaboration in Thailand was not found to be decisive in allowing LCC policies to be implemented at the local level, and activities by central government actors were limited to enabling certain pilot municipalities via an 'island of excellence' approach.

This does not mean that the importance of vertical collaboration can be belittled in the Thai context: vertical collaboration arguably played an important role in spreading the LCC policy and discourse to more and more local actors via the formulation of new rules and provision of certain resources, especially from 2010 onward. The observed upscaling and aggregation of best practice examples diffused LCC policies to many more local governments in Thailand, arguably increasing the efficiency by attempting to institutionalize the varying LCC approaches at the local government level. In the literature, a debate is raging between proponents of innovative climate change mitigation experiments, who state that such local, context-depended solutions are key to unlocking individual city's mitigation potential and are more effective, appropriate (Anguelovski & Carmin, 2011) and seen as holding a huge potential as a testing ground for national government action and policies (Corfee Morlot et al., 2009). However, urban climate experimentation, if not institutionalized at one point in time, also is regarded as fragmenting climate policy and lowering the ambition of central government actors to act on their commitments. Other scholars, in turn, claim that experimentation comes at the cost of legitimacy and stability, and that institutionalization is to be preferred over experimentation. If not institutionalized, LCCs could only provide ephemeral and topical solutions and cannot address the root causes of urban climate change emissions (Hsu et al., 2015). Other researchers hypothesized that it would be best to initially promote urban climate experiments, but at the same time pushing for the institutionalization of best-practices based on varying experiments (Corfee Morlot et al., 2009; Fankhauser & Hepburn, 2010). This last hypothesis found application in

Thailand. Based on the findings, this strategy was actively pursued initially via the 'islands of excellence' approach by ASEAN and varying Thai central government agencies, which created an environment for local governments of 'healthy competition to create their own brand and strategy to climate diplomacy' (Herrera & Shrestha, 2015). From 2010 onward, experimentation was increasingly attempted to be institutionalized by ASEAN (IGES), TGO and NMT at a larger scale beyond the few pilot cities that implemented LCC policies from 2001 onward. Cooperation replaced competition and the active sharing of experience with as many other local governments as possible to upscale the efficiency and make individual city's climate mitigation efforts meaningful through aggregation.

In their vertical collaboration, Thai central government actors pursued an enabling governance mode, which limited them to the compilation of information and the dissemination of knowledge on best-practice cases. This finding confirms claims by Kern & Alber (2008), who stated that such benchmarking action helps involving more and more actors in a LCC policy via, for example, the creation of award-schemes, and that those schemes are often devised in cooperation with NGOs, as happened in Thailand as well. The literature moreover claims that most LCC action concentrate on self-governing and enabling governance modes in which local governments have more authority, and that governing LCCs via regulations has decreased in importance over the years. This cannot be confirmed by the findings in Thailand. Quite on the contrary, regulations in the form of non-binding rules at the central government level has increased in importance and are more strongly guiding local LCC action, thereby arguably undermining the leeway local governments previously had in self-governing their own LCC actions and their freedom to engage with international actors whenever they pleased. Since the decentralization reform has not progressed as much as it was supposed to by 2016, Thai government is still rather centralized and allows for governing through regulation.

The other way round, that is vertical collaboration starting at the local level and influencing the central government and discourse, can be seen as very important in the Thai case. Field findings confirm claims in the literature that local government organizations more and more often indeed can influence higher government levels (Kaufmann & Martin, 2014). Klaeng especially can be seen as highly influential in shaping NMT's and TGO's LCC program. Arguably, best practices pushed by central government agencies competitions were included in national legislation, thereby relying on the groundwork local governments did in cooperation with international collaborators during the first LCC policy stabilization. In the literature, such a phenomenon is called 'California effect', and refers to the ability of a subnational government to influence environmental agenda setting and policies at higher government levels (Sippel & Jenssen, 2009). However, it must be noted that such

vertical collaboration, just like it was the case for horizontal collaboration, was not the consequence of an proactive outreach of local government organizations. On the contrary, central government organizations reached out to local governments, and initiative by local governments to apply for LCC funding or register for LCC projects of the central government was very hesitant at best. Many of the LCCs that reacted to calls for applications further only superficially engaged with the topic to access project funds, which confirms findings from the academic literature (Anguelovski & Carmin, 2009; Krause, 2010). This further supports the argument that local governments did not actively pursue their sustainable city/LCC objectives via either vertical or horizontal collaboration. Despite of their general inactivity, pilot municipalities were nonetheless very influential in shaping the LCC policies and discourses in Thailand, and the region. This form of collaboration as witnessed in Thailand between the central government and small- and medium-sized LCCs does not support hypotheses in the literature that collaboration of LCCs undermines state sovereignty in any way. Rather, the findings hint at the validity of the claim by Taveras (2016), who stated that rather than being challenged, local climate action rather supplements state action in an unregulated (and later still under-regulated) policy area, namely LCC development in Thailand.

6.2.3. LCC DESIGN CHOICES AND PROJECT PRIORITIZATION

In addition and with regard to how LCCs are designed, the literature overwhelmingly claims that LCC actions focus on energy-efficiency improvements, sometimes also including actions in the transportation sector (Castan Broto & Bulkeley, 2013; Kern & Alber, 2008; Bulkeley, 2010). This focus seems logical, since energy and transportation account for by far the largest share of an average city's CO_2 emissions (Marr & Wehner, 2014). Despite of these arguments, the research again is biased towards cities in Northern Europe and the USA, where decentralization reforms have progressed at a much faster pace and many pivotal functions and budgets have been transferred from the central government to local governments, drastically increasing a local government's capacity to implement meaningful LCC actions independently, especially in the most relevant sectors, energy and transport (Krause, 2010; Erickson & Tempest, 2014). The realities in Thailand looked very different (Lasco et al., 2014): albeit the decentralization reform foresaw impressive transfers of budgets and functions to local government administrations on paper, those reforms have stalled. Municipalities have almost no control over any kind of technical intervention in the transport sector and have to focus on social experiments, such as bicycle promotion. Actions to improve energy-efficiency are also limited to the handful of buildings a small municipality has direct control over, and the same is valid for smaller municipalities' capacities to regulate urban planning.

Claims in the literature that the waste sector contributes overall and on average only around 8 % of a city's total emissions (Gouldson et al., 2015), on the other hand, are confirmed by the GHG inventories of Phitsanulok (unpublished) and Muaeng Klaeng, further consolidating the claims that CO_2 emissions absolutely dominate a city's carbon footprint (Folberth et al., 2015). In Klaeng, the waste sector only produces around 6 % of the municipality's emissions, as opposed to 75 % emitted by the energy and transportation sectors. Despite of these suggestive findings, Klaeng decided to continue its focus on its waste management project, but relabeling it as LCC project under TGO's and NMT's respective LCC schemes. Likewise, the GHG inventory in Chiang Rai found the largest GHG emission reduction potential in the energy and transportation sector. Despite of these findings, the city's urban biodiversity project's objective was only rephrased as to contribute to climate change mitigation within TGO's and NMT's LCC programs. All of the visited LCCs had a strong waste management component included in their climate change mitigation portfolio, exemplifying the greater control municipalities have over waste collection and recycling in Thailand when compared to the energy and transportation sector.

The main hypothetical arguments brought forward in favor of LCC programs in small- and medium-sized cities was the possibility to prevent the lock-in of carbon-intensive infrastructure over the long-term in the present, thereby decreasing future abatement costs (Erickson & Tempest, 2014; Bäckstrand, 2008). This argument was seen as having special relevance in the Asian context, since many of the smaller cities there will witness exponential population and economic growth in the coming decades and ought to utilize the 'window of opportunity' right now to prevent carbon lock-in (Lehmann, 2015). In practice, however, smaller cities did not have much control over the most relevant LCC sectors, and only had very limited powers when it came to urban planning, relying predominantly on voluntary guidelines and building codes and the promotion of green spaces and similar activities. The LCC activities that could be observed did not contribute meaningfully to switching to a low-carbon development trajectory, begging the questions whether a focus on small- and medium-sized cities is justified. The need to clarify this questions is only increased when comparing the per capita carbon footprint of smaller cities, such as Klaeng (3.2 tCO_2e, TGO, 2011), to the national average (3.76) and Bangkok (10.7 tCO_2e; World Bank, n.d.), recognizing that both cities and the country are implementing LCC actions. Furthermore, it must be noted that around 75 % of all GHG emissions in Southeast Asia stems from the land-use and land-use change and forestry sector, putting urban emissions in perspective (ASFN, n.d.). Also regarding just burden-sharing, a focus on small- and medium-sized LCC action seems not justifiable, given the current macro legal-framework and emission profiles.

As briefly introduced above, a key difference between claims in the literature and the findings on the ground concerns the type of intervention. Whereas it is claimed in the literature that cities rely heavily on technical interventions (Caston Broto & Bulkeley, 2013), small- and medium-sized cities in Thailand are heavily relying on social interventions in the absence of control over LCC relevant functions and large budgets. Social interventions, such as the strong involvement of the communities and volunteers in the waste management project of Phitsanulok or the urban biodiversity project in Chiang Rai symbolize those differences. Furthermore, Chiang Rai and Muaeng Klaeng also included a strong cultural component in their sustainable city strategy, trying to highlight the environmental sound living of generations past or the Buddhist way of life. When technical solutions where chosen, most LCCs relied on low-cost options, such as a simple conveyor belt or low-velocity tram-like vehicles. The sophisticated and Japan-sponsored high-tech recycling center in Pak Kret, however, also confirms that there are exceptions to this rule. These findings interestingly support the claims of some authors that local government climate change mitigation can be seen as a function of increasing local co-benefits and make a city more livable (Krause, 2010; Schreurs, 2008; Anguelovski & Carmin, 2011). Activities chosen by the LCCs visited were those that either contributed most to increasing public health and a general beautification of the municipality or those that had the highest potential for returns on investment. However, it should be argued whether co-benefits is the right term used in this context. Rather than being co-benefits, it seems that most LCCs should not be categorized as a LCC in the first place and rather be called a 'Sustainable City', using a more holistic term that encompass the diverse experiments going on at the local government level. Therefore, the creation of direct, multiple, and locally felt benefits is the main objective of all kind of projects at municipal level in Thailand. Projects that create the most benefits are chosen and only a different name tag is put on it to satisfy the horizontal collaborators. Kousky & Schneider (2003) furthermore found that only the perceived benefits of benefits are even more important than actual ones, and more often than not no quantification attempts are undertaken to measure to value of co-benefits. However, this is in contrast to what was found on the ground in Thailand in small- and medium-sized cities. All quantifiable co-benefits were measured to some extent by the municipalities, such as increased water quality, number of trees and species and green space per capita.

With regard to the key barriers of urban climate change mitigation, the literature assesses over and again that the biggest hurdle that has to be overcome for successful LCC implementation is a lack of funds (TAP, n.d.; Kern & Alber, 2008; Bulkeley, 2010). Even though several scholars acknowledge that many of the mitigation options available to local governments are cost-effective and bring returns on

investment, huge up-front costs and the long-term investment plans are observed to make such investments unlikely in countries in the global North, and that financial government support is pivotal (Gouldson, Sullivan & Webber, 2012). Conversely, the findings in Thailand strongly suggest that a lack of funds is not an obstacle at all, and that funding opportunities for local mitigation actions are low-cost and available abundantly, either locally or by accessing funds from international collaborators. Rather than being a hurdle, the very lack of funding, it is argued, allowed for more innovative mitigation experiments and the creation of self-sustained projects locally.

This subchapter discussed the empirical finding and grounded them in the ongoing academic debate. The following chapter reflects on the theoretical framework and methods that found application for this research.

6.2. REFLECTIONS ON THEORETICAL FRAMEWORK AND METHODS

This chapter reflects on the use of the overall theoretical approach used in the form of multilevel urban governance, its conceptualization as LCC diplomacy and the use of the intermediary concept of the PAA that found application in investigating and explaining the establishment, development and institutionalization of the LCC policy in Thailand.

The focus on city climate diplomacy as guiding concept necessitated the adoption of a theoretical framework that allowed for an analysis of urban action not solely being focused on interactions within the municipal boundary. Successful LCC implementation, it was argued, depends on a city's climate diplomacy next to other endogenous and exogenous factors and is embedded in the overall macro-level legal-political context. To allow the analysis of factors that were explanatory of LCCs and their diplomacy, a theoretical framework that acknowledges such interactions and the importance of vertical and horizontal collaborations was needed. Multilevel urban governance fulfilled these criteria, by seeing a local policy as being the consequence of the interplay of different factors at different levels.

The conceptualization of city climate diplomacy as a multilevel LCC policy arrangement with a focus on horizontal and vertical collaborations between a local government and other actors beyond the municipality is in retrospect seen as adequate theoretical grounding of the data collection and analysis phases. The findings clearly showed that it is not meaningful to analyze LCC policies as a spatial phenomenon limited to municipal boundaries. A plethora of different actors play decisive parts in initiating and shaping LCC actions - a notion recognized by the multilevel governance

approach via inclusion of horizontal and vertical forms of collaboration. However, I recognized that such a multilevel framework is, by its very nature, more comprehensive and messier than previously dominant research frameworks studying LCCs that focus solely on one single in-depth case study in form of a transnational network, national framework or specific LCC. Therefore, when reflecting on the theoretical framework, I would argue that a lack of research focus made it impossible to go into more depths, and a more narrow theoretical framework, such as transnational urban governance, would potentially brought to the fore more insights about certain horizontal relationships. Conversely, though, such a narrower focus would go hand in hand with loss of insights into vertical collaborations, only providing a partial picture of what factors influenced a local low-carbon program. Even though the multilevel governance framework made the analysis less opaque, it is nonetheless argued that it allowed for a more comprehensive analysis of the LCC policy arrangement in Thailand by including as many suggestive factors as possible that shaped LCC programs.

The PAA found application as an intermediary conceptual method that allowed for the operationalization of the theoretical framework by focusing on four pre-determined dimensions argued making up a policy. It helped to structure the research coherently and will allow for comparisons with follow-up studies following a similar approach. Analyzing each of the PAAs dimensions separately allowed to gain a better understanding of the institutionalization of the LCC policy in Thailand, as well as directing the researcher towards factors responsible for change.

When reflecting on the methods chosen for data analysis, the reasoning used when justifying their choice in chapter 3 still are valid. I am not going to repeat the well-known shortcomings of a qualitative, case-study based research with regard to validity and replicability. However, two practical main limitations were identified. Firstly, the language barrier that existed between the researcher and all interviewees, albeit for some to a much greater extent, increased the chances for misunderstandings. Furthermore, questions often had to be rephrased and simplified in order for them to be understood, therewith losing nuances. Secondly, the choice of the case study municipalities in Thailand greatly affected the findings of the research. My selection of case studies, as well as interviewees in general, was limited to respondents that possessed a minimum level of English, therewith excluding the largest number of LCCs and LCC stakeholders in Thailand. This same obstacle was faced by all international actors who wanted to study or implement sustainable city activities. This limitation helped to create iconic, over-researched cases for LCC development in Thailand. Even though these municipalities might have been representative of the LCC policy in general in Thailand during the first policy stabilization, from 2010 onward, the selected municipalities

stood out due to their aggregated resources and long-standing experience. Thus, even though information-based sampling was intentionally chosen in chapter 2 to select well-established and well-networked cities that would uncover the dynamics of the LCC development in Thailand, this sampling method at the same time begs the question to what extent the case municipalities, and especially Klaeng, can be seen as representative of the LCC development at large. Recognizing this potential shortcoming, it must also be stressed that three other LCCs were visited, helping to mitigate this shortcoming by gaining, albeit more limited, insights into three other LCCs.

Lastly, it must be stressed that this thesis research can only be seen as a stepping stone to gain a better understanding of the Thai LCC policy arrangement and playing field. This research deployed a qualitative case study approach to establish a first understanding about the LCC policy arrangement in Thailand, with a focus on two case studies. As mentioned before, since the research was limited to interactions with English-speakers, future research might want to complement this research with a quantitative approach, surveying the overall LCC landscape in Thailand beyond famous and iconic case studies non-Thai speakers are limited to. Close cooperation with intermediary actors is advisable to be able to access their networks and find and analyze less well-established cases. In addition, I visited five well-established and well-known LCCs in Thailand. Thus, generalization attempts are mainly limited to similar such cities. A better understanding about the importance of city climate diplomacy on the initiation and shape of LCCs would be gained by a case study approach that compares such well-connected municipalities with those that have not made used of city climate diplomacy (provided they exist).

The following subchapter concludes this thesis by suggesting eleven recommendations for LCC stakeholders based on the findings and discussion.

6.3. RECOMMENDATIONS

In the light of the discussion above, insights into why and how small- and medium-sized cities in Thailand implement LCCs and to what extent those LCCs are shaped by climate diplomacy in form of horizontal and vertical collaboration were gained through comparison with previous studies. These insights are meant to help fill the research gap identified in the literature review, namely provide evidence for LCC governance and diplomacy in small- and medium-sized city context in a developing country, represented by Thailand. It became clear that a lot of the findings extracted from studies in the global North and projected to be valid for cities in general indeed also apply to the Thai case. However, as became clear, there were also significant unexpected differences in why and how municipalities in Thailand implemented LCC actions, and especially also with regard to claims about city climate diplomacy proactivity. A lot of very sensible actions have been taken in the fifteen years since the emergence of the sustainable city/LCC discourse in Thailand and it has evolved and spread. Many ingenious urban mitigation experiments are on-going in Thailand, driven by influential and motivated individuals at all governance levels and best-practice examples were established that received fame throughout the region. Despite of many positive developments, a number of key recommendations are extracted for practitioners in Thailand focusing on areas that are subjectively deemed to be in need of improvement and are presented below.

I. The LCC policy is not diffused widely and the impact is very limited so far, in spite of institutionalization attempts by government actors. Better cooperation between varying international collaborators, government agencies, intermediary actors and local governments can improve the impact of LCC policies, for example via the creation of a national spin-off of the ASEAN working group on sustainable cities, and make their contribution to Thailand's NDC meaningful.
II. Small- and medium-sized cities in Thailand have much less control over LCC relevant sectors, budgets and functions than their peers in developed countries. Therefore, it is recommendable to focus on mitigation actions in the waste sector alone, since municipalities often have a high level of control and such actions have proven to deliver multiple mitigation co-benefits locally at a low-cost, making LCC action more appealing to local stakeholders. Measuring GHG emission in the waste sector is considerably more straightforward than in other sectors, basically only focusing on a city's methane emissions, and double accounting can be avoided easier (Marr & Wehner, 2014).
III. There are 2300+ municipalities in Thailand (as opposed to only around 154 in Malaysia, for example). Implementation of LCC programs in all Thai municipalities is impossible and counterproductive. Thus,

it ought to be focused on a number of representative municipalities that have significant mitigation potential, and can cooperate with adjacent municipalities to tackle the waste problem.

IV. Further promote intra-country and South-South cooperation to increase sense of ownership and feasibility, as well as showcase possibility to utilize low-cost options in cities facing the same climate change related challenges and economic profiles.

V. Competitions have proven viable incentivizing instruments. It is recommended to create a tiered-LCC scheme with different categories for frontrunner, forerunner and laggard cities, increasing healthy competition and incentivizing municipality's to hold their position or rise in rank.

VI. Capacity-building activities often focused on mayors and the highest-ranked civil servants, which most often only hold office for a limited number of years. Distinguish between general and technical capacities and focus on lower-ranking permanent municipal officers for training activities.

VII. International hybrid network collaborators ought to harmonize their tools, methodologies and approaches, putting local efficiency of their programs first. Focus on a few cities to avoid passive network membership and superficial commitments. Establish objective and transparent selection criteria that go beyond mere willingness of local governments to cooperate and personal networks, while at the same time ensuring that communication and cooperation among the various international networks is taking place.

VIII. Overhauling outdated legislation is vital in making local LCC policies more effective and diffusing it to more municipalities, as well as allowing the private sector and city-to-city networks to become more involved. To realize a small- and medium-size city's true comparative advantage when compared to large ones - i.e. the avoidance of carbon lock-in - more functions have to be transferred to cities for mayors to become active in sustainable urban planning.

IX. Labelling mitigation actions as LCC is misleading, since climate change mitigation was never the focus of the local low-carbon programs; rather, sustainable city development with quantification attempts in form of inventories and carbon footprints. It is recommended to focus on a holistic urban environmental management approach resistant to international trends to allow for more continuity and reliability, including a mitigation component in form of a project under a sustainable city program.

X. Local governments should better be enabled to make informed decisions as to whether cooperation with international collaborators brings additional benefits to the already ongoing sustainable city/LCC activities. The institutionalization of a foreign affairs committee with multi-stakeholder involvement under the auspices of TGO or NMT would allow for the creation of a central project database,

furthermore allowing international resources to be distributed more evenly and to local authorities that are in need of them most direly, while curbing rent-seeking behavior.

XI. Lastly, local governments are overwhelmed by the varying discourses, methodologies, projects, and ideas. International standards are often not international in nature, but were custom-made for municipalities in very different contexts. Therefore, it is recommended to further institutionalize and simplify LCC procedures. As opposed to claims in the literature, cities are not alike around the world. What is true, however, is that certain types of cities resemble each other a lot, for example small-cities within ASEAN. Make use of the similarities between such city categories by developing a blueprint inventory and action steps, obviating the need for each small, resource-constrained local government to conduct a technical GHG inventory, meticulously collect a whole range of data and all-sector and gases encompassing LCC program. As desired by the local practitioners, make sure knowledge is practical, not abstract and theoretical, and rely more on common sense.

BIBLIOGRAPHY

Acuto, M. (2013). The new climate leaders?. *Review of International Studies*, *39*(04), 835-857.

Acuto, M., Morissette, M., & Tsouros, A. (2016). City Diplomacy: Towards More Strategic Networking? Learning with WHO Healthy Cities. *Global Policy*.

Acuto, M., Morissette, M., Chan, D., Leffel, B. (2016). 'City Diplomacy' and Twinning: Lessons from the UK, China and Globally. City Leadership Initiative, Department of Science, Technology, Engineering and Public Policy, University College of London, January, 2016. Future of Cities: Working Paper. Accessed on December 1, 2016, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/545780/gs-16-13-future-of-cities-diplomacy-uk-china-twinning.pdf

ADB (2016). Southeast Asia and the Economics of Global Climate Stabilization. Asia Development Bank. Available at http://www.adb.org/publications/southeast-asia-economics-global-climate-stabilization

Ahebwa, W. M. (2012). *Tourism, livelihoods and biodiversity conservation: an assessment of tourism related policy interventions at Bwindi Impenetrable National Park (BINP), Uganda*. PhD dissertation, Wageningen University, Netherlands.

Amul, G.. & Shrestha, M. (2015). Cities and Climate Diplomacy in the Asia Pacific. Centre for Non-Traditional Security (NTS) Studies, S. Rajaratnam School of International Studies (RSIS). Available at https://www.climate-diplomacy.org/news/cities-and-climate-diplomacy-asia-pacific

Andonova, L. B., Betsill, M. M., & Bulkeley, H. (2009). Transnational climate governance. *Global environmental politics*, *9*(2), 52-73.

Anguelovski, I., & Carmin, J. (2011). Something borrowed, everything new: innovation and institutionalization in urban climate governance. *Current Opinio.*

APEC (2014). The Concept of the Low-Carbon Town in the APEC Region. Third Edition, January 2014. Asia-Pacific Economic Cooperation Low Carbon Model Town Task Force. Accessed on December 2, 2016, http://aperc.ieej.or.jp/publications/reports/lcmt/LCMT_Concept_Third_Edition.pdf

Arnouts, R., van der Zouwen, M., & Arts, B. (2012). Analysing governance modes and shifts—Governance arrangements in Dutch nature policy. *Forest policy and economics*, *16*, 43-50.

Asian Institute of Technology (2013). Actions towards Resource-efficient and Low-carbon Cities in Asia: Experiences and Highlights. Asian Institute of Technology, Klong Luang, Thailand. http://lcc.ait.asia/publication/ADEMEBOOKLET-18_Final.pdf

Asia LEDS Partnership (2013). Case Studies on Low Emission Development: Thailand's Low Carbon City Initiative. Accessed on November 5, 2016.

ASEAN (n.d.). ASEAN Cooperation on Environmentally Sustainable City. Accessed on February, 2, 2016, http://environment.asean.org/asean-working-group-on-environmentally-sustainable-cities/

ASEAN Model Cities Programme (2011). Thailand: Model City Activities Fact Sheet - Muangklang. Regional Secretariat, IGES. Available at http://modelcities.hls-esc.org/wp-content/uploads/2015/07/Country-City-Fact-Sheet-25-Aug-2011-MuangKlang.pdf

ASEAN Secretariat (2016). ASEAN Socio-Cultural Community Blueprint 2025. Jakarta, Indonesia.

ASFN (n.d.). Intended Nationally Determined Contributions from Forestry in ASEAN Countries: Policy Paper. ASEAN Social Forestry Network. Jakarta, Indonesia.

Arts, B., & Van Tatenhove, J. (2004). Policy and power: A conceptual framework between the 'old' and 'new' policy idioms. *Policy sciences*, *37*(3-4), 339-356.

Bäckstrand, K. (2008). Accountability of networked climate governance: The rise of transnational climate partnerships. *Global Environmental Politics*, *8*(3), 74-102.

Barber, B. (2013). If Mayors ruled the world. *Why cities can and should govern globally and how they already do*.

Batterbury, S. P., & Fernando, J. L. (2006). Rescaling governance and the impacts of political and environmental decentralization: An introduction. *World development*, *34*(11), 1851-1863.

Beermann, J. (2014). Urban partnerships in low-carbon development: Opportunities and challenges of an emerging trend in global climate politics. *urbe. Revista Brasileira de Gestão Urbana*, *6*(2), 170-183.

Bernstein, S., Betsill, M., Hoffmann, M., & Paterson, M. (2010). A tale of two Copenhagens: carbon markets and climate governance. *Millennium-Journal of International Studies*, *39*(1), 161-173. doi: 10.1177/0305829810372480

Betsill, M. 2015. "International Climate Change Policy: Complex Multilevel Governance" in Regina Axelrod and Stacy Van Deveer (eds.) The Global Environment: Institutions, Law and Policy. Washington D.C.: CQ Press, pp. 234-258

Bjola, C. (2013). Keeping the Arctic 'Cold': The Rise of Plurilateral Diplomacy?. Global Policy, 4(4), 347-358.

Bulkeley, H. (2005). Reconfiguring environmental governance: Towards a politics of scales and networks. *Political geography*, *24*(8), 875-902.

Bulkeley, H., & Kern, K. (2006). Local government and the governing of climate change in Germany and the UK. *Urban Studies*, *43*(12), 2237-2259.

Bulkeley (2010). Cities and the Governing of Climate Change. Annual Review of Environment and Resources, 25 (229). 10.1146/annurev-environ-072809-101747

Bulkeley, H. (2013). Cities and Climate Change. Routledge, New York.

Bulkeley, H., & Betsill, M. M. (2013). Revisiting the urban politics of climate change. *Environmental Politics*, *22*(1), 136-154.

Burch, S. (2010). Transforming barriers into enablers of action on climate change: insights from three municipal case studies in British Columbia, Canada. *Global Environmental Change*, *20*(2), 287-297.

Castan Broto, V. & Bulkeley, H. (2013). A Survey of urban climate change experiments in 100 cities. Global Environmental Change, 23(1).

CCFLA (2015). The State of Climate Finance 2015. Cities Climate Finance Leadership Alliance. New York.

Chamniern, P. & Villeneuve, D. (2004). Thailand. In 'Urbanization and Sustainability in Asia: Case Studies of Good Practice. Eds. Roberts, B. & Kanaley, T.. Asian Development Bank, 2006.

Chamniern, P. (2011). Local Practical Responses to Climate Change: Experiences of Local Governments and Schools in Thailand. Presentation given at the 2nd High Level Seminar on Environmentally Sustainable Cities. Kitakyushu, Japan. Available at http://hls-esc.org/documents/2hlsesc/06-2HLS_T2D_ClimateChangeAdaptationThailand_PaulCharmniernRev0511.pdf

Chan, D. (2016). City Diplomacy and "Glocal" Governance: The Missing Link in Sustainable Development. Conference Paper for the International Conference on Sustainable Development, 2016, accessed on December 2, 2016, http://ic-sd.org/wp-content/uploads/sites/4/2016/06/ICSD_submission_Dan_Koon-hong_Chan_City_diplomacy.pdf

Chardchawarn, S. (2010). Local Governance in Thailand: The Politics of Decentralization and the Roles of Bureaucrats, Politicians and the People. V.R.F. Series, 459. Institute of Developing Economies, Japan External Trade Organization.

Chiang Rai Municipality (2012). Urban Ecosystems and Biodiversity Conservation towards Low Carbon City and Climate Change Resilience of Chiang Rai CIty, Thailand. Brochure, Chiang Rai Municipality.

Chinvanno, S. and V. Kerdsuk (2013). Mainstreaming Climate Change into Community Development Strategies and Plans: A Case Study in Thailand. *Adaptation Knowledge Platform, Partner Report Series No. 5.* Stockholm Environment Institute,Bangkok.

Chutinthorn, P. (2014). Thailand's Environmentally Sustainable Transport Master Plan: Low EMissions Development Strategies and the Transportation Sector. Presentation OTP. Accessed on November 12, http://www.gms-eoc.org/uploads/resources/420/attachment/2.6.Thailand-Low-Carbon-Transport-Policy-Chutinthorn-Pradiphthet.pdf

CIA (2016). The World Factbook. Central Intelligence Agency. Available at https://www.cia.gov/library/publications/resources/the-world-factbook/

Clapp, J. & Dauvergne, P. (2011). Chapter 3"The Globalization of Environmentalism" in Paths to a Green World: the Political Economy of the Global Environment, MIT Press, 2nd edition.

Climate Change Commission (2015). Republic of the Philippines: Intended Nationally Determined Contributions. Communicated to the UNFCCC October 2015.

http://www4.unfccc.int/submissions/INDC/Published%20Documents/Philippines/1/Philippines%20-%20Final%20INDC%20submission.pdf

Corfee-Morlot, J., Cochran, I., Hallegatte, S., & Teasdale, P. J. (2011). Multilevel risk governance and urban adaptation policy. *Climatic change*, *104*(1), 169-197.

Daalder, I. (2015). A new global order of cities. Financial Times, May 26, 2015, https://www.ft.com/content/a5230756-0395-11e5-a70f-00144feabdc0#axzz3bKPqcdmE

DELGOSEA (2012). Short Memo: Miss-Recycle-beauty Pageant in Chiang Rai. DELGOSEA Website, accessed November 3, 2016, http://www.delgosea.eu/cms/News/Short-Memo-Miss-Recycle-Beauty-Pageant-in-Chiang-Rai

DELGOSEA (2014). Short Memo: Spreading Chiang Rai's Low Carbon Approach. DELGOSEA Website, accessed November 3, 2016, http://www.delgosea.eu/cms/layout/set/print/News/Short-Memo-Spreading-Chiang-Rai-s-Low-Carbon-Approach

DELGOSEA (n.d.) Chiang Rai City, Thailand. Accessed December 5, 2016, http://www.delgosea.eu/cms/Pilot-Cities/Chiang-Rai-City-Thailand

den Exter, R., Lenhart, J., & Kern, K. (2015). Governing climate change in Dutch cities: anchoring local climate strategies in organisation, policy and practical implementation. *Local Environment*, *20*(9), 1062-1080.

DEDE (2012). Alternative Energy Development Plan 2012-2021. Ministry of Energy, Thailand. Translation by R. Cheokul. Accessed on November 16, 2016, http://www.asialeds.org/resource/alternative-energy-development-plan-2012-2021-thailand/

Dick, E. (2016). Staedte brauchen mehr als Symbole. Frankfurter Rundschau. 21. October, 2016. Accessed November 3, 2016, http://www.fr-online.de/gastbeitraege/gastbeitrag-staedte-brauchen-mehr-als-symbole,29976308,34874138.htmlf

European Central Bank (n.d.) Euro Foreign Exchange Reference Rates. Website. Accessed on January 3, 2016, https://www.ecb.europa.eu/stats/exchange/eurofxref/html/index.en.html

EEA (2015). Global megatrend update 9: Increasingly severe consequences of climate change. European Environment Agency. Available at http://www.eea.europa.eu/publications/global-megatrend-update-9-climate-change

Fankhauser, S., & Hepburn, C. (2010). Designing carbon markets, Part II: Carbon markets in space. *Energy Policy*, *38*(8), 4381-4387.

Fischer, K., Dellas, E., Schreiber, F., Acuto, M., London, D., Taenzler, D., Carius, A. (2015). Urbanization and Climate Diplomacy: The Stake of Cities in Global Climate Governance. Climate Diplomacy Series. Berlin: Adelphi.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, *12*(2), 219-245.

Gouldson, A., Colenbrander, S., Sudmant, A., Godfrey, N., Millward-Hopkins, J., Fang, W. and Zhao, X. (2015). Accelerating Low-Carbon Development in the World's Cities. Contributing paper for Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate. New

Climate Economy, London and Washington, DC. Available at: http://newclimateeconomy.report/misc/working-papers.

Gouldson, G. Sullivan, R. & P. Webber (2012). Funding Low Carbon Cities: Mapping the Risks and Opportunities. Center for Climate Change Economics and Policy, Working Paper No. 113. http://www.cccep.ac.uk/Publications/Working-papers/Papers/110-119/WP113-funding-low-carbon-cities.pdf

GTZ (2009). Clean Air for Smaller Cities in the ASEAN Region: Thailand Country Profile.. Deutsche Gesellschaft für Internationale Zusammenarbeit.

Gustavsson, E., Elander, I., & Lundmark, M. (2009). Multilevel governance, networking cities, and the geography of climate-change mitigation: two Swedish examples. *Environment and Planning C: Government and Policy*, *27*(1), 59-74.

Hammersley, M., & Atkinson, P. (2007). *Ethnography: Principles in practice*. Routledge.

Hoffmann, M. J. (2011). *Climate governance at the crossroads: experimenting with a global response after Kyoto*. Oxford University Press.

Hoornweg, D., Sugar, L. Freire, M. Anderson, C. Bhada, P. Lorena Trejos, C., Dave, R. & Lee. M. (2010). Cities and Climate Change: An Urgent Agenda. Washington D.C.: The World Bank Group. http://eau.sagepub.com/content/early/2011/01/08/0956247810392270.full.pdf+html

Hsu, A., Moffat, A. S., Weinfurter, A. J., & Schwartz, J. D. (2015). Towards a new climate diplomacy. *Nature Climate Change*, *5*(6), 501-503.

IGES, n.d.) ASEAN ESC Model CIties (website). Accessed on November 20, 2016, http://aseanmodelcities.org/.

Intergovernmental Panel on Climate Change Secretariat (2014). Climate Change 2014: Synthesis Report. Geneva, Switzerland. Available at http://www.ipcc.ch/news_and_events/docs/ar5/ar5_syr_headlines_en.pdf

IPCC (2014). Climate Change 2014. Synthesis Report. Intergovernmental Panel on Climate Change. Available at https://www.ipcc.ch/news_and_events/docs/ar5/ar5_syr_headlines_en.pdf

Kauffman, C. M., & Martin, P. L. (2014). Scaling up Buen Vivir: globalizing local environmental governance from ecuador. *Global Environmental Politics*, *14*(1), 40-58.

Keating, M., & Aldecoa, F. (Eds.). (1999). *Paradiplomacy in action: the foreign relations of subnational governments*. Frank Cass.

Keidanren Nature Conservation Fund (Website). Supported Projects 2008. Accessed on November 4, 2016, https://www.keidanren.net/kncf/archive/en/projects2008.html

Kelly, S. (2013). Action towards resource-efficient and low carbon cities in Asia. Asian Institute of Technology. Accessed February 2, 2016, http://www.ait.ac.th/news-and-events/2013/news/action-towards-resource-efficient-and-low-carbon-cities-in-asia/#.WEqae306j3h

Kennedy, C., Steinberger, J., Gasson, B., Hansen, Y., Hillman, T., Havranek, M., ... & Mendez, G. V. (2009). Greenhouse gas emissions from global cities. *Environmental science & technology*, *43*(19), 7297-7302.

Kern, K. & Alber, G. (2008). Governing climate change in cities: modes of urban climate governance in multi-level systems. *Competitive Cities and Climate Change*, *171*.

Kjellén, B. (2004). Pathways to the Future: The New Diplomacy for Sustainable Development. IDS Bulletin, 35(3), 107-113.

Kousky, C., & Schneider, S. H. (2003). Global climate policy: will cities lead the way?. *Climate Policy*, *3*(4), 359-372.

Krause, R. (2010). Policy Innovation, Intergovernmental Relations, and the Adoption of Climate Protection Initiatives by U.S. Cities. Journal of Urban Affairs, 33(1).

Lasco, R., Lebel, L., Sari, A., Mitra, A. P., Tri, N. H., Ling, O. G., & Contreras, A. (2004). Integrating carbon management into development strategies of cities–establishing a network of case studies of urbanisation in Asia Pacific. *Final Report for Asia-Pacific Network project*.

Lehmann, S. (2015). *Low Carbon Cities: More than Just Buildings*. Lehmann (Eds.). Routledge, London & New York.

Lewis, J., & Ritchie, J. (2003). Generalising from qualitative research. *Qualitative research practice: A guide for social science students and researchers*, 263-286.

Lutsey, N., & Sperling, D. (2008). America's bottom-up climate change mitigation policy. *Energy Policy*, *36*(2), 673-685.

Lee, T. (2014). *Global cities and climate change: the translocal relations of environmental governance*. Routledge.

Lemos, M. C., & Agrawal, A. (2006). Environmental governance. *Annu. Rev. Environ. Resour.*, *31*, 297-325.

Leng, R. J. (2002). Quantitative International Politics and Its Critics. *Evaluating Methodology in International Studies*, 116-130.

Ling, C. W. M. (2010). Facing the storm through the market: harnessing carbon markets to power Southeast Asia's green development. *Regional Outlook*, 72.

Lopez-Casero, F., Cadman, T., & Maraseni, T. (2013). Quality-of-governance standards for carbon emissions trading: developing REDD+ governance through a multi-stage, multi-level and multi-stakeholder approach.

Lupovici, A. (2009). Constructivist methods: a plea and manifesto for pluralism. *Review of international studies*, *35*(01), 195-218.

Maoz, Z. (2002). Case study methodology in international studies: From storytelling to hypothesis testing. *Evaluating Methodology in International Studies: Millennial Reflections on International Studies*, 161-86.

Mahakanjana, C. (2014). Decentralization Reforms and Social Changes in Thai Municipal Governments. *Thai Journal of Public Administration (วารสาร รัฐประศาสนศาสตร์)*, *12*(2), 9.

Marr, M.A. & S. Wehner (2014). *Cities and Carbon Finance: A Feasibility Study on an Urban CDM*. UNEP Division of Technology, Industry and Economics and Gwangju City. http://www.unep.org/urban_environment/PDFs/UNEP_UrbanCDMreport.pdf

McGrath, M. (2016). Four major cities move to ban diesel vehicles by 2025. British Broadcasting Corporation, December 2, 2016. Accessed on December 6, 2016, http://www.bbc.com/news/science-environment-38170794

McGuirk, P., Dowling, R., Brennan, C., & Bulkeley, H. (2015). Urban Carbon Governance Experiments: The Role of Australian Local Governments. *Geographical Research*, *53*(1), 39-52. Available at http://onlinelibrary.wiley.com/doi/10.1111/1745-5871.12098/full

Menikpura, N., Sang-Arun, J., & Bengtsson, M. (2012). Policy brief: towards climate-friendly waste management: the potential of integrated municipal solid waste, Institute of Global Environmental Strategies.

Ministry of Energy (2013). Thailand 20-Year Energy Efficiency Development Plan (2011-2030). Ministry of Energy, Thailand. Accessed on November 16, 2016, http://www.asialeds.org/sites/default/files/resource/file/EEDP_Eng.pdf

Moeliono, M., Wollenberg, E. & Limberg, G., (2009). Between State and Society: Decentralization in Indonesia. In J. A. Sayer (Eds.), *The Decentralization of Forest Governance.* London, England: Earthscan. Retrieved from: http://www.cifor.org/publications/pdf_files/books/bmoeliono0801.pdf

Moomaw, W. R., Bhandary, R. R., Kuhl, L., & Verkooijen, P. (2016). Sustainable Development Diplomacy: Diagnostics for the Negotiation and Implementation of Sustainable Development. *Global Policy*.

Nakamura, H. (2013). National and Subnational Linkages to Enable Low Carbon Development at the Subnational Level in Developing Countries: The Cases of Thailand and the Philippines. Institute for Global Environmental Strategies. IGES Discussion Paper No. GC-2012-04. March 2013.

Nuntavorakarn, S. et al. (2014). The Survey and Assessment of the Appropriate Share of Climate Change Actions in Developing Country: the Case of Thailand. Healthy Public Policy Foundation. Nonthaburi, Thailand.

Ochieng, A., Visseren-Hamakers, I. J., & van der Duim, R. (2017). The battle over the benefits: analysing two sport hunting policy arrangements in Uganda. *Oryx*, 1-10.

Office of the National Economic and Social Development Board (n.d.). 11th National Economic and Social Development Plan. Bangkok, Thailand.

Okereke, C., Bulkeley, H., & Schroeder, H. (2009). Conceptualizing climate governance beyond the international regime. *Global environmental politics*, *9*(1), 58-78.

ONEP (2010). Thailand's Second National Communication under the UNFCCC. Ministry of Resources and Environment. Bangkok, Thailand.

ONEP (2015). Thailand's Intended Nationally Determined Contribution. Office of Natural Resources and Environmental Policy and Planning. Bangkok, Thailand.

Ong-La, S. & Kamuang, T. (2012). Urban Ecosystem and Biodiversity Conservation towards Sustainable City and Climate Change Resilience. In 'Deserving and Outstanding Initiatives of the 2012 GUangzhou International Award for Urban Innovation'. Available at http://www.metropolis.org/sites/default/files/2012_guangzhou_international_award.pdf

Park, M. S. (2015). Inter-Korean Forest Cooperation 1998–2012: A Policy Arrangement Approach. *Sustainability*, *7*(5), 5241-5259.

Partnership for Market Readiness (2016). PMR Project Implementation Status Report (ISR). Accessed on November 16, 2016, https://www.thepmr.org/system/files/documents/Thailand%20PMR%20Project%20Implementation%20Status%20Report_30%20Sep%2016.pdf

Pipitsombat, N. (2012). Thailand Climate Policy: Perspectives beyond 2012. Presentation ONEP. Accessed on November 14, 2016, http://www.asialeds.org/sites/default/files/resource/file/onep_climate_policy_en.pdf.

Pongloe, P., Wijaya, A. F., & Mindarti, L. I. (2015). Low Carbon City Policy Implementation in Muangklang Municipality, Thailand. *International Journal of Applied Sociology*, *5*(2), 99-105.

Lewis, J., & Ritchie, J. (2003). Generalising from qualitative research. *Qualitative research practice: A guide for social science students and researchers*, 263-286.

Sate, S. (2016). LCCs - Sharing experiences of LCCs: programs, monitoring, funding. Presentation at Workshop in Linking low-carbon cities to carbon markets: challenges and opportunities in Southeast Asia. 23-24. February 2016, Bangkok, Thailand.

Schiermeier, Q. (2012). Hot air. *Nature*, *491*(7426), 656-658.

Schreurs, M. A. (2008). From the bottom up local and subnational climate change politics. *The Journal of Environment & Development*, *17*(4), 343-355.

Schultz, S., Bailey, T., Ast, E., Russel, B., Morris, E., Kirk, P., Frost, L., Gibbons, A., Hurst, T., O'Brien, H., Ozmumcu, A., Acuto, M., Rapaport, E., Ram, J. & Hill, L. (2015). Powering Climate Action: Cities as Global Changemakers. C40, Arup and University College London, London, UK.

Sippel, M., & Jenssen, T. (2009). What about local climate governance? A review of promise and problems.

Sirinapaporn, P. (2015). Thailand's Climate Change Policy. Presentation ONEP. Accessed on November 14, 2016, http://thai-german-cooperation.info/download/20150120_01_cca_thai_cc_policy.pdf.

Siyapan, A. (2011). Best Practice 11, Low Carbon City, Muangklang, Thailand. In 'Best Practices for Local Governance in Urban Public Service Delivery in Southeast-Asia'.

Smith, S. (2015). The Asia-Pacific Integrated Model (AIM) & policy making for low-carbon growth in Asia: a case study of Thailand. Asia LEDS Partnership. Available at http://ledsgp.org/resource/the-asia-pacific-integrated-model-case-study-thailand/?loclang=en_gb

Smits, M. (forthcoming). The New (Fragmented) Geography of Carbon Market Mechanisms: Governance Challenges from Thailand and Vietnam. Global Environmental Politics.

Sovacool, B. K., & Brown, M. A. (2010). Twelve metropolitan carbon footprints: A preliminary comparative global assessment. *Energy policy*, *38*(9), 4856-4869.

Suphot, T. (2015). ASEAN ESC Community: Beyond 2015. Ministry of Natural Resources and Environment. Presentation. Available at http://hls-esc.org/documents/6hlsesc/PL05%20-%20Thailand.pdf

Tavares, R. (2016). Forget the nation-state: cities will transform the way we will conduct foreign affairs. World Economic Forum. Accessed August 16, 2016, https://www.weforum.org/agenda/2016/10/forget-the-nation-state-cities-will-transform-the-way-we-conduct-foreign-affairs/

TEI (n.d.). About TEI. Thailand Environment Institute. Accessed December 6, 2016, http://www.tei.or.th/about/index.htm

TEI (n.d.a). Asian Climate Change Resilience Network. Brochure by Thailand Environment Institute and the Rockefeller Foundation, Pak Kret, Thailand.

TGO (2011). Klang Model: Policy and Practice for a Small Low Carbon City. Thailand Greenhouse Gas Management Organization. Bangkok, Thailand. Accessed on November 2, 2016, https://sustdev.unescap.org/Files/Thailand%20%20Klang_Model_Policy_and_Practice_for_Small_Low_Carbon_City.pdf

TGO (2014). Thailand's Market Readiness Proposal (MRP). Partnership for Market Readiness (PMR). Accessed on January 14, 2016, https://www.thepmr.org/system/files/documents/Final%20MRP_Thailand_07022014.pdf

TGO (2016). Thailand Partnership for Market Readiness (PMR). Presentation at Workshop in Linking low-carbon cities to carbon markets: challenges and opportunities in Southeast Asia. 23-24. February 2016, Bangkok, Thailand.

Todoc, J. & Suwanhong, C. (2008). Study of Practice Diffusion and Adoption Process under the CIties for Climate Protection program in Thailand: Final Report. Siam CIE International Co. Ltd., October 2008, Rayong, Thailand.

Torrie, R. (2015). Low carbon futures in Canada – the role of urban climate change mitigation: Briefing on urban energy use and greenhouse gas emissions. Stockholm Environment Institute, Seattle, USA. Available at https://www.sei-international.org/mediamanager/documents/Publications/Climate/Cities-low-carbon-future-2015-Canada-briefing.pdf

Toyota Stop Global Warming (n.d.). The Stop Global Warming Project (website). Accessed on November 4, 2016, http://www.toyota-sgw.net/aboutus.php?lang=en

UCLG (n.d.). Development Cooperation and City Diplomacy. Accessed on December 2, 2016, https://www.uclg.org/en/organisation/structure/committees-working-groups/development-cooperation-and-city-diplomacy

UNDP Asia-Pacific Regional Center, UNEP Regional Office for Asia and the Pacific, UNCDF (2013). Financing Local Responses to Climate Change: Implications of Decentralisation on Responses to Climate Change.

UNDP (2015). Achieving Low Carbon Growth in Cities through Sustainable Urban Systems Management in Thailand (LCC). Request for CEO Endorsement. Global Environment Facility. Available at https://www.thegef.org/sites/default/files/project_documents/PIMS_4778_THA_LCC_CER_Doc_resub_FINAL_040416_0.doc.

UNDP Asia-Pacific Regional Center, UNEP Regional Office for Asia and the Pacific, UNCDF (2013). Financing Local Responses to Climate Change: Implications of Decentralisation on Responses to Climate Change.

University of Southern California (n.d.). Organizing Your Social Science Research Paper. Accessed on October 11, 2016 at http://libguides.usc.edu/writingguide.

United Nations Framework Convention on Climate Change (1992). Text of the Convention. Available at http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

United Nations Framework Convention on Climate Change (2015). The Paris Agreement. https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

United Nations Framework Convention on Climate Change (n.d.). Global Climate Action in Cities: Chiang Rai. Accessed on November 2, 2016, http://climateaction.unfccc.int/city/chiang-rai/thailand

Van der Pluijm, R., & Melissen, J. (2007). *City diplomacy: the expanding role of cities in international politics*. Netherlands Institute of International Relations' Clingendael'.

Van Eerd, M. C., Weiring, M. A., & Dieperink, C. (2014). Exploring the prospects for cross-border climate change adaptation between North Rhine-Westphalia and the Netherlands. *Utrecht L. Rev.*, *10*, 91.

Veenman, S., Liefferink, D., & Arts, B. (2009). A short history of Dutch forest policy: The 'de-institutionalisation' of a policy arrangement. *Forest Policy and Economics*, *11*(3), 202-208.

While, A. & M. Whitehead (2013). Cities, Urbanism and Climate Change. Urban Studies, 50(7), 1325-1331. doi: 10.1177/0042098013480963

Wiering, M., & Immink, I. (2006). When water management meets spatial planning: a policy-arrangements perspective. *Environment and planning C: Government and policy*, *24*(3), 423-438.

Wolff, S. (2007). Paradiplomacy: scope, opportunities and challenges. *The Bologna Center Journal of International Affairs*, *10*(1), 141-150.

World Bank (n.d.). Representative GHG Baselines for Cities and their Respective Countries. Accessed on February 2016, http://siteresources.worldbank.org/INTUWM/Resources/GHG_Index_May_18.pdf

WWF (2014). Muangklang low carbon city. Website. Accessed on Dec. 2, 2016, http://wwf.panda.org/wwf_news/?229194

ANNEXES

ANNEX A - OVERVIEW INTERNATIONAL CITY CLIMATE DIPLOMACY

Source: Fischer et al., 2015

ANNEX B - LIST OF THAI CITIES ENGAGING IN CITY DIPLOMACY

1) Partnership for Democratic Local Governance in Southeast Asia (DELGOSEA) – Best Practice Thematic Area 3 – Low Carbon City

a. Muangklang; Chiang Rai; Pakkret

2) Asian Institute of Technology (AIT); 'Action towards Resource-efficient and Low Carbon Cities in Asia' 2009-2013

a. Chiang Mai, Rayong, Nonthaburi

3) Asian-Pacific Economic Cooperation (APEC); 'The Concept of the Low-Carbon Town in the APEC Region'

a. Samui Island

4) ASEAN Initiative on Environmentally Sustainable Cities (AIESC)

a. Bangkok, Chiang Mai, Krabi, Phuket, Muangklang

5) GIZ – Clean Air for Smaller Cities Project (2009-2015)

a. Chiang Mai, Nakon Ratchasima

6) USAID CityLinks 2011-2016 ASEAN Cities Climate Change Partnership

a. Chiang Rai

7) ASEAN Environmentally Sustainable Model Cities (2011 onward)

a. Chiang Rai, Maehogson, Muangklang, Nongteng, Panus Nikhom, Phichit, Phitsanulok, Renunakhon

8) Municipality League of Thailand (2012–2015) – Promotion of Low Carbon City across Municipalities in Celebration of His Majesty the King's 84th Birthday

a. 84 municipalities participating, 16 low carbon learning centers

9) Asia Pacific Network for Global Change Research – Low Carbon Initiatives Framework

a. Phitsanulok, Nonthaburi

10) Non-State Actor Zone for Climate Action – Registry of low-carbon commitments

a. *Chiang Mai, Chiang Rai, Hatyai, Khon Kaen, Lampang, Nongsamrong, Nonthaburi, Phanat Nikhom, Phitsanulok, Sikhio, Sisaket, Umong, Yasothon*

11) UNDP – Clean City, Clean Mind

a. Nakom Ratchasima

12) International Institute for Environmental Strategies – Capacity Building on Low-Carbon City Development for Local Governments in Asia

a. Nonthaburi, Phitsanulok, Muangklang

13) Carbonn Climate Registry

a. Twenty-five Thai cities registered actions, among them: Chiang Mai, Chiang Rai, Nonthaburi

14) ICLEI Member Cities

a. Bangkok, Chiang Rai, Phuket, Muang Klang

15) ICLEI 'Cities for Climate Protection Participants'

a. *Chiang Mai, Muang Klang, Nonthaburi, Phuket, Rayong, Tungsong*

16) Urban Transformation and Urbanization Research Network (2002-2003)

a. *Chiang Mai, Delhi, Jakarta, Manila, HCM City*

ANNEX C – LIST OF INTERVIEWEES

Name	Organization	Position	Date
I1	National Municipal League of Thailand	LCC Program Manager for National Municipal League of Thailand	23/02/16
L1/P1	Former Mayor Klaeng; Low-Carbon Farm Owner and LCC Resource Person	Former Mayor & LCC Business Owner	29/02/16 + 01/03/16
L2	Klaeng Municipality	LCC Project Manager	29/02/16
L3/L4	Chiang Rai Municipality	LCC CEO and Municipal Clerk; Assistant	04/03/16
I2	Research Unit for Energy, Economic and Ecological Management (3E)	Head of Research Unit for Energy, Economic and Ecological Management, implementing TGO LCC inventories	07/03/16
C1	TGO	Director Greenhouse Gas Information Center	10/03/16
I3	Asian Institute of Technology	Head of Faculty of Energy	10/03/16
I4	Asian Institute of Technology	Associate Professor; Leading LCC scholar	10/03/16
I5	Thailand Environment Institute; WWF	Project Manager Cities for Climate Protection; Project Manager Stop Global Warming; Project Manager WWF Earth Hour	16/03/16

L5	Nonthaburi Municipality	Director of Environment and Health Promotion Division	17/03/16
I6	IGES	Program Manager of Capacity Building Project for Developing City-Level GHG inventories; Manager of ASEAN ESC Model City Program; IGES Country Director Thailand	21/03/16
L6	Phitsanulok Municipality LCC Committee	Heads of Departments of Public Relations, Public Health, Civil Planning, Environment	16/02/16 + 17/02/16
L7	Pak Kret Municipality	Deputy-Coordinator of Nonthaburi's LCC Program Main Coordinator	18/02/16