SPECIAL SECTION ON ECOLOGICAL KNOWLEDGE CO-PRODUCTION IN SOUTHEAST ASIA

Southeast Asian cities as co-producers of ecological knowledge in transnational city networks

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In a polycentric world, cities increasingly bear responsibility for implementing climate policies. To do so, they establish transnational city networks (TCNs), which produce ambitious imaginaries of the future of cities, such as 'smart cities' or 'resilient cities', based on ecological knowledge. This paper analyses Southeast Asian (SEA) cities' participation in TCNs. First, this paper presents city networks operating in SEA. Then, drawing on a case study of Quezon City, this paper shows how SEA cities often position themselves in the network as knowledge consumers rather than (co)producers and prefer to learn from cities in the Global North. This research also shows how TCNs—with limited success—seek to counter this neo-colonial knowledge flow model. The paper contributes to the literature on TCNs, arguing that the ongoing North–South imbalance needs to be addressed if networks are to promote viable models of future SEA cities. Identifying the patterns of knowledge flows inside TCNs, this study argues that networks should assist cities in imagining possible city futures beyond the experiences of the select world and global cities. TCNs should pay more attention to supporting their SEA members in looking 'outwards' to comparable cities worldwide rather than merely 'upwards' to global and mega-cities.

Introduction

The emergence of a more polycentric world is characterized by a shift in power away from states, which have failed to respond adequately to global public demands. Consequently, cities are starting to play an increasingly important role in areas and sectors thus far reserved exclusively for state entities, such as international relations and cooperation on environmental protection, education programmes or urban management. The changing role of cities has been extensively researched by scientists from various disciplines, including geographers, economists and political scientists (Acuto, 2013; Bunnell, 2002; Herrschel & Newman, 2017). Tackling the challenge of climate change is an excellent example of this phenomenon—cities have come to bear the responsibility for the practical implementation of climate policies and have sought to play an active role in state-dominated climate change discourse (Kern, 2019; Wurzel *et al.*, 2019).

One of the actions taken by cities is to organize themselves into transnational city networks (TCNs), in which representatives of cities (e.g., mayors and officials) cooperate, share ecological knowledge and seek to influence global climate policy (Acuto & Leffel, 2021). The system of TCNs is far from balanced, and several authors

(e.g., Davidson *et al*., 2019; Lee & van de Meene, 2012) have argued that there are substantial limits to Southern engagement in the networks. North–South representation in TCNs is imbalanced, and the major city networks (e.g., C40) are led, financed and coordinated mainly by global cities from the North. Publications on the networks' activities focus on the largest cities of the Global North (see Barthold, 2019; Bouteligier, 2012; Lee, 2019), although many researchers have argued that the cities of the Global South are fundamentally different from those of the North and should be analysed differently (Parnell & Robinson, 2012; Schindler, 2017). This approach is a part of the Southern theory (Connell, 2020), which criticizes urban theory based on a small sample of Northern cities falsely presented as universal.

Cities in Southeast Asia (SEA) are involved in TCNs, but their participation in this form of international cooperation has not yet been the subject of a broader scientific analysis. Existing papers are limited in their research scale (e.g., Herrera Amul & Shrestha, 2015) or have a different focus (e.g., Bunnell, 2013; Wu, 2020). This paper closes this gap by analysing SEA cities' participation in the most prominent transnational networks active in the region.

City networks are not just institutions that connect cities; they are actual producers of ecological knowledge in the form of various outputs (Acuto & Leffel, 2021). TCNs produce very ambitious imaginaries of the future of cities in the form of 'smart cities' and 'resilient cities', among others. Therefore, the production of socio-technical imaginaries that constitute visions, narratives and ideas about the future (Jasanoff, 2015) has been chosen as the research context for this analysis. Similar to urban theories dominated by metropolitan (i.e., Western or Northern) knowledge (Connell, 2020), the urban imaginaries produced by TCNs also have a metropolitan bias. Despite their portrayal as universal, those visions are not applicable outside of the Global North, which accounts for only a small majority of urban agglomerations globally.

This article is based on literature review, TCN website analyses, and the results of six semi-structured interviews. Five interviews were conducted with senior officials directly responsible for contacts with SEA cities; working in the global secretariat of ICLEI; or working in SEA regional offices of C40, ICLEI and CityNet. The fifth interview was with the department director of the Quezon City magistrate, who cooperated with TCNs on a daily basis. The in-depth individual interviews, each of which lasted 60–90 minutes, were conducted face to face in April and May of 2019 in Quezon City (Philippines), Singapore and Bonn. The interviews provided insight into how knowledge is co-produced in TCNs, how it moves and how TCNs support SEA cities in their adaptation to imaginaries of urban development.

Based on the identification of the patterns of knowledge flows inside TCNs, this paper argues that the networks should move away from the promotion of 'universal' visions based on the strategies implemented in cities of the Global North and instead assist SEA cities in imagining possible city futures beyond the experiences of the select world and global cities. Using Connolly's (2019) division of looking 'outwards' and 'upwards', TCNs should support their SEA members in looking 'outwards' to comparable cities around the world rather than merely 'upwards' to global and mega-cities. Insights from the interviews show that TCNs have sought to counter this neo-colonial model of knowledge flow and incentivize cities to implement climate policies in the participatory model using local knowledge and best practices from other Southern cities. Unfortunately, these actions have been without much success. This paper contributes to the literature on TCNs, arguing that the ongoing North–South imbalance needs to be addressed if networks are to promote viable models of SEA cities' futures.

The main body of this paper is divided into four sections. The first part presents four major city networks operating in SEA. The second part indicates the imaginaries of urban development produced and promoted by TCNs. The third analyses participation patterns in ecological knowledge co-production amongst SEA cities in the networks. Cities position themselves in the network as knowledge consumers rather than producers and prefer to learn from cities in the Global North and not their Southern peers. The final section presents how TCNs can modify their model of knowledge production to change power relations and reject Northern domination, which is now taken for granted.

City networks in SEA

City networks function not only as advocacy networks for activist mayors (Keck & Sikkink, 2014) and as knowledge networks (Maxwell & Stone, 2004) but also as a form of networked urban governance that holds some potential for global governance in various areas, such as combating climate change (Acuto & Leffel, 2021). There are currently a few hundred networks, but many are not active. They also differ significantly in geographical coverage (global, regional or national), institutional formula (multilateral or international) and functions. They undertake different activities, including information exchange, networking, lobbying, research and setting standards (Lee, 2012; Lee & Jung, 2018).

TCNs often concentrate their activities on supporting cooperation between cities to improve their climate change mitigation and adaptation work (Heikkinen *et al.*, 2020). Some of them have become prominent forms of governance by providing various opportunities for sharing knowledge and expertise. Cities conduct three main types of interactions in transnational networks (Lee, 2019):

1. Socialization: Acquiring standards and patterns of behaviour,
2. Learning: Acquiring information or knowledge to create a program or make organizational changes in the city and
3. Collaboration: Performing tasks together and solving problems.

Networks concentrate their activities on mutual learning and capacity building to undertake climate change-mitigating actions. They also seek to represent the voice of cities in the global environmental discourse. TCNs widely use external expert knowledge, mainly from the Global North, combined with the knowledge of city officers and politicians. This knowledge is then distributed inside the network through different channels (e.g., training, workshops, publications or political declarations) and practices of technical mediation (Voordijk & Dorrestijn, 2021).

Analysing the international climate cooperation in SEA, we can distinguish four networks in which cities from the region are most often involved. These are C40, CityNet, ICLEI and United Cities and Local Governments (UCLG). The first three focus on climate change and environmental issues, while UCLG has a broader agenda. C40 is global and brings together the most significant urban centres, offering them a platform for knowledge sharing and technical assistance and the ability to influence international climate policy. Today, the network includes 97 cities that account for about 25 per cent of the world's GDP. In contrast, CityNet is a regional Asian network with 110 full members and a secretariat located in Seoul. This city is also the main sponsor of the organization, promoting itself internationally (CityNET Official, pers. comm.

Quezon City, 29 April 2019). The network's activities focus on knowledge exchange and networking.

The ICLEI—Local Governments for Sustainability is also a global network of more than 2500 city and regional authorities from more than 100 countries working towards sustainable development. Unlike C40, membership comes at a small fee and is not limited to large metropolises. The main task of the network is to share knowledge and initiate local environmental activities. The organization has as many as 22 local offices to organize activities aimed at members from a given region or country. The organization's flagship programme is the Green Climate Cities Programme (formerly known as Cities for Climate Protection), which offers cities an orderly process for reducing greenhouse gas emissions. The UCLG was established in 2004 as an amalgamation of the International Union of Local Authorities, the United Towns Organization and the World Association of the Major Metropolises. It is the largest organization of subnational governments and the only one recognized by the United Nations. Its primary mission is to represent and defend the interests of local governments on the world stage.

The concept of ecological or environmental knowledge production is undoubtedly the common denominator for all the TCNs under consideration. For instance, CityNet declares on its website that its members 'connect actors, exchange knowledge and build commitment to establish more sustainable and resilient cities' (CityNet, n.d.). Similarly, C40 declares that it 'supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change' (C40, n.d.). It is worth stressing that knowledge production inside the networks is *interactional*, based on meaningful exchanges between scientists and non-scientists (Carolan, 2006) and between experts from different cities.

The concept of ecological knowledge has been conceptualized by many authors, who have focused on different types of knowledge and its production and exchange (Gururani & Vandergeest, 2014; Peterson, 2019). The social nature of ecological knowledge means that it is 'immersed in social practices, identities, norms, customs, discourse, instruments and institutions' (Jasanoff, 2004). Knowledge is co-produced in an interactional process by diverse actors with different interests and values (Forsyth, 2020). The co-production of knowledge is not merely a scientific exercise but rather a political project that aims to 'order the world' (Miller & Wyborn, 2020). Therefore, in the context of this paper, knowledge is co-produced by various social actors, and cities, in the process of learning, acquire this knowledge in order to make program and organizational changes, forecast the future and make knowledge-based decisions (Bennett & Howlett, 1992; Campbell, 2013).

As of 2021, almost 100 SEA cities are members of TCNs. Some of them are engaged in more than one network. This relatively large set of cities extends far beyond the largest Asian metropolises to also include smaller, less globalized secondary cities.[1] While most cities in the SEA region (55 cities) are involved in the ICLEI network, 50 SEA cities are engaged with CityNet. Thirty-two SEA cities (mainly based in Indonesia) are members of UCLG. The SEA representation in C40 consists of seven major cities: Jakarta, Kuala Lumpur, Singapore, Bangkok, Hanoi, Ho Chi Minh City and Quezon City (part of Manila). ICLEI membership is particularly popular with Filipino cities (as many as 34 cities), while CityNet engages more cities in Indonesia and Vietnam. Notably, there is a lack of representation from Lao, Myanmar and Cambodian cities (except Phnom Penh's membership in CityNET) and a relatively small number of Thai cities (Table 1). The vast majority of the cities are involved in cooperation within only

Table 1. Number of SEA cities that are members of the analysed networks as of 2021.

Country	ICLEI	CityNET	UCLG	C40	Total
Indonesia	12	18	22	1	36
Malaysia	6	5	2	1	9
Philippines	34	19	6	1	41
Thailand	3	1	1	1	3
Vietnam	0	6	1	2	6
Cambodia	0	1	0	0	1
Singapore	0	0	0	1	1
Total	55	50	32	7	97

Source: Table produced by author based on networks' official websites.

one network. Against this background, Jakarta and Bangkok stand out, as they work with all four analysed networks. Of particular note is Quezon City, which is not part of the group of 'global cities' but is rather a section of the Manila metropolitan area. It has a very active mayor who has international ambitions and realizes them through activities in TCNs (Quezon City Official, pers. comm., Quezon City, 26 April 2019).

The numbers presented in Table 1 do not tell the whole story of SEA cities' engagement in the networks. In practice, not all members are active in the networks. In the case of ICLEI, only around half of the cities are actively engaged in the network. According to a network official, many cities only cooperate if they are part of a specific project. In the end, it is sometimes difficult to keep these cities active in the network (Project Officer in ICLEI SEA Secretariat, pers. comm., Quezon City, 25 April 2019). Another important factor in cities' cooperation is the leadership and personalities of local leaders. The involvement of mayors and their willingness to pursue their ambitions could foster a city's international cooperation. Lee (2016) also indicated the importance of personal factor as a determinant of a city's activity in networks.

Out of the 97 SEA cities involved in transnational cooperation, almost 80 per cent are from only two countries: the Philippines and Indonesia. Based on interviews with TCN secretariats, there are three possible reasons for this. First, as absolutely all interviewees emphasized, a high level of English proficiency is crucial among mayors and magistrate officials. The inability to communicate easily with the network secretariat and other members is a considerable barrier to cooperation. Even if the networks engage local experts to provide technical assistance to cities, all the documentation produced is in English, creating a vast obstacle for those who are not proficient in the language (C40 Official, pers. comm., Singapore, 3 May 2019).

> The main factor for Southeast Asian cities is that we have different languages. That is the main barrier here. We have members in those countries with a high number of English-speaking populations. We have an office in Vietnam. We have people in Vietnam to communicate in the local language because only a few people really speak English fluently there (Project Officer in ICLEI SEA Secretariat, pers. comm., Quezon City, 25 April 2019).

English proficiency among citizens is undoubtedly a factor facilitating the involvement of Filipino cities. According to the EF English Proficiency Index (2021), Filipinos have a high English proficiency, which is well-above the regional average.

The second problem lies in the resources of networks engaged in the region. The proximity and accessibility of a network's regional secretariat and the number of

employees it has are crucial for attracting new members. Many Filipino and Indonesian cities are members of ICLEI or CityNet since these networks have offices in Manila and Jakarta (Project Officer in ICLEI SEA Secretariat, pers. comm., Quezon City, 25 April 2019). It is much more challenging for networks to regularly engage with countries that do not have regional offices: 'We try to attract non-CityNet members by inviting them. The other obstacle is the very limited resources. Our secretariat in Manila consists of five people, so getting more members on board is challenging' (CityNET Official, pers. comm., Quezon City, 29 April 2019).

The third and perhaps most obvious factor is, the level of decentralization in the individual countries and the political autonomy of local authorities in cities. Indonesia and the Philippines have the greatest decentralization of power, and local authorities have democratic legitimacy, prestige and a relatively wide range of autonomy. As a CityNet representative explained: 'There is strong local autonomy and decentralization in the Philippines, which means that cities are not obliged to get permission from the national government before working with us' (CityNET Official, pers. comm., Quezon City, 29 April 2019). At the opposite end is Vietnam, where some cities, like Da Nang, are centrally managed by a central government. Interestingly, this city is an active member of CityNet, although lengthy procedures for obtaining government approval hamper some meetings. Another example of a centralized country is Thailand, where even the authorities of the capital of Bangkok had to obtain government approval to enter C40. Therefore, the position of cities in the political system and the extent of their autonomy is a determinant in their international involvement (C40 Official, pers. comm., Singapore, 3 May 2019).

The median city size among the TCNs was 339 000 inhabitants. C40 was the only network of big cities, which had an average of 6 million inhabitants. This indicates that a large number of relatively small and less internationally connected Asian cities cooperated within these networks (Table 2). However, this casts doubt on the importance of the globalization factor as identified in Lee's (2016) study. Thus, smaller and less globalized cities can be internationally active as well. This supports criticism of formatting cities' hierarchies on the sole basis of their position in global capital flows (Amin & Graham, 1997; Robinson, 2005).

TCNs have become prominent forms of environmental governance in the region and vocal promoters of ambitious visions of the urban future. Their activities, including mutual learning and capacity building, stimulate cities to take climate actions, including reducing greenhouse gas emissions and addressing other climate-related risks. The next section focuses on those visions of the urban future.

Table 2. Sizes of SEA cities that are members of the TCNs as of 2021.

Network	XXL (> 1 million)	XL (0.5–1 million)	L (0.25–0.49 million)	M (0.1–0.24 million)	S (< 0.1 million)	Average (million)
C40	7	0	0	0	0	6.23
ICLEI	7	12	11	8	15	0.79
CityNet	17	9	10	12	2	1.35
UCLG	8	8	5	10	1	1.23

Source: Table produced by author based on networks' official websites and publicly available data regarding cities' populations.

Cities of the future and future of the cities

Urban imaginaries have been formulated throughout history, but the growing role of cities make them increasingly important. Today, 55 per cent of the world's population lives in urban areas, but this number is expected to increase to 68 per cent by the middle of the century (*UN DESA*, 2018). Thus, the future of cities will be of vital interest to an increasing number of people as they move to these cities. Socio-technical imaginaries are defined as 'collectively held, institutionally stabilised, and publicly performed visions of desirable futures'. The word 'desirable' is vital in this definition because 'efforts to build new socio-technical futures are typically grounded in positive visions of social progress' (Jasanoff, 2015). In this sense, these imaginaries incorporate shared understandings of what would be promising in the future and what would be bad for cities.

Dunn (2018: 381) pointed out six dominant paradigms of urban imaginaries:

- Regulated Cities—urban imaginaries that integrate aspects of rural/country/green living.
- Layered Cities—portrayals that have explicit multiple but fixed levels typically associated with different types of mobilities.
- Flexible Cities—urban imaginaries that allow for plug-ins and changes but are still fixed in some manner to context.
- Informal Cities—present urban imaginaries that suggest much more itinerant and temporary situations and include walking, nomadic, and non-permanent sites for inhabitation.
- Ecological Cities—depictions of urban imaginaries that demonstrate explicit ecological concerns, renewable energies, and low or zero carbon ambitions.
- Hybrid Cities—urban imaginaries that deliberately explore the blurring between physical place and digital space, including augmented reality and 'smart' cities.

Ecological cities and hybrid cities have become the two most dominant paradigms in recent years. They are often bound together in a compelling urban imaginary narrative of the smart city. In this vision, future cities collect and utilize extensive data to address and improve various urban issues and management systems (Townsend, 2013). However, the smart city vision has many current alternatives that focus more attention on the complexity of urban life that cannot be reduced to technologies. A holistic vision of just, equal and green places is formulated in the slogans of a liveable city, a democratic city, a just city, a responsible city, an innovative city and many others (Green, 2020).

TCNs are the leading producers and promoters of these visions, which were particularly visible during the coronavirus pandemic. With 95 per cent of infections occurring in cities (UN-Habitat, 2020), TCNs were the vanguard of the discussion on desirable cities' responses to the crisis. They promoted very ambitious imaginaries of the future of cities that take into account three transformations accelerated by the pandemic: digital, green and social (Kamiński, 2021).

Hitherto, the most comprehensive vision of post-COVID cities development is the C40 Mayors' Agenda for a Green and Just Recovery (C40 Cities Climate Leadership Group, 2020), a report with implementation guidelines. The team, led by Giusseppe Sala, Mayor of Milan, prepared a document showing reconstruction paths for cities to improve public health, reduce inequalities and contribute to the fight against the climate crisis. These principles must be transferred to cities through specific actions that

combine employment, health, equality and environmental activities. The agenda referred to ecological knowledge provided by experts such as *McKinsey* (2020) the UN Sustainable Development Goals or Kate Raworth's (2017) 'doughnut economy' concept downscaled to the city level. The last one is exciting because it offers a revolutionary approach to development goals, decoupling them from economic growth and instead concentrating on the well-being of people and respect for the ecological boundaries of our planet.

Some of the imaginative ideas for urban futures echo the past (Dunn, 2018: 376). The concept of '15 minutes cities', implemented in Paris and some other cities (*Bloomberg Asia Edition*, 2020) and promoted by C40, may serve as a good example. This concept calls for a city transformation allowing all residents to satisfy most of their needs within walking distance or by cycling from their homes. It brings to mind cities from before the industrial revolution, which were much more compact than today. All those imaginaries promoted by the TCNs are based on knowledge co-produced by network members and circulated within the ecosystem of cities networks. The next section analyses the place of SEA cities in this model of knowledge circulation.

Patterns of participation in the networks' models of knowledge circulation

While conducting fieldwork in SEA, I analysed the place of Asian cities in transnational networks. This research confirmed earlier findings of several authors (e.g., Davidson *et al.*, 2019; Johnson, 2017; Lee & van de Meene, 2012; Oliveira & Pal, 2018) who stressed substantial limits to Southern engagement in international networks and neo-colonial patterns of knowledge flows inside those networks. This demonstrates that co-production of knowledge to support global sustainability is influenced by the institutional design of TCNs and power relations among cities, experts, scientists and officials. Social context and the power accorded to diverse participants are important in knowledge co-production. Therefore, Miller and Wyborn (2020) postulated that the process of co-production of knowledge should be (1) inclusive of the diversity of participants and the power accorded to them, as well as (2) reflexive about the inherently political nature of producing knowledge.

The neo-colonial syndrome or metropolitan bias is best seen in how knowledge flows within the network. This process of knowledge production puts certain cities at the centre (Nagendra *et al.*, 2018; Palat Narayanan, 2020). All analysed TCNs followed a very traditional model in which cities from developing countries learned from developed countries to replicate Western forms of development (Connolly, 2019). Although the similarity of local circumstances could make the transfer of knowledge more accessible, network officers admitted that this was rare. Most often, SEA cities were looking for solutions in the cities of the Global North:

> The Southeast Asian cities always mention their mindfulness of learning from other cities, though it may come across as mixed in actual practice. They certainly look up to developed cities such as Tokyo or Singapore. In terms of shorter projects, they look closely at similar cities within developing countries, such as those in Latin America or Africa. For example, Bangkok may observe and analyse every move of Jakarta but also look at the pipeline strategically and pay attention to the actions of Singapore, Seoul, New York or London (*C40 Official*, pers. comm., Singapore, 3 May 2019).

This model of knowledge flow results from the very structure of the networks dominated by cities from developed countries. This structure makes the role of experts from

developed countries and, consequently, their knowledge, more prominent. It enhances the role of experts and the knowledge from these countries and their visions of the urban future. Contrastingly, ecological knowledge and socio-technical imaginaries of the future originating from the region circulate within the network to a much lesser extent. Two other factors strengthen this mechanism of importing models from the North. First is the regular circulation of elites from Southern countries to prestigious Northern universities where they study. Second is the desire among Southern mayors to adopt Northern models to gather international recognition, showing that their cities are as modern, smart, ecological or global as Northern ones (Oliveira & Pal, 2018). Consequently, SEA cities rarely act as producers of knowledge and more often as its consumers: 'Obviously, the developing cities are more in the position of a learner than a sharer of knowledge' (CityNET Official, pers. comm., Quezon City, 29 April 2019).

Nevertheless, it should not be assumed that there is no possibility of knowledge flow from SEA cities on environmental solutions that would be of significant interest to developed cities. Different cities in the South produced successful social policies, and TCNs have started to recognize Southern models and recommend their adoption (Oliveira & Pal, 2018). The interviews identified some interesting examples.

Firstly, developed cities have closely observed how SEA citizens use apps. People living in SEA very eagerly use apps, and therefore cities' authorities have started developing technological solutions to improve citizen services. For example, the City of Jakarta introduced an app that uses flooding data to show residents areas of the city that are at risk of being submerged during heavy rains. The city also experimented with more complex apps that provide citizens with information about traffic conditions, the weather, threat alerts and various other notifications about the state of Jakarta (*The Jakarta Post*, 2020b).

Secondly, much interest has been directed towards some transportation solutions developed in the region. Transjakarta, also located in Jakarta, is one of the longest bus rapid transport systems globally. It is 244 km long, handles almost one million passengers per day and is successfully integrated with informal transit systems. Jakarta was honoured with the 2021 Sustainable Transport Award for its ambitious integrated transport programs (*The Jakarta Post*, 2020a). Jakarta's example is echoed in the words of an ICLEI officer:

> Southeast Asian cities do not have to follow European or American cities. They can use their local solutions for their local problems. For example, they do not need to build underground metros. They can use their own methods because of the special context (ICLEI Officer in Bonn Office, pers. comm., Bonn, 3 April 2019).

Thirdly, some smaller environmental projects attract international attention. For example, in Quezon City, the introduction of an LED-based city lights system is now promoted by the World Bank as an example of good practice (Makumbe *et al.*, 2016) and has led to cooperation with the Brazilian city of São Paulo. The Quezon City government official who I interviewed was surprised by the positive feedback that the city received: 'We see our projects as very routine, but when we present them at an international conference, they are amazed that we have that in a developing country, in Quezon City' (Quezon City Official, pers. comm., Quezon City, 26 April 2019).

The examples presented above demonstrate that SEA cities deserve attention as knowledge producers and are able to share their solutions with peer cities around the world. Despite being well-aware that learning from other developing country cities might be very effective because of economic and social similarities that may foster

successful knowledge transfer, TCN officers have explicitly admitted that this was not very common.

Countering the neo-colonial model

Networks have started to counter the neo-colonial model of knowledge flow, but there is still much work to be done. TCNs have three instruments at their disposal to counter this model: (i) improving the cities' ability to implement pro-climate actions in a participatory model, (ii) using local knowledge to give Southeast Asian cities a voice in global climate discourses and (iii) engaging Southern cities in the process of creating visions of the urban future.

As for the first instrument, some TCNs already promote a participatory model of public policy planning and implementation involving social partners in urban management. They encourage cities to deepen cooperation with local partners (e.g., universities, companies and non-governmental organizations) by demonstrating the benefits of doing so and stressing that this might be a prerequisite for implementing environmental solutions at the city level. The so-called 'triple helix system' is the classical model of production and dissemination of knowledge built on the cooperation and co-production of knowledge in the triangle between public authorities, universities and businesses (Etzkowitz & Zhou, 2017). In the case of sub-national relations, of course, local authorities take over the role of governments. TCNs often initiate or facilitate such cooperation by providing technical assistance or identifying possible partners for a given project.

This is well-illustrated by the case of Quezon City, which, with the help of the C40 network, has been developing solar energy systems in dozens of schools. Initially, city officials lacked not only technological knowledge about the choice of solar panels for buildings but also the idea of an effective model for implementing such a project:

> We did not involve the private sector, our electricity provider, Meralco, when we started this. We saw that need afterwards. In order to be more efficient in doing the solarisation project, we have to engage our private sector partners. That is what we learned from other cities (Quezon City Official, pers. comm., Quezon City, 26 April 2019).

With the support of C40 experts, the city applied a public-private partnership (PPP) system to the project, increasing the project's efficiency and scope. Thanks to the involvement of additional private funds, many more schools have participated in the project. The TCN's support was essential during the preparation of the tender documentation, as local officials had never carried out PPP projects before (Quezon City Official, pers. comm., Quezon City, April 26, 2019).

Another example from the Quezon city is a project to replace streetlights with energy-saving LED lighting. The support of external experts from C40 helped the city to choose from several available technologies and clarified the existing international standards in this field. C40 also connected the city with local Filipino experts in this area with whom the city could cooperate. TCNs act as external knowledge providers and encourage the use of local knowledge and collaboration with universities using proven collaborative models. There is widespread consensus that meaningful non-expert involvement in policymaking can help solve complex environmental problems by contributing local contextual knowledge to the external expertise (Fischer, 2000). However, as one of the TCN officers explained, there are natural limits to such cooperation with local universities, as only a handful of SEA cities have

universities with the capacity to offer valuable support to city officials (Project Officer in ICLEI Southeast Asia Secretariat, pers. comm., Quezon City, 25 April 2019).

Therefore, networks also act as initiators of cooperation between cities and other non-state actors. Stressing the role of dialogue and social participation in implementing urban policies, and integrating these activities into their projects, brings good practices to Asia. Let us look again at the example of Quezon City and the flagship C40 network project to create climate action plans in member cities. Quezon City aims to plan actions to achieve the goals of the Paris Agreement, a global agreement developed in 2015 to reduce global warming. The plans have been created with the help of network experts according to a standardized method. A crucial element of these plans is the inclusion of a broad group of stakeholders in the process, as seen in the description of the method for the plans:

> Successful plan delivery depends on making good strategic use of the prevailing governance structures within and outside the city [. . .]. Coordination with other plans, initiatives and institutions will help to identify complementary efforts and foster collaboration [. . .]. The effectiveness and reach of the published plan will be boosted by comprehensive communications, outreach and advocacy programme. These efforts should target stakeholders (e.g. institutions, other tiers of government, business, civil society) to ensure widespread understanding, participation, and support (C40 Cities Climate Leadership Group, n.d).

Participatory public policy planning is the standard in many Western countries, but it is not common in Asia. Therefore, as Quezon City's case shows, C40 workshops and other forms of inclusion of social partners has introduced higher standards of dialogue with stakeholders.

TCNs can also be the main instrument for Asian cities to influence global climate agreements. As Professor Anthony La Vina, one of the negotiators for climate agreements for the Philippines pointed out, by organizing online and by participating in official delegations of their countries, cities' voices have become much more audible in these generally intergovernmental negotiations (Professor Anthony La Vina, pers. comm., Quezon City, 27 April 2019). Unfortunately, the actual participation and influence of SEA city mayors in the global discourse is still insignificant. Their voices remain much less audible than those of mayors in European or American cities. The C40 representative explained that this was due to the lack of a regional structure that might connect cities and help them agree on a common position and then voice it:

> ASEAN (Association of Southeast Asian Nations) does not have a working group that would deal with climate change, so it is difficult to find a platform for the Southeast Asian cities. The ASEAN Mayors Forum can be found, but it has not come to the point where it could address its key message within the global platforms. The regional platform for mayors is still lacking (C40 Official, pers. comm., Singapore, 3 May 2019).

The absence of such a regional forum is a consequence of the already mentioned small number of interactions between SEA cities. Despite the importance of South–South dialogue involving actors at different levels, the engagement of cities in this dialogue is still limited (Lal, 2012).

As for the involvement of SEA cities in producing imaginaries of urban futures, the picture is also rather grim. The most prominent visions prepared by C40 and ICLEI are products of the North. Out of 11 members of the C40 Task Force preparing the *Agenda for a Green and Just Recovery*, there are no representatives from the SEA region, and only two representatives from developing cities. Out of 35 members of the ICLEI Council

that adopted a document presenting a strategic vision for building a sustainable urban world (ICLEI−Local Governments for the Sustainability, 2018), only three people spoke for SEA.

The applicability of some concepts central to visions of urban future promoted by TCNs is disputable in the Southern cities' context. Progressive strategies implemented in cities of the Global North are often not feasible for Southern cities to replicate. This is primarily due to differences in the finances available for their implementation and population sizes (Connolly, 2018). Taking the circular economy as an example, Kuah and Wang (2020) showed a generally low engagement and uptake of circular economy practices in SEA. Similarly, while low carbon measures can bring substantial economic and social benefits to SEA cities, this might be very difficult to implement. A city's capacity to act might be hindered by a lack of coordination at the national level and integration into different sectoral policies (Gouldson et al., 2016).

Another problem that should be addressed is the apparent lack of synergy between TCNs' visions and SEA national recovery plans. Even if support for a green recovery approach is evident in a regional institution such as ASEAN (ASEAN Comprehensive Recovery Framework, 2020), individual countries in SEA have made only limited choices to use 'green' elements in their recovery plans. Many policies, such as subsidies that lower the cost of electricity generated from fossil fuels, budget cuts for renewable energy projects or financial support for polluting state-owned enterprises, will negatively impact the environment (Lim et al., 2021; Sembiring, 2020). According to Climate Action Tracker (2020), Vietnam lacks policy action for a green economic recovery, and Indonesian emissions reduction pledges are rated highly insufficient. Only the Philippines is advancing the implementation of its Paris Agreement target and has an energy plan that could actually accelerate decarbonization.

As a consequence of the COVID-19 pandemic, the expectation–capacity gap is likely to become more visible. Cities' authorities have many other pressing priorities and limited resources and capacities. Therefore, capacity bottlenecks, such as the management and mobilization of public sector resources, are likely to hinder the implementation of TCNs' visions in SEA (Arnez & Kamiński, 2020).

Finally, TCNs often offer inadequate support to enable the actual transfer of knowledge needed to implement a specific solution from the network to a specific city. Webinars, workshops, conferences and publications are typical activities that foster the realization of specific policies. Usually, networks do not have the resources to offer follow-up and monitoring initiatives (CityNET Official, pers. comm., Quezon City, 29 April 2019), and it is improbable to bring about change without offering technical and financial support to the cities.

C40 is the only network in which knowledge sharing during events is complemented by tailor-made technical assistance for the cities. In the opinion of the Quezon City official, attendance at conferences is insufficient, and implementation of ambitious urban policies would directly depend on the assistance that the city could get from other organizations (Quezon City Official, pers. comm., Quezon City, 26 April 2019).

Conclusions

Almost 100 SEA cities collaborate in TCNs to learn from other cities, market their own best practices and gain recognition as leaders in specific policy areas. Among them are many relatively small and poorly globalized Asian cities, a phenomenon which casts doubt on the importance of the globalization factor identified by Lee (2016) as a

significant determinant of cities' international presence. Evidently, secondary cities with limited global connections can also be active members of TCNs.

TCNs have become vocal promoters of ambitious visions of the urban future. The COVID-19 pandemic accelerated the production of ambitious plans to link economic recovery with mitigating climate change, promoting equity and fostering sustainable development. Those imaginaries of the cities of the future have been mainly produced in the North, with limited engagement of Southern cities, and their applicability in SEA cities is disputable. Among the identified reasons for this, the most prominent are limited capacity and resources, a lack of synergy with national recovery plans and inadequate knowledge transfer mechanisms inside the networks. Visions of the urban future produced by TCNs are in line with the trajectory of recovery plans adopted in the developed world (e.g., the EU, US or South Korea) but quite distant from the reality of SEA. By pointing to the fact that visions of cities' futures are metropolitan biased, this article contributes to the Southern theory critique of hegemonic urban knowledge being produced in the North (Connell, 2020; Palat Narayanan, 2020). The entire ecosystem of knowledge production inside these networks petrifies post-colonial patterns of knowledge flows and the universalized imaginaries of cities' futures.

Analysis of the knowledge circulation in TCNs shows three characteristic patterns. Firstly, SEA cities most often act as consumers of knowledge, and the whole process has a decidedly post-colonial figure, in which the periphery learns from the centre. Institutional culture and established interaction patterns in practice petrify the post-colonial way of transferring knowledge. Secondly, the networks provide technical knowledge and improve the cities' ability to implement pro-climate actions in a participatory model and with local knowledge. Thirdly, SEA cities should use their networks to join in discussions about global climate policy. This is imperative in the absence of a regional political organization that would participate in the climate discourse in the name and interests of local actors from Asia. Unfortunately, despite the declared equality, networks are dominated by wealthy members from the Global North, and the voice of SEA cities is much less present in global climate discourse. Lessons emerging from the practice of knowledge co-production (Miller & Wyborn, 2020) show that TCNs should be more accommodating of diverse participants and their knowledges and more attentive to the power accorded to diverse participants and how it results in including or excluding cities and their knowledge.

The interviewed officials from the networks were aware that the neo-colonial model of knowledge flow, in which SEA cities are passive learners, is deficient. The difficulty for cities from the Global South to imitate ambitious visions of the urban future produced by their peers from the developed world was clear. Interestingly, SEA cities still try to adapt to the North's perhaps overambitious visions rather than proposing and promoting alternative ideas of development that are more applicable to their contexts.

This paper contributes to the literature on TCNs, arguing that the ongoing North–South imbalance needs to be addressed if networks are to promote viable models of SEA cities' futures. Some networks try to counter this by incentivizing cities to develop their local climate policies using the participatory model and local knowledge. They encourage the co-production of knowledge as a cognitive consultation process between scientists and science users (Forsyth, 2020). However, these actions are restrained by the capacity bottleneck—in both cities and networks. Networks should alter their traditional patterns of operation and invest more in assisting cities with imagining possible city futures beyond the experiences of the select world and global cities. In other

words, TCNs should pay more attention to supporting their SEA members in looking 'outwards' to comparable cities around the world rather than merely 'upwards' to global and mega-cities.

Acknowledgements

Endnote

1 Secondary cities can be defined as 'medium-sized administrative, political, industrial, military, transportation, tourism and historical centres which function at a level below primate order or metropolitan region cities. They range in population from 100 000 to 2.5 million but may be larger or smaller depending on the size of a nation's population' (Cities Alliance, 2019).

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