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# The financial ecologies of climate urbanism: Project preparation and the anchoring of global climate finance

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## ABSTRACT

Global development institutions herald private finance as a key mechanism for limiting climate change. Many have concentrated their efforts on bridging urban “infrastructure gaps,” thereby creating profitable fixes and establishing new markets through global climate finance initiatives (GCFIs). This paper examines the project preparation practices of GCFIs in cities of the global South to understand how global climate finance anchors itself within cities. Leaning on the concept of financial ecologies, we argue that these practices do significant relational work, linking emerging smaller financial ecologies with each other, thereby establishing a larger financial ecology of climate urbanism. Examining the actors, spatial strategies and relations of these initiatives, we conclude that the sum of these parts ultimately serves the reproduction of global climate finance itself.

## KEYWORDS

Climate finance; financial ecologies; green infrastructure; development finance; climate urbanism

## Introduction

So, I mean, I don't even know how to separate it . . . , what is my climate [finance] and what is my pure development [finance]? (Interview, head of finance, City Network, 3/9/21)

That key professionals implementing infrastructure projects in cities have trouble distinguishing between their different financial resources and their functions indicates that the development sector is undergoing significant changes. By moving away from traditional aid toward a prioritization of private investment to realize the UN Sustainable Development Goals (SDGs), the sector has reset its focus upon urban infrastructure investment to facilitate a development agenda that is increasingly city-focused and “green.” In this context, global climate finance has emerged as a central tenet for urban mitigation and adaptation measures (Bracking & Leffel, 2021). In the past decade, wide array of global climate finance initiatives (GCFIs) has directly targeted cities in their efforts to combat climate change. To support a cities' means to access climate funds, these initiatives engage with municipal climate governance processes and facilitate the preparation of “green” infrastructure projects. The pressing climate crisis thus reconfigures how and where the development finance sector engages, posing a myriad of questions concerning the mechanisms through which this sector is allocating its resources and the resulting geographies of such (dis)investment. More recently, it has become evident that the success of GCFIs in actually realizing projects and contributing toward going from “billions to trillions” (Mawdsley, 2018a) remains limited. While admitting uncertainties in their analysis, the Cities Climate Finance Leadership Alliance's (CCFLA, 2021a) scoping of global financial investments, tracks US\$75 billion of urban climate investment, a large shortcoming against estimated needs of US\$4.5 trillion to US\$5.4 trillion. While there is a growing acknowledgment of the

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greening and financialization of development practices in the literature on development and climate finance (Bigger & Webber, 2020), these debates lack empirical work on the abilities (or lack thereof) of GCFIs to anchor themselves and consequently financial investment in a variety of contexts.

To address this gap and show how these initiatives anchor themselves in cities, this paper employs the financial ecologies lens, a perspective that brings social structures involving different actors, their locations, and the relations between them into one analytical frame. By analytically separating who the actors are, where they choose to anchor themselves geographically, and how they relate to each other, the lens allows us to examine an emerging financial ecology of global climate finance initiatives built around the preparation of infrastructure projects in Southern cities. While we observe anchoring processes of global climate finance initiatives primarily in the context of project preparation measures, it does not necessarily signify the successful completion of individual projects and with that the successful anchoring of the financial practices these initiatives put forward. Rather, the presence of GCFIs is commonly accompanied by legal, social, political, and economic preparatory interventions that, while they seek to make projects viable, even if these are not necessarily realized, still potentially signify changes in how municipalities seek to provide infrastructure. Anchoring processes not only work to align local ideas with an agenda of green infrastructure development, but they also network individual cities and initiatives among each other, speaking to the emergence of a larger financial ecology of global climate finance. Looking at the grounding of GCFIs in specific preparatory measures for private market infrastructure development through the lens of financial ecologies thus allows us to link these configurations in individual financial ecologies and show how the sum of these smaller financial ecologies facilitates the reproduction of global climate finance itself as a larger financial ecology.

## Data and methods

Before proceeding, a word about the paper's methodology: This paper is based on the analysis of a selection of GCFIs that are active in cities across the globe, predominantly so in cities of the Global South. As noted above, they are united by the objective to close an "infrastructure gap"—i.e., a massive gap in infrastructure investments limiting growth and the realization of climate goals—through investments in green infrastructure projects (CCFLA, 2017). An initial selection of initiatives was made on the basis of a mapping report authored in 2017 by the Climate Finance Leadership Alliance (CCFLA), a global coalition of actors from the development, climate and finance sectors, which lists about 90 GCFIs (CCFLA, 2017). This list was then updated and condensed (to reduce overlap) to identify initiatives for deeper analysis. Our final selection is based on their current activity status, their regional foci (in relation to our own expertise), and the variety of their lead organizations (CCFLA, 2017; Table 1). The focus of this paper is on project preparation measures, which we will describe in more detail in Section 4.2, emerging from an initial analysis which showed that these play an integral role within many of the initiatives' activities (e.g., the central role of the CCFLA Project Preparation Action Group). Project preparation involves preparing the ground for individual projects through relevant data generation, capacity building, technical assistance, and vetting processes that aim at establishing an environment that corresponds to potential investors' expectations (CCFLA, 2018; GIH, 2019; Schneider-Roos et al., 2014). Table 1 presents an overview of the investigated initiatives, highlighting their strategic and geographical focus, as well as the involved actors.

Our analytical approach to understand the functioning of these initiatives is twofold: first, we conducted a document analysis of about 70 documents including reports, policy briefs, strategy papers, and project documentations from a broader set of initiatives to gain insight into how they present themselves, as well as the focus of their activities and strategies. Second, we conducted 29 expert interviews with a variety of actors involved in different projects and initiatives on different scales, ranging from broader perspectives of World Bank experts or direct representatives of investigated initiatives to perspectives from local project officers or representatives of associated think-tanks.

**Table 1.** Investigated GCFIs.

Name of Initiative	Project Lead	Actor Groups	Date of Operation
Global Innovation Lab for Climate Finance	Climate Policy Initiative (CPI)	International Financial Institutions (IFIs), National Development Agencies, Private Sector, Blended Finance Institutions, NGOs	2014–
Low Carbon City Lab, now: Healthy, Clean Cities	Stichting Climate-KIC International Foundation (Climate-KIC)	European Union, Private Sector, NGOs	2015–
Global Platform for Sustainable Cities	World Bank	IFIs, UN-Organizations, City Networks	2016–
Cities Development Initiative for Asia (CDIA)	Asian Development Bank (ADB) GIZ (German Agency for International Cooperation)	IFIs, National Development Agencies, Blended Finance Institutions	2007–
Developing Cities Sustainably Program	SECO (Swiss State Secretariat for Economic Affairs)	IFIs, National Development Agencies	2018–2023
Energy Sector Management Assistance Program (ESMAP): Tool for Rapid Assessment of City Energy (TRACE)	World Bank	IFIs, National Development Agencies, European Union, Blended Finance Institutions	1998–
Cities Climate Finance Leadership Alliance (CCFLA)	Actor Network	IFIs, National Development Agencies, Blended Finance Institutions, NGOs, City Networks, Cities	2016–
Green City Bonds	Climate Bonds Initiative (CBI)	National Development Agencies, Blended Finance Institutions, European Union	2017–
Financing Energy for Low-Carbon Investment–Cities Advisory Facility (FELICITY)	German Agency for International Cooperation (GIZ)	IFIs, National Development Agencies	2017–2021
Emerging and Sustainable Cities Program	Inter-American Development Bank (IDB)	IFIs	2011–
Latin American Investment Facility (LAIF)	European Union (EU)	European Union, IFIs, National Development Agencies	2016–
Public–Private Infrastructure Advisory Facility (PPIAF)	World Bank	IFIs, National Development Agencies	1999–
Global Fund for Cities Development (FMDV): Capacity Building	Global Fund for Cities Development (FMDV)	IFIs, National Development Agencies, European Union, Municipalities	2015–
Local Governments for Sustainability (ICLEI): Transformative Actions Program (TAP)	Local Governments for Sustainability (ICLEI)	IFIs, National Development Agencies, Municipalities, NGOs	2015–

Each interview followed an individualized interview guide with the aim of understanding how our interlocutors and their institutions realize climate finance agendas at the urban level. The interviews, which took place between May 2021 and January 2022, were conducted in person or via video call and subsequently transcribed and analyzed.

## Literature review and analytical framing

### *From development finance to urban climate finance*

The emergence of financial ecologies of GCFIs is usefully contextualized in recent transformations of the development finance sector which explain the possibility of the emergence of GCFIs in the first place. The last decade has witnessed two interrelated structural changes in the sector: First, development agencies and multilateral development banks have shifted their modus operandi toward the facilitation of private investment in lieu of development through foreign aid (Brooks, 2016; Hilbrandt & Grafe, 2023; Liverman, 2018; Mawdsley, 2015, 2017, 2018b). This shift is influenced by the UN Sustainable

Development Goals (SDGs) and the related aim to include the private sector in planned transformations for scaling up development funding from “billions to trillions” (Mawdsley, 2018a; UN SDG, 2023). It has introduced new actors into the development finance sector—private investors who shape the implementation of development policies through (new) financial strategies and tools (Grubbauer & Hilbrandt, 2023). As development scholars note, this process has led to an increase in financialization across development practices (Bayliss et al., 2017; Bayliss & Van Waeyenberge, 2018; Bracking, 2016; Carroll & Jarvis, 2014; Hudson, 2015; Jakupec & Kelly, 2015; Janus et al., 2014; Mader, 2017; Mawdsley, 2018b). Partly driven by the fallout of structural adjustment policies since the 1980s, development institutions such as the World Bank have moved toward a frame of “development policy lending” that is driven by facilitating climate-inflected private investment and technical assistance (Bigger & Webber, 2020; Swaroop, 2016). Rather than directly investing in development efforts, this frame aims at providing support for leveraging private financial sources to fund these efforts. In the context of the increasing threats of climate change, these changes have been accompanied by a focus on the increasing necessities of infrastructural development for mitigation and adaptation, continuously merging the aims of climate finance and development finance.<sup>1</sup>

Second, these global constellations of development and finance practitioners have increasingly emphasized cities as key sites for combatting and adapting to climate change. This growing “urbanization” of global climate finance manifests itself in efforts for “greening” cities through profit-driven technical solutions for decarbonization. Recent critical literature has termed this program *Climate Urbanism* (Castán Broto & Robin, 2021; Castán Broto et al., 2020; Long & Rice, 2019, 2021). Moving away from providing loans toward leveraging private finance potentially facilitates the prevalence of project-based development, as individual projects are better suited for private investors’ needs. This line of argument is supported by the literature on the financialization of infrastructure, which points out how project selection, implementation and maintenance can become compromised in order to primarily serve financial interests (e.g., Loftus et al., 2019; O’Brien et al., 2019). It is in relation to these individual projects that new complex forms of financial cooperation and interdependence between new actors and interests emerge that bear potential future risks (Bayliss & Van Waeyenberge, 2018; Van Waeyenberge, 2017; Van Waeyenberge & Fine, 2011).

In the attempted move away from the national scale and established associated practices and channels for the distribution and management of development finance (through responsible ministries, etc.), new strategies for unlocking private finance have emerged. It is here where the observed GCFIs concentrate their efforts. Even though urban actors and institutions are able to assert more agency on the global stage as an outcome of this shift, and international NGOs and development agencies often provide functions which are traditionally the role of local governments (Robinson, 2018, p. 13), investments fail to be realized in the expected volume despite the concerted efforts to “filter risks away” (Halbert & Rouanet, 2014), as also highlighted by the work on the Rockefeller Foundation’s 100 Resilient Cities project (see, for example: Croese et al., 2020; Fitzgibbons & Mitchell, 2019; Nielsen & Papin, 2021; Zebrowski, 2020). What does the anchoring of GCFIs achieve, if the anchoring of financial flows fails in many instances? We identify an empirical lack of engagement with how GCFIs engage locally and how they go about integrating individual infrastructure projects into a global network of development institutions, blended finance actors, and private financiers. The lens of financial ecologies provides us with tools that are particularly useful to understand these dynamics and the concerted efforts of GCFIs in the context of climate inflected investment, as it enables us to show how specific configurations of (1) actors, their (2) location selection strategies and their (3) relational practices around project preparation measures seek to anchor global climate finance initiatives within cities.

### **Financial ecologies**

The ecologies concept builds on a longstanding geographical tradition. We lean on Andrew Abbott’s (2005) use of the term as “a social structure that is less unified than a machine or an organism, but that is considerably more unified than is a social world made up of the autonomous, atomic beings of classical liberalism” (p. 248). These ecologies are made up of the different *actors* that are involved in

them, their relative *locations* and the different kinds of *relations* connecting them (p. 248), as per Abbott these ecologies are thus understood as “linked,” i.e., connected and interacting with each other in a systematic manner (p. 248). The links or relations that occur between these ecologies can take different forms. *Hinges* are mechanisms by which results are transferred to allied actors from one ecology to another, an example being the extraction of wealth from a colony for the benefit of the colonizer. Abbott describes another form of link as *avatars*, where an actor establishes a “copy or colony” of itself within another ecology (p. 245). An example could be a regional office of a larger institution that draws the colony near to its services, expertise, and practices. The establishment and maintenance of these links are a key component of what we consider as anchoring processes.

Building upon the concept of ecologies, the literature on financial geographies has begun to extend the concept to engage the subject of financial ecologies (French et al., 2011; Grafe, 2020; Harker, 2017; Lai, 2016; Liu & Lai, 2021). With reference to Fritz-Julius Grafe and Harald Mieg (2019) define financial ecologies as “a social structure in which actors, locations and their relations form geographically distinct constellations of knowledges, practices and subjectivities that enable the provision of financial services. These smaller, anchored financial ecologies form links with other financial ecologies, constituting the wider financial system” (p. 502). French et al. (2011) specify that “the financial ecology approach . . . argues that like all systems the financial system is made up of smaller, constitutive ecologies. These consist of certain arrangements that emerge and that are more or less reproduceable over time. These processes unfold across space and evolve in relation to geographical difference so that distinctive ecologies of financial knowledge, practices and subjectivities emerge in different places” (p. 812).

Building upon this work, we argue that the relational functioning of the GCFIs we examine is usefully captured through the notion of financial ecologies. It points to the significance of transscalar territorial networks for the filtering of local risks for an investor audience (Halbert & Rouanet, 2014), but might also contextualize their failure to do so. To understand the changing configurations of actors, their location selection strategies, and their relations, we focus on the project preparation activities of GCFIs—one of their central elements. Project preparation facilities support cities in developing climate projects by providing technical assistance, risk assessments, feasibility studies, and financial consultancy. On the one hand, the financial ecologies lens highlights how these measures form smaller, locally anchored financial ecologies of climate urbanism; as they anchor financial practices in space, they also allow GCFIs to forge new complex relations across different cultural, social, environmental, and economic contexts. Thus, on the other hand, the financial ecologies lens helps us to understand how the links between them constitute an eventual larger financial ecology. By creating and then shifting the relational spaces that make up the broader financial ecology of climate finance GCFIs shape geometries of power.

## **Results: Understanding the anchoring of GCFIs through the financial ecologies approach**

Examining GCFIs through the financial ecologies approach implies (1) identifying and describing the central actors that make up these initiatives or are engaged by them, (2) examining the spatial strategies they employ to select where to engage, and (3) the resulting practices that characterize these activities, form relations between actors, and make up the financial ecology from its parts. We argue that the initiatives facilitate the formation of individual smaller financial ecologies within cities, the aggregation of which constitutes a new bigger financial ecology.

### **Actors: Configurations of GCFIs**

Many of the key actors who are actively targeting cities through GCFIs are transnational institutions that are not based in the cities they engage. Leading agencies include European development agencies, such as the Agence Française de Développement (AFD), the German Agency for International

Cooperation (GIZ), the Swiss State Secretariat for Economic Affairs (SECO), or International Financial Institutions, such as the World Bank, or the Inter-American Development Bank (IDB). They often coordinate their activities through the formation of these GCFIs, for which they onboard different partners. [Table 1](#) presents a partial overview over the key actors and how they are connected in the investigated GCFIs. The initiatives are thus alliances between both national and international development institutions, private sector interest groups, institutional investors, think tanks, consultancy businesses, and city networks. They engage cities on the grounds of specific projects, leveraging relevant government offices, local financial institutions, key local investors, and municipalities within the targeted cities (Interview, Urban Development Specialist, NGO, 18-5-21). They aim to connect cities and local institutions to other international actors such as institutional investors and multilateral development banks, and eventually private investors (Interview, urban development specialist, NGO, 18-5-21). Looking closely at these actor constellations and the frequency by which they change indicates that GCFIs are marked by experimentation and fluctuation (CCFLA, 2017, our own analysis). New initiatives and cooperative projects are constantly launched and pushed as innovative approaches for closing the green infrastructure gap (Interview, director, NGO, 23-6-21). At the same time, many of these initiatives and specific actor configurations do not stay active for more than a few years. At least 15 of the 90 initiatives that were listed in the 2017 CCFLA report do not exist anymore, the defining actors making up these initiatives, multilaterals and national development agencies, are taking part in newly formed initiatives. This implies that an ongoing reconfiguration of the actors and their alliances in the sector takes place. This constant transformation of the landscape of alliances does not necessarily mean that there is an influx of new actors into the global climate finance field, or that their strategies and practices change. Rather, many of the initiatives that we observed are funded and operated by a limited set of actors. What is changing are their alliances and platforms of interaction. This emphasizes the importance of concrete measures in order to stabilize and bring together the fluctuating actors in a particular place and time. Anchoring thus depends on a clear agenda as the one set out in project preparation measures to achieve quick results within the limited funding horizon of GCFIs.

### ***Location selection strategies of GCFIs: Bankability and project preparation***

This section aims at highlighting the strategies through which GCFIs choose the cities they engage with, how they organize their activities within them, and how this enables new geographies of climate finance. Specifically, we aim to show how a global climate finance approach that is based on the premise of leveraging global financial flows predefines how locations are selected for participation in different initiatives. The locations in which these initiatives engage in their activities are largely organized along two spatial strategies, which pertain, first, to the financial viability or bankability of investment and, second, to the format of the project and associated project preparation measures. The initiatives thereby follow the SDGs agenda of mobilizing private capital to bridge investment “gaps.” However, the explicit strategies vary with regards to the level of risk for investors as perceived by the GCFIs. They concentrate their efforts on cities, where investment risks are thought to be low enough to convince potential investors, but high enough that private finance will not automatically engage the local context. In a similar vein, the higher the perceived risk is, the more important the ring-fencing of specific projects becomes. Beyond these, other criteria such as those stemming from regional foci set by founding institutions, such as the Asian Development Bank’s (ADB) Cities Development Initiative for Asia or respective technical expertise and experience of involved institutions obviously also apply (Interview, urban development specialist, NGO, 18-5-21; Interview, deputy director, NGO, 25-8-21).

The first approach by which cities are selected is based on their perceived level of bankability (Interview, head of finance, City Network, 3-9-21; Interview, senior analyst, NGO, 8-10-21). The notion of bankability is a key tenet of climate finance and frequently used to refer to the risk for investors to make a return on investment when financing specific infrastructure projects within a city (Rana, 2017). Many of the interviewed experts stressed how important the financial viability of

investment is in deciding which cities GCFIs engage with, and how they are being approached. In cities that are categorized by GCFIs as exhibiting lower levels of financial risk, investors are more easily enticed to directly invest in green projects (Interview, director, NGO, 23-6-21). Relevant data are readily available, and market practices are firmly in place (Interview, director, NGO, 23-6-21). The financial viability of a potential project is easily established and evaluated. This is why in these cities, the initiatives are least active, and activities are frequently limited to networking relevant actors and matching investors with the latest green investment schemes.

In contrast, in what might be understood as “unbankable cities,” where financial risk is high, the initiatives are more limited in what they do (Interview, senior consultant, Climate Finance Network 1-9-21). For the lack of readily available investment opportunities and capital, municipalities arguably rely more heavily on traditional means for infrastructure finance such as national government investment or the support of international development institutions. The GCFIs strategies here aim at creating market conditions that would facilitate more private investment. They follow the logic of de-risking and “proving” the viability of investment to more hesitant investors, for example, through mechanisms of blended finance and the development of “City-Action Plans” (one of which is described in more detail in [section 4.3](#)), “unlocking” potential investments for these cities in the future (Interview, director, NGO, 23-6-21). Activities are aiming at improving the financial expertise and performance of municipalities, for instance, through reforming a municipalities’ tax code, establishing local revenue streams, obtaining financial ratings to signal creditworthiness, or more generally by improving “capabilities”:

Cities need capacity, yes, but they also need capabilities. So, they need to learn how to do things in a certain way, in order to better finance projects that deliver the kind of climate impacts we need. And to more effectively engage private capital markets to bring that capital to bear in service of these projects. (Interview, director, NGO, 23/6/21)

However, many initiatives we observed focus the bulk of their activities on cities where perceived bankability is neither especially low nor high, but where cities, and potential projects within them are perceived to be on the verge of bankability by global climate finance actors, just lacking the right structure to become fully bankable (given that there is enough political will behind a project; Interview, senior project officer, NGO, 17-9-21). In places, where infrastructure demand is high, and markets have not yet been fully established, the growth potential for creating profitable new green investment opportunities is perceived to be the highest. In these contexts, where the level of bankability is not quite so easily determined, selection mechanisms can be informed by a temporal dynamic of delay, which a practitioner within one of the initiatives put like this:

We tried to be demand driven. So if a city has a request, they can come to us and we see the maturity of their project. . . . We’ll say: Well maybe come back to us in a couple of years, or when you have a clear vision of what you want to do. (Interview, urban development specialist, NGO, 18/5/21)

What GCFIs understand as “bankable” and “not yet bankable” is thus not only underdefined, but also dependent on a “ripening” process, which is decided upon on a case-by-case basis following an often arbitrary conceptualization of perceived financial risk.

With the first GCFI spotlight on cities on the verge of bankability, the second spatial strategy focuses on the format of the individual infrastructure project that discerns where in the city the GCFIs will engage (CCFLA, 2018; CCFLA & FMDV, 2021; GIH, 2019; GIZ, 2019; Schneider-Roos et al., 2014). The primary “currency” and unit of calculation is the project. As pointed out above, GCFIs focus their efforts on cities, where banking on investment is not risk free, but appears feasible. In order to improve chances of return on investment and reduce the risk of fallout, investment in individual projects is another de-risking strategy. The CEO of a key nonprofit describes their work as one of designing projects, “so that they’re profitable; that they create an internal, suitable rate of return for private finance to engage so that we can leverage this additional bit” (Interview, CEO, NGO, 2-11-21). As the quote shows, profitability is the core metric, which becomes inextricably linked to the format of the project to package it. This is how the question of bankability is translated into the local context, and this exposes how the need for infrastructure



projects that are easy to ring-fence, package and market, pushes out more decentralized climate strategies (Loftus et al., 2019). These efforts not only aim at creating viable projects that solve the issues of individual cities, but also aim at creating above-mentioned “proof of concept” of the viability of green infrastructure investment in that place. Thus, in order to push a market closer toward the verge of viability for the sought-after private investment, GCFIs aim at providing potential investors with a pipeline of infrastructure projects, which need to appear investable. Consider, for instance, ICLEI’s Transformative Actions Program (TAP), a project pipeline that aims at connecting local infrastructure needs with international investors through the preparation and packaging of infrastructure in individual, investable projects:

At the moment, we have 71 projects in the pipeline. I think maybe it’s not the right word to say kick out, but I think we will put on hold . . . quite a few in the near future. . . . Because we understood that when we tried to pitch those projects, if you want that the international investor community, that they think about TAP as a good pipeline of projects, a solid pipeline of projects, then we really have to become strict. Because if we are soft, if we don’t ask those questions, then they will. (Interview, finance officer, NGO, 3/9/21)

TAP preemptively vets potential projects to match investor expectations while also providing cities with project preparation facilities in order to increase their perceived bankability (Rana, 2017), because the TAP program itself aims at being perceived as a reliable source for bankable projects and thus as a viable platform for functioning global climate finance. In this way, the program works on a notion of anticipatory marketization (Bernards, 2022), as global climate finance only becomes viable based on the premise of a growing market for green urban infrastructure finance in the future, whose arrival is being prepared by GCFIs. On one hand, by improving the bankability of cities in general, and on the other hand, by providing a range of investable projects. GCFIs understand themselves as having to offer projects of a certain “maturity,” i.e., how far a project has “progressed” in terms of hitting financial benchmarks, with higher perceived maturity signifying lower levels of financial risk, as this is deemed a deciding factor for the willingness of investors to fund a project (Interview, urban development specialist, NGO, 18/5/21). Not only do GCFIs thus select cities according to a perceived level of anticipatory marketization, focusing their efforts on cities where the market is already deemed to be in sight, but this logic also makes GCFIs want to establish project pipelines where the viability of individual projects ought to bring a functioning green infrastructure market into being more easily. Here, it becomes obvious how this new mode of development operates in relation to finance, and how a financial logic becomes prevalent in selecting which sites are chosen for development purposes.

In sum, the anchoring processes that are pushed by GCFIs are informed by two strategies: First, as initiatives are primarily interested in establishing functioning markets, they are often present in locations where the potential for the creation of these is highest, rather than prioritizing locations where the need for climate finance is the greatest. Second, as projects are structured in such a way that they maximize profitability and security for potential investors, they potentially compromise the efficacy of the proposed solutions. This establishes an emerging geography of climate urbanism along a map of perceived risk with an emphasis on ring-fenced, for-profit solutions (Long & Rice, 2019). The notion of bankability is a key driver for selection practices of GCFIs and highly dependent on the successful translation of local complexity into market metrics, such as standardized ratings or risk models. As a consequence, the initiatives are creating new geographies of urban climate finance by anchoring themselves in cities that are already deemed to be on the verge of bankability (Rana, 2017) through the provision of project preparation facilities in order to make a green infrastructure market come into being.

### ***Relations: Climate finance initiatives and emerging financial ecologies***

The analysis of the actors involved in GCFIs and their location selection strategies allows us to examine how these actors’ anchoring practices form relations both locally and across cities and ultimately how these relations aid the constitution of an emergent financial ecology of climate urbanism.

### ***Anchoring global climate finance***

Before more concrete project preparation measures, such as data generation or project vetting, can take place, more general market-making activities (Berndt & Boeckler, 2023; Berndt et al., 2020) might be in order to widen the net for potential cities and projects that can be engaged with. These measures actively shape the perception of financial risk in a place, which commonly functions as a gatekeeper to increasing foreign investment. In order to create a viable financial support system for green infrastructure development with national and international involvement, aforementioned measures such as legal changes, the promotion of financial ratings to signal creditworthiness and the support of a general re-tooling of the fiscal environment through the adoption of financial standards are employed (CCFLA, 2017). Further, by advocating de-risking measures in less bankable cities, such as blended finance mechanisms, initiatives seek to establish green infrastructure markets where financial calculus would not see them viable yet (Interview, director, NGO, 23/6/21). An expert from a global climate finance think tank stated the following in this regard:

This is how the government is looking at blending finance approach: [they imagine] that we'll step in initially and then gradually we'll create a way for private sector to come in once they realize the benefits of these kinds of adaptation projects. (Interview, senior analyst, NGO, 8-10-21)

Even these kinds of early preparatory measures are part of the observed overall project preparation logic that aims to foster an environment in which financially attractive project pipelines are established in anticipation of a functioning market (Bernards, 2022). Project preparation thus not only entails the realization of projects, but also a “proof of concept” of the viability of green infrastructure investment for non-institutional investors that will then be more willing to invest, making specific cities gradually “more bankable.” Accompanying measures, such as activities to generate relevant data to quantify climate impacts and translate these into actionable risk evaluations (e.g., TRACE program, see Table 1) or to aggregate multiple projects (e.g., the TAP pipeline), aim to skew the perception of risk for potential investors in a favorable direction.

In the application of more concrete project preparation measures, the picture becomes clearer as to how actors enter into relationships with each other. Most initiatives aim at creating bankable projects for green urban infrastructure development, based on the premise that “considering the lifespan of infrastructure assets, investments made today will determine how cities will grow and ‘lock-in’ emissions and vulnerability pathways” (CCFLA, 2021a, Part 2, p. 3). Whereas individual initiatives employ individual tactics toward that end, comparable schemes are employed across most initiatives. The methodology from the “Emerging and Sustainable Cities” campaign of the IDB is exemplary for how relations are established. It envisions an approach that is broken up into multiple phases.

The scheme (IDB, n.d.) highlights the campaign’s vision of how cities can be made bankable, and how they eventually become part of a functioning green infrastructure market. In a first step, the necessary indicators are defined and data for the identification of problems and successful projects for addressing them is gathered, resulting in a “Action Plan.” The creation of comparable data is understood as a crucial step for building investor trust (Interview, senior urban development specialist, Worldbank, 20/1/22). For the purpose of creating an action plan for a city, international experts are often recruited, as they are deemed as having the necessary expertise to identify key stakeholders, indicators, areas to be prioritized, and eventually potential projects. In that way, the expertise for project preparation and feasibility studies is mostly drawn from a limited pool of global experts that are eventually known to actors at GCFIs (Interview, urban development specialist, NGO, 18/5/21), effectively working as a hinge and anchoring them and the international institutions they work for in local contexts.

In a second step, then, identified projects are supposed to be made actionable, financeable, and monitorable. For that purpose, project preparation pipelines serve as a platform where adequate data can be managed, but which also serves the purpose mentioned previously: showcasing projects to potential investors. Here projects are to be connected to investors, who, in the logic of the initiatives, can rely on the viability of the project through its professional preparation along international standards, where all hurdles for the implementation of green and financially viable infrastructure

projects are already removed. The third step, the establishment of a functioning market for green infrastructure projects, frequently fails to be realized. That many of the projects are never actually funded (Interview, head of finance, City Network, 3/9/21) or “sit on the shelf” (Interview, urban development specialist, NGO, 18/5/21) seems to be the norm for these project pipelines. Anchoring processes are thereby not necessarily the result of the material success of individual projects but of the connections, knowledges, and practices that are established under project preparation facilities. The mobilization of actors and resources paired with legal, social, political, and economic interventions to realize local climate adaptation or mitigation measures under a specific GCFI agenda increasingly anchors these practices within individual cities.

### *Linking local ecologies*

While these local activities are indicative of the formation of smaller financial ecologies, a number of associated practices cut across multiple local ecologies and form links that are essential for the potential formation of a larger financial ecology of climate urbanism. These links are formed through networking activities, the creation of data platforms and global project pipelines, shared expert pools and the organization of workshops.

The initiatives themselves and their constant reconfiguration result from the lobbying work in-between the different involved actors, such as national development agencies, multilateral development banks, city networks, private investors, institutional investors, and consulting firms. This dynamic is underlined by the fact that the involved actors share external experts and international consultants (Interview, urban development specialist, NGO, 18/5/21). Apart from such internal networking efforts, initiatives are constantly involved in connecting the different external stakeholders, such as municipal and national governments or investors with the initiatives and with each other, as well as with the ideas and narratives that they maintain. For that end, the initiatives organize conferences and workshops, establish above-mentioned project pipelines, or present themselves and their activities and ideas to (large) professional audiences in digital spaces. Workshops are held on different levels. On the national level, such as at the Cities Climate Finance Leadership Alliance (CCFLA) Mexico Forum of 2021 (CCFLA, 2021b), different municipalities are invited to present ideas and possible projects to each other, as well as to potential investors. Internationally, this might take the form of the organization of conferences discussing the need for urban climate finance, or the presence at large-scale conferences, such as COP26 (CCFLA, 2021c; UKCOP26, 2021). Interestingly, documents, templates and graphs are often copied and adapted between these events (own observation).

As project preparation facilities do not necessarily produce many financed and executed projects, they still achieve a different feat. They establish a dominant narrative and a *modus operandi* that sets the frame within which many affected cities seek to address their climate needs. Necessity, lack of alternatives and opportunism frequently leads cities then toward buying into this mode of doing climate finance. The project preparation facilities make international actors more present and established within cities, as municipalities are now often working to specifically establish projects for the pipelines of different initiatives that are present (Interview, head of finance, City Network, 3/9/21). In that sense, the actual effects of the networking activities and project preparation facilities are, at least until now, not an abundance of bankable infrastructure projects or even a functioning market, but an increased number of links between actors involved in the facilitation of climate sensitive infrastructure development. Links take both the form of hinges, that is providing “results to allies,” i.e., in the form of immediate financial benefit for investors or long-term opportunities through the opening up of new markets, at the moment more pronounced, however, is the transfer of ideas and narratives through lobbying and networking efforts. Avatars, as in outposts or colonies, occur in more stable ecologies, mostly represented by local offices of larger institutions executing projects, pushing networking practices and feeding back experiences. The sum of these linked individual financial ecologies is an emerging larger financial ecology of climate urbanism. It is characterized by the significance of key global development institutions and their entanglement in the different initiatives we have presented here.

This dynamic is furthermore highlighted when picking up the aforementioned ephemerality of the involved initiatives. Even though some of the initiatives are active for longer periods of time, their funding possibilities often change or their presence in individual cities or countries is temporally restricted. What is left after a limited temporal presence of these international actors within cities? Certainly, some infrastructure projects will be financed, but more importantly, a quiet presence of global climate finance actors is established. Therefore, the consequences of the efforts of GCFIs, until now, lie less in the material context, and more so in the creation of links between the ideas and practices of global institutions and the individual cities, projects, and stakeholders they engage. Local offices are established, networks are joined, personal connections are made, and new knowledge is gathered and shared. This is thus a key aspect of the anchoring processes of GCFIs: it is not only the engagement of local actors and resources provided for the development of a specific project as established in the previous section, but a linking and networking of these individual cases on a global scale, further reinforcing local climate adaptation and mitigation practices along a global GCFI trajectory.

### **Discussion: Development finance through the lens of financial ecologies**

The overarching shifts in the development sector and the subsequent repositioning of key actors set the enabling conditions for the formation of new financial ecologies in the Global South: GCFIs emerge as a collection of different actors interested in establishing functioning private investment markets for green infrastructure development. They select cities perceived to be on the verge of bankability and focus their efforts on delivering specific infrastructure projects that exhibit low risk for potential investors. Such projects are understood to be able to function as a proof of concept of the viability of investment, thereby banking on the emergence of a functioning market in the near future (Bernards, 2022). While not many of such projects actually manifest, GCFIs still establish relations among stakeholders in local contexts forming smaller financial ecologies, as well as connecting these smaller financial ecologies with each other and with international actors in the attempt of forming a larger financial ecology of urban climate finance. GCFI actors, their location selection strategies, and their evolving relations anchor narratives and practices of climate finance that subscribe to the financial agenda lined out in the SDGs. The relational dynamics through which GCFIs sustain climate finance thereby have direct implications for understanding contemporary development finance, in particular regarding the evaluation of risks, the role of infrastructure development within it and the local governance processes necessary to sustain these shifts.

First, the analysis of these initiatives and the central role of project preparation measures for the formation of successful financial ecologies speaks directly to ongoing debates about the potential future risk of financialized development (Bayliss et al., 2017; Bayliss & Van Waeyenberge, 2018; Van Waeyenberge, 2017; Van Waeyenberge & Fine, 2011). The paper extends this literature insofar as it shows empirically how this is taking place. The relational dynamics of project preparation that we have outlined paint a picture in which (financial) power is frequently unequally distributed. Therefore, project development priorities are skewed toward the optimization of financial risk through emphasizing the securitization of stable revenue streams that are attached to ring-fenceable green infrastructure developments in lieu of prioritizing the reduction of long-term climate risks for cities. This is the key precondition for establishing a functioning smaller financial ecology that responds to the SDGs' call for the mobilization of private finance. By standardizing climate infrastructures in project preparation processes to minimize financial risk, this approach homogenizes the urban climate responses that are available to cities on the verge of bankability. Thus, through the lens of financial ecologies, climate finance appears as both a homogenizing as well as a discriminatory affair that anchors itself in space based on blurry mappings of perceived risk that are defined by a limited number of actors.

Second, the work we have presented contributes to the literature on the financialization of infrastructure (Grafe, 2020; Loftus et al., 2019; O'Brien et al., 2019), by outlining the central role of project preparation measures and how they determine the kind of project that is ultimately developed.

The focus on project preparation measures expands this literature with a more detailed perspective on the early stages of infrastructure development processes and with an opportunity to examine why certain infrastructure projects fail and what the impacts in the face of failure are. Even if we cannot offer a fully fledged assessment of why the financing of infrastructure is not actually realized, besides a functioning market largely not having materialized as of yet (Bernards, 2022), the paper speaks to how even unfulfilled infrastructure development serves the integration of territories within global economic networks (Schindler & Kanai, 2021), thereby highlighting the role of these nascent financial ecologies of climate urbanism as a key mechanism for anchoring global financial capital and expanding the reach of financial markets.

Third, the arguments we have presented here supports the argument that an overall shift toward private investment in development finance affects how local governments are structured to capture new financial flows (Bigger & Webber, 2020; see also: Baidur & Kamath, 2009). We thereby especially want to emphasize the process of anchoring as a key tenant of development finance under climate change. This notion is further supported by the argument raised in the climate urbanism debate relating to the realization of for-profit technical solutions for decarbonization (Long & Rice, 2019) and relates closely to Jennifer Robinsons arguments relating to local tensions emerging from these anchoring practices conducted by GCFIs (Robinson, 2018). A desire to primarily filter local risk away (Halbert & Rouanet, 2014) to unlock private markets thus stands in tension with the wider goals of sustainable development under climate change. Our application of the financial ecologies lens supports Bigger and Webber's green structural adjustment thesis, as it helps to identify the different mechanisms that aim to restructure local government so that anchoring global climate finance becomes possible. Furthermore, it helps to set up an analytical approach for the examination of resulting patterns of uneven development and related emerging extractive regimes in the form of a large financial ecology of climate urbanism.

Together these points highlight that the financialization efforts furthered by actors around the World Bank and different National Development Organizations are thus not just linear executions of a spatial fix of "roll-out neoliberalism" (Peck & Tickell, 2017), but a more complex process that results from the interplay of multiple agendas and the relational work of aligning these in grounded project preparation measures. A key aspect of these anchoring processes is to increase the obduracy or stickiness of climate finance agendas by establishing links across these individual efforts that serve to extend the relational reach of global climate finance. Location selection processes emphasize how under climate finance territorial space becomes overlaid with highly relational practices defined by financial logics. This speaks to a conceptualization of space, of an emerging geography of global climate finance, that acknowledges the dynamic creation of new proximities across distances and potential spatial distortions that may arise from it (Hilbrandt & Grafe, 2023). In that, the paper provides evidence toward how financialization affects development practices before the ground for a project is even broken, by actors not actually present in the space, but how through linking these individual instances, a coordinated global effort toward financialized climate responses (in the Global South) is propagated.

If the anchoring processes that we have laid out work through the notion of bankability, project preparation measures and cross-linking of these efforts, then these observations expose a crucial fault line in this particular approach of combating climate change through finance-driven responses in cities: it relies on the ability to quantify climate change impacts and the ability to translate this data into actionable risk evaluations that are digestible for markets. The evolving modes of calculation to do so expose the overall lacking grapple of financially quantifying climate change, while this shaky *modus operandi* still serves as a mechanism for establishing ever evolving metrics geared toward calming investors' minds (Bracking, 2019). Blended finance instruments aim at bridging this uncertainty, creating new markets and translating local complexity and uncertainty into measurable categories of financial risk (Christiansen, 2021). The viability of these instruments as a key aspect in establishing a functioning smaller financial ecology of infrastructure provision is somewhat of an Achilles'

heel to many of these initiatives' goals, as without them, the entire logic of this modus of development is drawn into question.

## Conclusion

The financial ecology approach has proven to be useful to outline the complex spatial dynamics at play when GCFIs aim at establishing functioning markets for green infrastructure: global actors act locally to reify their global significance, while establishing cross-cutting links that cement the trajectory of global climate responses. On a smaller scale, GCFIs succeed in individual instances at establishing smaller financial ecologies around individual projects. Scaling these efforts up to achieve a large financial ecology of climate urbanism that plugs around “infrastructure gap” is as of now still far off. However, the links between existing financial ecologies and the key actors that maintain them point toward an ever more integrated future in which local revenue streams based on green infrastructures are made available for extraction. The question of climate change is thus reduced to an issue of local complexity to be parsed just so that a specific project can be realized. The question here is in how far this strategy matches the actual needs of cities subject to significantly larger climate change impacts. As it stands, climate finance emerges as a green tint of infrastructure finance of yore.

Moreover, our empirical study of how financial expansion is anchored to the ground within cities also highlights possibilities for refining the financial ecology approach regarding a better understanding of its temporal dimensions. The “stickiness” of the initiatives' interventions is at this point hard to evaluate and it remains to be seen how they change over time (Lai, 2016). The empirical work has repeatedly pointed to complex temporal dynamics, for instance, the evolving nature of the initiatives themselves, or the question of the lifecycle of a smaller financial ecology if a project gets abandoned. Further theoretical work is in order to fully grasp the temporal dimension in the making of climate finance practices.

Our paper has outlined how to conceptualize the relational dynamics of current climate finance practices through a financial ecologies approach. It has shown how territorial space is overlaid with highly relational practices that serve the reproduction of current modes of climate finance itself. The dynamics we have outlined here raise a multitude of questions: Despite their discursive dominance, it remains unclear what the actual size, bargaining power, and influence of these initiatives is, and if they are substantially helping to curb climate change by facilitating a green capital switch (Castree & Christophers, 2015). Do they prepare municipalities to react to a changing climate, and are they bringing substantial changes to the municipalities they seek to influence via the above-described approaches? How do municipalities' climate and urban development strategies change if they engage with these novel forms of adaptation and mitigation finance? The question of how cities realize effective climate responses will haunt urban scholars and geographers for a long time. This paper has presented evidence about how current practices converge on a trajectory that might not yield just and effective responses while at the same time restricting the space to imagine alternatives.

## Note

1. *Climate finance* is commonly understood as “local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change” (UNFCCC, n.d.). Given this definition of *climate finance*, it is important to note that even though there is a significant overlap between climate finance and development finance, both spheres retain areas where they do not overlap.

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## References

- Abbott, A. (2005). Linked ecologies: States and universities as environments for professions. *Sociological Theory*, 23(3), 245–274. <https://doi.org/10.1111/j.0735-2751.2005.00253.x>
- Baindur, V., & Kamath, L. (2009). *Reengineering urban infrastructure: How the World Bank and The Asian Development Bank shape urban infrastructure*. Bank Information Centre.
- Bayliss, K., Fine, B., & Robertson, M. (2017). Introduction to special issue on the material cultures of financialisation. *New Political Economy*, 22(4), 355–370. <https://doi.org/10.1080/13563467.2017.1259304>
- Bayliss, K., & Van Waeyenberge, E. (2018). Unpacking the public private partnership revival. *The Journal of Development Studies*, 54(4), 577–593. <https://doi.org/10.1080/00220388.2017.1303671>
- Bernards, N. (2022). Waiting for the market? Microinsurance and development as anticipatory marketization. *Environment and Planning A: Economy and Space*, 54(5), 949–965. <https://doi.org/10.1177/0308518X221073986>
- Berndt, C., & Boeckler, M. (2023). Geographies of marketization: Studying markets in postneoliberal times. *Progress in Human Geography*, 47(1), 124–140. <https://doi.org/10.1177/03091325221144456>
- Berndt, C., Rantisi, N. M., & Peck, J. (2020). M/market frontiers. *Environment and Planning A*, 52(1), 14–26. <https://doi.org/10.1177/0308518X19891833>
- Bigger, P., & Webber, S. (2020). Green structural adjustment in the World Bank's resilient city. *Annals of the American Association of Geographers*, 111(1), 36–51. <https://doi.org/10.1080/24694452.2020.1749023>
- Bracking, S. (2016). *The financialisation of power: How financiers rule Africa*. Routledge.
- Bracking, S. (2019). Financialisation, climate finance, and the calculative challenges of managing environmental change. *Antipode*, 51(3), 709–729. <https://doi.org/10.1111/anti.12510>
- Bracking, S., & Leffel, B. (2021). Climate finance governance: Fit for purpose? *Wiley Interdisciplinary Reviews: Climate Change*, 12, e709. <https://doi.org/10.1002/wcc.709>
- Brooks, S. H. (2016). Private finance and the post-2015 development agenda. *Development Finance Agenda*, 1(3), 24–27.
- Carroll, T., & Jarvis, D. S. L. (2014). *Financialisation and development in Asia*. Routledge.
- Castán Broto, V., & Robin, E. (2021). Climate urbanism as critical urban theory. *Urban Geography*, 42(6), 715–720. <https://doi.org/10.1080/02723638.2020.1850617>
- Castán Broto, V., Robin, E., & While, A. (Eds.). (2020). *Climate urbanism: Towards a critical research agenda*. Palgrave Macmillan.

- Castree, N., & Christophers, B. (2015). Banking spatially on the future: Capital switching, infrastructure, and the ecological fix. *Annals of the Association of American Geographers*, 105(2), 378–386. <https://doi.org/10.1080/00045608.2014.985622>
- CCFLA. (2017). *CCFLA mapping report: Localizing climate finance, mapping gaps and opportunities, designing solutions*. Cities Climate Finance Leadership Alliance. <http://www.citiesclimatefinance.org/wp-content/uploads/2017/11/CCFLA-mapping-report-2017-final-light.pdf>
- CCFLA. (2018). *Summary of good practice of successful project preparation facilities*. Cities Climate Finance Leadership Alliance. <https://worldcongress2018.iclei.org/wp-content/uploads/Summary-of-good-practice-of-successful-project-preparation-facilities.pdf>
- CCFLA. (2021a). *The state of cities climate finance*. Cities Climate Finance Leadership Alliance. <https://citiesclimatefinance.org/publications/2021-state-of-cities-climate-finance/>
- CCFLA. (2021b). *The alliance forum for subnational project preparation practitioners in Mexico*. Cities Climate Finance Leadership Alliance. <https://citiesclimatefinance.org/publications/the-alliance-forum-for-subnational-project-preparation-practitioners-in-mexico/>
- CCFLA. (2021c). *The alliance at COP26*. Cities Climate Finance Leadership Alliance. <https://citiesclimatefinance.org/news-and-events/the-alliance-at-cop26/>
- CCFLA & FMDV. (2021). *Aggregation interventions to increase urban climate finance: A knowledge product for the cities climate finance leadership alliance*. Realized by The Global Fund for Cities Development (FMDV). <https://fmdv.net/admin/Images/Publications/133/FinalAggregationKnowledgeProduct.January2021.pdf>
- Christiansen, J. (2021). Fixing fictions through blended finance: The entrepreneurial ensemble and risk interpretation in the Blue Economy. *Geoforum*, 120, 93–102. <https://doi.org/10.1016/j.geoforum.2021.01.013>
- Croese, S., Green, C., & Morgan, G. (2020). Localizing the sustainable development goals through the lens of urban resilience: Lessons and learnings from 100 resilient cities and Cape Town. *Sustainability*, 12(2), 550. <https://doi.org/10.3390/su12020550>
- Fitzgibbons, J., & Mitchell, C. L. (2019). Just urban futures? Exploring equity in “100 resilient cities”. *World Development*, 122, 648–659. <https://doi.org/10.1016/j.worlddev.2019.06.021>
- French, S., Leyshon, A., & Wainwright, T. (2011). Financializing space, spacing financialization. *Progress in Human Geography*, 35(6), 798–819. <https://doi.org/10.1177/0309132510396749>
- GIH. (2019). *Leading practices in governmental processes facilitating infrastructure project preparation: A practical guide for governments, informed by a country-lens review of leading practices*. Global Infrastructure Hub. <https://www.gihub.org/resources/publications/leading-practices-in-governmental-processes-facilitating-infrastructure-project-preparation/>
- GIZ. (2019). *Felicity's project identification and selection process: Overview and lessons learned*. Deutsche Gesellschaft für Internationale Zusammenarbeit. <https://iki-alliance.mx/en/lessons-learned-in-the-selection-process-of-infrastructure-projects-in-mexico-brazil-and-china/>
- Grafe, F.-J. (2020). Finance, water infrastructure, and the city: Comparing impacts of financialization in London and Mumbai, regional studies. *Regional Science*, 7(1), 214–231. <https://doi.org/10.1080/21681376.2020.1778515>
- Grafe, F.-J., & Mieg, H. A. (2019). Connecting financialization and urbanization: The changing financial ecology of urban infrastructure in the UK. *Regional Studies, Regional Science*, 6(1), 496–511. <https://doi.org/10.1080/21681376.2019.1668291>
- Grubbauer, M., & Hilbrandt, H. (2023). Shifts and hurdles in the urbanization of development finance. In *Financializations of development: Global games and local experiments*.
- Halbert, L., & Rouanet, H. (2014). Filtering risk away: Global finance capital, transcalar territorial networks and the (un) making of city-regions: An analysis of business property development in Bangalore, India. *Regional Studies*, 48(3), 471–484. <https://doi.org/10.1080/00343404.2013.779658>
- Harker, C. (2017). Debt space: Topologies, ecologies and Ramallah, Palestine. *Environment and Planning D: Society and Space*, 35(4), 600–619. <https://doi.org/10.1177/0263775816686973>
- Hilbrandt, H., & Grafe, F.-J. (2023). Thinking topologically about urban climate finance: Geographical inequalities and Mexico's urban landscapes of infrastructure investment. *Urban Geography*, 1–20. <https://doi.org/10.1080/02723638.2023.2176599>
- Hudson, D. (2015). *Global finance and development*. Routledge.
- IDB. (n.d.). *Phases of a city in emerging and sustainable cities*. Emerging and Sustainable Cities Program. Inter-American Development Bank. Retrieved June 27, 2023, from <https://www.iadb.org/en/urban-development-and-housing/emerging-and-sustainable-cities-program>
- Jakupec, V., & Kelly, M. (2015). Financialisation of official development assistance. *International Journal of Economics, Commerce and Management*, 111(2), 1–18.
- Janus, H., Klingebiel, S., & Paulo, S. (2014). Beyond aid: A conceptual perspective on the transformation of development cooperation. *Journal of International Development*, 27(2), 155–169. <https://doi.org/10.1002/jid.3045>
- Lai, K. P. (2016). Financial advisors, financial ecologies and the variegated financialisation of everyday investors. *Transactions of the Institute of British Geographers*, 41(1), 27–40. <https://doi.org/10.1111/tran.12101>



- Liu, F. H., & Lai, K. P. (2021). Ecologies of green finance: Green sukuk and development of green Islamic finance in Malaysia. *Environment and Planning A: Economy and Space*, 53(8), 1896–1914. <https://doi.org/10.1177/0308518X211038349>
- Liverman, D. M. (2018). Geographic perspectives on development goals: Constructive engagements and critical perspectives on the MDGs and the SDGs. *Dialogues in Human Geography*, 8(2), 168–185. <https://doi.org/10.1177/2043820618780787>
- Loftus, A., March, H., & Purcell, T. F. (2019). The political economy of water infrastructure: An introduction to financialization. *Wiley Interdisciplinary Reviews: Water*, 6(1), e1326. <https://doi.org/10.1002/wat2.1326>
- Long, J., & Rice, J. L. (2019). From sustainable urbanism to climate urbanism. *Urban Studies*, 56(5), 992–1008. <https://doi.org/10.1177/0042098018770846>
- Long, J., & Rice, J. L. (2021). Climate urbanism: Crisis, capitalism, and intervention. *Urban Geography*, 42(6), 721–727. <https://doi.org/10.1080/02723638.2020.1841470>
- Mader, P. (2017). Contesting financial inclusion. *Development and Change*, 49(2), 461–483. <https://doi.org/10.1111/dech.12368>
- Mawdsley, E. (2015). DFID, the private sector and the re-centring of an economic growth agenda in international development. *Global Society*, 29(3), 339–358. <https://doi.org/10.1080/13600826.2015.1031092>
- Mawdsley, E. (2017). Development geography I: Cooperation, competition and convergence between ‘North’ and ‘South’ *Progress in Human Geography*, 41(1), 108–117. <https://doi.org/10.1177/0309132515601776>
- Mawdsley, E. (2018a). From billions to trillions’ Financing the SDGs in a world ‘beyond aid’. *Dialogues in Human Geography*, 8(2), 191–195. <https://doi.org/10.1177/2043820618780789>
- Mawdsley, E. (2018b). Development geography II: Financialization. *Progress in Human Geography*, 42(2), 264–274. <https://doi.org/10.1177/0309132516678747>
- Nielsen, A. B., & Papin, M. (2021). The hybrid governance of environmental transnational municipal networks: Lessons from 100 resilient cities. *Environment and Planning C: Politics and Space*, 39(4), 667–685. <https://doi.org/10.1177/2399654420945332>
- O’Brien, P., O’Neill, P., & Pike, A. (2019). Funding, financing and governing urban infrastructures. *Urban Studies*, 56(7), 1291–1303. <https://doi.org/10.1177/0042098018824014>
- Peck, J., & Tickell, A. (2017). Neoliberalizing space. In R. Martin (Ed.), *Economy* (pp. 475–499). Routledge.
- Rana, F. (2017, September 26). *Preparing bankable infrastructure projects*. World Bank Blogs. Retrieved June 27, 2023, from <https://blogs.worldbank.org/ppps/preparing-bankable-infrastructure-projects>
- Robinson, J. (2018). The politics of the (global) urban: City strategies as repeated instances. In S. Oosterlynck, L. Beeckmans, D. Baasens, B. Derudder, B. Segaert, & L. Braeckmans (Eds.), *The city as a global political actor* (pp. 100–131). Routledge.
- Schindler, S., & Kanai, J. M. (2021). Getting the territory right: Infrastructure-led development and the re-emergence of spatial planning strategies. *Regional Studies*, 55(1), 40–51. <https://doi.org/10.1080/00343404.2019.1661984>
- Schneider-Roos, K., Wiener, D., Guldemann, R., & Grossmann, M. (2014). *Unleashing private capital investments for sustainable infrastructure greenfield projects: Scoping study regarding the early stage project preparation phase*. Global Infrastructure Basel. <https://www.convergence.finance/resource/unleashing-private-capital-investments-for-sustainable-infrastructure-greenfield-projects/view>
- Swaroop, V. (2016). *World Bank’s experience with structural reforms for growth and development* [MFM Discussion Paper No. 11]. World Bank. <https://openknowledge.worldbank.org/handle/10986/24360>
- UKCOP26. (2021). *The Glasgow climate pact. Summary by the UK presidency*. Retrieved June 26, 2023, from <https://ukcop26.org/wp-content/uploads/2021/11/COP26-Presidency-Outcomes-The-Climate-Pact.pdf>
- UNFCCC. (n.d.). *The Big picture: Introduction to climate finance*. United Nations Framework Convention on Climate Change. Retrieved June 27, 2023, from <https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance>
- UN SDG. (2023). *Sustainable development goal 17*. United Nations. Retrieved June 27, 2023, from <https://sdgs.un.org/goals/goal17>
- Van Waeyenberge, E. (2017). The post-Washington consensus. In H. Veltmeyer & P. Bowles (Eds.), *The essential guide to critical development studies* (pp. 205–214). Routledge.
- Van Waeyenberge, E., & Fine, B. (2011). A knowledge bank? In K. Bayliss, B. Fine, & E. Van Waeyenberge (Eds.), *The political economy of development: The World Bank, neoliberalism and development research* (pp. 26–46). Pluto Press.
- Zebrowski, C. (2020). Acting local, thinking global: Globalizing resilience through 100 resilient cities. *New Perspectives*, 28(1), 71–88. <https://doi.org/10.1177/2336825X20906315>