THE LONDON SCHOOL
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The assembly of climate finance in South Africa:

Politics, scale and justice

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Declaration

I certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

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Abstract

This thesis asks critical questions about the potential for climate finance to advance social justice. It draws on Deleuze and Guattari's interpretation of the assemblage to engage in methodological and theoretical debates about the application of the concept within human geography. I emphasise the centrality of human desire, theorize the purposeful and strategic nature of assemblages and demonstrate theoretical opportunities with respect to scale. This furnishes novel theorizations of climate change policy processes, energy transitions and offers empirical perspectives on the programming of climate finance. South Africa has an ambitious Green Climate Fund programme organised around two contrasting organisations that are accredited to access finance. The wider social and material context of this provides a rich empirical case to explore and advance assemblage theory. Paper one nuances the depoliticization critique. It demonstrates how an urgency framing carries forward and intersects with an expert epistemology, shaping the knowledge and human desires that are generated, contested and expressed. These desires are ordered in a theorisation of assemblage deployed in the next two papers. Paper two establishes a relational conception of 'country ownership' by exploring the territorialisation of projects, rather than recourse to hierarchical conceptions of scale. Paper three theorizes legitimacy in assemblage, accounting for the strategic production of legitimacy, the role legitimacy plays and clarity about why this is sometimes elusive. Paper four emphasises desire in the national 'just transition' and invokes 'net justice' to caution against the prevailing policy-orientation that is inattentive to specific, situated injustices. This body of theory can be inaccessible, partly reflecting that it has been broadly applied with different agendas, stretching its coherence at times. This thesis explores the theoretical potential of the assemblage to advance studies of climate finance in critical human geography.

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I will forever be grateful to friends and family for the support I have received over the course of my PhD. Special thanks are reserved for those who put me up between periods of fieldwork. Above all, my partner Anna has done the most to support me in this journey. Thank you for encouraging me to do a PhD in the first place, being with me for the highs and the lows, for following me around South Africa and for being such a great listener.

I would like to dedicate this PhD to my parents who have never stopped believing in me and what I might be able to achieve.

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List of frequently used abbreviations

AE	Accredited entity
AMA	Accreditation Master Agreement
ANC	African National Congress
ANT	Actor-network theory
CAN	Climate Action Network
CDM	Clean Development Mechanism
CFF	Climate Finance Facility
CFP	Call for proposals
COP	Conference of Parties
CSO	Civil society organisation
DAE	Direct access entity
DBSA	Development Bank of Southern Africa
DFI	Development finance institution
EGIP	Embedded Generation Investment Programme
GCF	Green Climate Fund
GEG	Global environmental governance
IEU	Independent Evaluation Unit
IO	International organisations
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent power producer
IRP	Integrated Resource Plan
LORTA	Learning-Oriented Real-Time Impact Assessment
MAC	Mining affected community
MDB	Multilateral development bank
NDA	National designated authority
NGO	Non-governmental organisation
NPC	National Planning Commission
OECD	Organisation of Economic Cooperation and Development
REDZ	Renewable energy development zone

REIPPP	Renewable Independent Power Producer Programme (REIPPP)
SACFA	South Africa climate finance assemblage
SANBI	South African National Biodiversity Institute
STS	Science and technology studies
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States dollar
VEM	Vukani Environmental Movement
ZAR	South African Rand

Chapter 1. Introduction

1.1 Background

1.1.1 Research outline

This thesis explores how the Green Climate Fund (GCF) is being operationalised in South Africa. I draw on assemblage theory to open the contingent, intersecting processes that exist to construct GCF projects. This chapter introduces the context and motivations for this research. Initially, the climate change political context is described to situate the GCF as a primary institution in the climate finance architecture. The research journey began with empirical questions which I locate within scholarly literatures that examine climate finance and broader critical human geography. The value of using an assemblage framing is clarified and a research design is spelled out that is attentive to questions of politics, scale, power, and justice. A full methodological exposition follows this theoretical groundwork and then I introduce the four separate paper contributions of the thesis.

1.1.2 Climate change and climate finance

Climate change is today acknowledged to be one of the most grave threats to human societies and natural systems (IPCC, 2018; Stern, 2015). The projected future impacts of climate change are well understood whilst effects are being felt around the world today. There is a growing awareness of the intersection of climate change and inequality (Chancel, 2020; Fisher, 2015; Harlan et al., 2015). Many communities and nation states that have contributed least to the problem will suffer the greatest consequences whilst possessing the least capacity to respond (Klinsky et al., 2016; Zimm & Nakicenovic, 2020). This is a global problem with many localised impacts. The response is necessarily centred on multilateral cooperation between nation states given the need for widespread de-carbonisation and societal transitions towards net zero economies; that is, economies that emit on average zero greenhouse gases. This multilateral process is oriented around the United Nations Framework Convention on Climate Change (UNFCCC). In 2015 agreement was reached between all parties in Paris to stabilise

global temperatures at 1.5° or well below 2° above pre-industrial levels[1]. This landmark agreement signalled a shared intention to address the causes and impacts of climate change and included a commitment to support developing country partners to participate. Article nine of the Paris Agreement (UNFCCC, 2015) details the role of financial transfer in this. Paragraph four states the following:

> *The provision of scaled-up financial resources should aim to achieve a balance between adaptation and mitigation, taking into account country-driven strategies, and the priorities and needs of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change and have significant capacity constraints, such as the least developed countries and small island developing States, considering the need for public and grant-based resources for adaptation.*

This provision is a critical reason why the Paris Agreement was accepted by developing country partners and sets out an ambitious agenda for financial support. This clause re-affirms the vital role of public resources and signalled a new era for vertical climate funds. This excerpt also introduces two important justice dimensions that are central to the climate response. Procedural justice is concerned with the process and work of addressing climate change and the diversity of participation. It is especially attentive to marginalised groups being involved in decisions that affect them and shaping outcomes (Newell & Mulvaney, 2013; Wood, Dougill, Quinn, & Stringer, 2016). Distributive justice is concerned with the fair allocation of benefit and harm that are associated with the impacts of climate change and the action taking to address it (Sen, 2009; Thomas & Twyman, 2005). This includes access to resources and is complicated by consideration of historical responsibilities and impacts on future generations. The importance of justice and equity in climate change and climate finance is developed further in Section 1.1.5.

1.1.3 Climate change and the Green Climate Fund (GCF)

The GCF, was established in 2010 as the primary finance instrument of the UNFCCC. It became operational in 2015 with a mandate to fund adaptation and mitigation activities equally, with

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[1] https://unfccc.int/sites/default/files/english_paris_agreement.pdf

an emphasis on the most vulnerable countries – Small island developing states (SIDS), least developed countries (LDCs) and countries in Africa (GCF, 2012). It became the focal tool through which to achieve the objectives of Article nine of the Paris Agreement. The Fund is headquartered at its Secretariat in South Korea and is oriented around national processes and focal points. Each participating country nominates a national ministry or agency to serve as its national designated authority (NDA). This oversees the relationship with the Fund and is responsible for signing off activities and ensuring that projects and programmes are aligned with and advance national development objectives (GCF, 2011). NDAs vary, with some being very involved in the strategy and day-to-day work of climate finance whilst others are more hands off. They do not develop projects, however. This work is done by accredited entities (AEs). There are three access modalities for accessing the fund.

- National direct access is via organisations that range from government ministries, domestic organisations such as non-governmental organisations (NGOs), scientific bodies or development finance institutions (DFIs). These are only able to develop projects in the country that they are based in;
- Regional direct access entities can be regional development banks and intergovernmental organisations, which operate across countries and can develop projects in one or many of these; and
- International access entities are the third option. Typically, UN agencies, multilateral development banks (MDBs), commercial banks and private equity firms. These have the options to partner with any country and often programme intercontinental activities.

The GCF is capitalised mainly by contributions from countries, with France, Germany, Japan the United Kingdom and the United States of America the largest providers. By the thirtieth meeting of the Board in October 2021 the GCF had committed USD10bn of its own resources, was implementing USD6.9bn and had disbursed USD2.4bn. Co-finance is central to the mandate of the GCF which seeks to leverage extra resources from both public and private sources. The total value of the GCF's portfolio of approved projects at this time was USD37.1bn across 190 projects. The Fund has two primary results areas that it targets equally: adaptation

and mitigation. At this time, the projects are anticipated to increase the resilience of 612 million people and to avoid two billion tonnes of CO_2 equivalent.

One vital statistic stands out in the GCF project portfolio dashboard[2] as an important concern. As of the thirtieth board meeting: the share of finance across the different access modalities showed that only 13%, or 25 projects had been approved via the national direct access modality and 10% or 19 projects with regional direct access. Direct access is a trade-off, as it is less efficient than channelling money via MDBs and DFIs that have the capacity and experience to manage large amounts of money. The benefits of direct access have been explored in an African context (Afful-Koomson, 2015; Fonta, Ayuk, & van Huysen, 2018) but there is little scholarly focus on the relative merits of direct access in terms of justice outcomes beyond claims that 'democratizing access can lead to procedural climate justice' (Omukuti, Marchant, & White, 2021). This thesis takes such claims further by exploring the potential of direct access as it offers developing county actors the chance to own the programmes and build capacity through this. As such it goes beyond technical assessments of country ownership (Bertilsson & Thörn, 2021; Kalinowski, 2020). Direct access holds the key to equitable and transformative climate action and is prioritised by GCF policy for this reason (GCF, 2017). This suggests that the transformative potential of the Fund is not being realised. Indeed, of the 62 countries that have DAEs accredited to the Fund, 42 have yet to secure project approvals (Caldwell & Larsen, 2021). Dawson et al. clarify procedural barriers in the equitable programming of forestry finance programmes (Dawson et al., 2018). Whilst Chaudhury shows how different entities work with the GCF, finding that international actors remain dominant (2020). These papers raise concerns about the national ownership of climate finance which can limit the equitable allocation of funding. Studies like this are useful but there remains a paucity of empirical exploration of how such intermediaries carry out the difficult work of project development.

Ideally, the GCF would see a lot more direct access, as their Secretariat has communicated (GCF, 2021; Puri, Prowse, De Roy, & Huang, 2022), but there is minimal research into the relationship between direct access and justice. A central premise of this thesis is that *direct access offers beneficiary countries the best chance to develop projects that meet their needs*

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[2] https://www.greenclimate.fund/projects

and build up their own capacity to respond to climate change. International access is a one-way transfer rather than a partnership and any justice benefits would be on the terms of powerful international organisations. I have worked with many developing country civil servants on their climate finance programmes as well as with colleagues at GCF Secretariat. There is a strong belief that direct access should be prioritised in countries that are able to do so which contributes to my personal motivation to understand this.

1.1.4   Critical human geography of energy and climate finance

Critical human geographers explore how finance, financial process and actors shape environmental governance. This PhD engages with a range of this literature to advance several interrelated contributions. The financialization critique of de-carbonization efforts offers a powerful and important response to neoliberal environmentalism (Christophers, 2015). It has been developed to explore the plurality of financial governance (Lövbrand & Stripple, 2011) in order to problematize prominent modes of work such as carbon accounting (Bridge, Bulkeley, Langley, & van Veelen, 2020). I join this discourse by exploring if and how the GCF produces valuable outcomes, and to add nuance to what can be a unidirectional conception of governance being *applied to* developing countries. The persistent ambiguity of hierarchical levels and labels that are used to describe this empirical context necessitates theorization about scale. Blok introduces a relational conception of scale to problematize the translation of carbon emissions (Blok, 2010). He collapses global and local binaries to explore a narrow translation using actor-network theory (ANT). This post-structural orientation offers rich potential to explore the coming-together of GCF projects, but the assemblage can better account for the large and diffuse agency of policy than ANT. Depoliticization and financialization critiques usefully describe how international organisations work, but I add to understandings of how such organisations can effect uneven development in beneficiary countries (Bigger & Millington, 2020; Bigger & Webber, 2021). This literature is quick to criticise international organisations without always including the nuance of the developing country context. I advance these debates with a situated exploration that foregrounds South African actors.

Geographical scholarship offers some of the most progressive and exciting theorization on power, politics and questions of justice. The politics of scale and configurations of power

(Bulkeley, 2005) offer me the necessary theoretical tools to explore the assembly of climate finance. The scalar interrogation of international climate finance can look beyond pre-figured categories, such as cities (Bouzarovski & Haarstad, 2019; Caprotti et al., 2021) in order to emphasise the purpose of interventions. This enlivens interpretations of seemingly simple transfers. Following Barnett's treatment of vulnerability (2020), I will look to expose the power and politics in the multi-scalar production of justice via international climate finance. There is a clear complementarity with this agenda and the critical scholarship in South Africa that explores the energy transition and questions of justice (Baker, 2021; Baker & Phillips, 2019; Caprotti et al., 2021; Phillips & Petrova, 2021). I seek to extend this scholarship by focusing critical attention on the potential of the GCF in this space.

1.1.5 Setting and motivation for the research

This research project evolved over several years before the commencement of my PhD. I developed a curiosity about the potential of climate finance whilst working in climate finance for an international organisation between 2015-17. The limited access by DAEs as of the beginning of 2022 notwithstanding, the curiosity was less about volumes of finance and more about how finance could be used. In 2009, the international community promised that USD100billion would be made available annually for climate action in developing countries by 2020. The majority, 60-70%, of the need is in developing countries (OECD, 2017). My interest was in how this could be best used as determined by beneficiary countries (Van Kerkhoff, Ahmad, Pittock, & Steffen, 2011; Vanderheiden, 2015). This commitment was a scarce positive from the otherwise disappointing Fifteenth Conference of Parties (COP) to the UNFCCC. This promise sustained the UNFCCC political process through to Paris and COP21 in 2015 and left an indelible mark on the decade. For developing and developed country parties alike, there was a new imperative to get this money moving. The decision was taken early to build a new instrument rather than use existing channels. The GCF was mandated to scale-up the volumes of concessional finance to developing countries, to leverage additional co-finance resources and to learn the lessons of previous instruments and development cooperation. Indeed, there was little contestation from the outset around the ambition and progressive policy. The Fund was to be *transformative*. The following definition was contributed by the Climate Action Network (CAN International) – a key civil society observer and driver of the GCF's development.

> *''Transformation change involves a strategic, long-term, and fundamental shift in a country's development pathway towards low-carbon, climate-friendly, gender-equitable and country-driven development and climate resilience … on the basis of country-owned strategies, plans and programmes that are developed and implemented through participatory and inclusive processes''*
> (CAN International, 2011, 1).

This demand led to the adoption of a similar definition by the GCF (GCF, 2011). This proved un-controversial, but from within the Fund there remain concerns about the definition, pursuit and assessment of transformation (Puri, 2018). The GCF's activities were to be country-owned; gender was to be mainstreamed and foregrounded; the participation of indigenous communities to be prioritised. Specific attention was to be paid to the vulnerable, in terms of nation states and people, infrastructure and nature within these (GCF, 2018). The GCF is progressive in terms of its stated goals and policies but enormously complex and challenging to implement. This PhD explores the implementation of this purportedly progressive policy.

1.1.6   The GCF, justice and equity

The GCF has ambitious policy and procedures. The climate action it supports will likely have a raft of positive impacts, but I wanted to explore the potential for this climate action to dovetail with the climate justice agenda. Climate finance can address drivers of inequalities that result from climate change. Colleagues working in climate finance articulated similar questions about the potential to use climate finance to support and advance social justice and this began to foment as an empirical question. Some scholars have looked at leveraging the GCF for specific co-benefits, for example asking questions of how to target poverty alleviation explicitly as a co-benefit (Mathy & Blanchard, 2015), or to emphasise agendas such as private sector engagement in adaptation (Stoll, Pauw, Tohme, & Gruening, 2021) but there is a gap with respect to justice. There was considerable pressure from all sides to operationalise the GCF ahead of COP21, where capacity constraints in the new Secretariat met stretched government agency focal points. It was clear that each country was on a unique journey and whilst many countries would lean heavily on international support from UN agencies or multilateral agencies, others were embarking on ambitious, nationally determined, programmes of transformational project development. The academic literature includes general

commentaries about how to design and implement the GCF (Bowman & Minas, 2019; Van Kerkhoff et al., 2011) but these tend to be overarching commentaries. There is a gap with respect to in-depth empirical and theoretical scholarship into the operationalisation of the GCF and questions of justice within this.

The resources of the GCF are drawn from developed countries but are for developing countries. These resources belong to developing countries, yet they must jump through hoops and provide all manner of evidence and justifications for their money (Bertilsson & Thörn, 2021; Kalinowski, 2020). The starting point for this research is rooted in this empirical context, where there is a tension in the interface between the Fund and beneficiary countries. On the one hand, the Fund needs to work fast, finance projects with a strong climate rationale and financial performance. It needs results to be consistent and coherent so that they can be amalgamated and communicated, in terms of financial volumes, greenhouse gases avoided and people made resilient (GCF, 2011). Simultaneously, it has a primary operating modality via national entities and focal points, to empower domestic stakeholders to be the agents of transformation in their own climate action.

Some countries have far more ambitious country programmes[3] than others, reflecting capacity constraints and domestic political champions. This PhD set out to explore the potential for this channel to support just and equitable climate activities and agendas. There is a common criticism levelled at the GCF that is a neoliberal and financialised entity, that it is part of a climate finance structure that is restrictive of developing country autonomy (Bertilsson & Thörn, 2021; Bracking, 2015; Bracking & Leffel, 2021). I set out with this in mind but sought to move beyond this critique to explore how the GCF is programmed in a beneficiary country. This offers a different empirical engagement with the criticisms of the GCF and goes beyond some of the generic criticism (Bracking, 2015). Whilst criticism of the Fund is by no means the purview of academics and activists from the Global North, my explicit intention has been to re-centre analysis in the experience, desires, frustrations, and mundanity of actors who are doing the work in developing countries. This is born out of experience, where actors from NDAs and

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[3] National strategy for partnership with the GCF, which incorporates relevant national policy documents and priorities https://www.greenclimate.fund/document/country-programme-guidance.

AEs are concerned to deliver on their mandates and to help national efforts by bringing in vital additional finance. One such instance of this was at the GCF's Direct Access Week in May 2016, at the headquarters in Songdo, South Korea. Developing country civil servants voiced frustration at the infamously laborious process and the pressure to bring in project finance. Whilst I appreciate the critique of climate finance and the GCF, my research asks about what happens next when people develop projects. Zooming-in on this context can be informative about the nature of the relationships between the Fund and beneficiary countries and offer insight about the direction the GCF is moving in. It also offers an important rejoinder to critics of the Fund along the lines of neoliberal financialization (Bracking, 2019) by foregrounding the voices and experience of actors in the Global South doing the work of climate finance.

1.1.7 Pillars of the climate change political context: justice and equity

Climate finance encapsulates a wide range of resources. The UNFCCC defines it 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"[4]. The Climate Policy Initiative provide a biennial summary of the flows of climate finance, suggesting that in 2019/20 an average of USD632bn per year was invested (Climate Policy Initiative, 2021). Funds, including the GCF provided USD3.5bn per year (ibid.). Most climate finance flows via private finance institutions or is spent by governments and private citizens, generally in-country. The GCF, and the other funds like it, contribute less than 1% of the total, but this is a vital fraction. This money targets sectors and places that are harder to monetize and they offer the prospect of leveraging further, typically private, resources. Henceforth, I will simply refer to this fraction of the resources as climate finance, and this research explores only this sub-set of money[5]. I argue that this money is qualitatively and normatively distinct. It is closer to development finance (Afful-Koomson, 2015; Van Kerkhoff et al., 2011). As I have already set-out – this money is a transfer from developed to developing countries where the primary conditions for finance are the highest standards of development cooperation, empowerment, and transformation. This contributes to distributive justice, but the potential of this also hinges on the procedural justice of how the fund works. The GCF's

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[4] https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance.
[5] That said, public climate finance can crowd in additional private resources and the GCF has a stated goal of doing so.

ambitious policy in effect demands just and equitable climate finance. Justice and equity are absent from the GCF's investment criteria (GCF, 2019b), but loom large in the background. Likewise, my research design is attentive to procedural and distributive justice and equitable access without these being at the forefront.

Justice and equity are widely accepted as necessary in the international community's response to climate change (Klinsky & Dowlatabadi, 2009; Klinsky et al., 2016; Okereke & Dooley, 2010; Winkler, Letete, & Marquard, 2013) and these themes were subject to a wealth of research around COP21 (Morgan & Waskow, 2013; Okereke & Coventry, 2016). The different dimensions of justice can sit uncomfortably together, leading to difficult trade-offs (Bulkeley, Edwards, & Fuller, 2014; Malloy & Ashcraft, 2020; B. K. Sovacool & Dworkin, 2015). Human geographers have explored the plurality of justice (Edwards, Reid, & Hunter, 2016; Walker, 2012) but there is scope to take this further. My research is attentive to plurality and how actors involved in GCF project development work with these various and sometimes conflicting justice orientations. The Paris Agreement foregrounded equity and justice. The preamble lists equity as a guiding principle and emphasizes the 'intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development'[6]. Justice met far greater resistance in Paris, given the potential exposure of developed nations and high-polluting industries to claims for loss and damage (Morgan & Waskow, 2013). The text refers to the just transition and notes on page 2. 'the importance *for some* of the concept of "climate justice", when taking action to address climate change' (emphasis added). This concession speaks to the ideological divide in climate politics that carries forwards into the GCF. This partly sustains the aforementioned neoliberal critique of climate finance (Bracking, 2019), where commercial banks can reduce their financing costs (Mitchell & Sparke, 2016). But aspirant GCF projects should be able to target procedural justice and equity as well as in a distributive sense in project outcomes.

1.1.8   How to explore justice and equity in GCF project development

An early decision in my research design was to pursue a single country-study to better understand justice effects. The methodological choices are elaborated fully in Section 1.3. I

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[6] https://unfccc.int/sites/default/files/english_paris_agreement.pdf

determined that a critical case could best explore justice and equity in the GCF. This approach required a beneficiary country that was taking project development seriously, involving institutions with a strong mandate, adequate resources and political backing. A country seeking to develop transformational projects and where justice features on domestic political agendas. This is a study of GCF project development and the intersection between the Fund and a beneficiary, rather than of a country per-se. I spent much of 2018 identifying and negotiating access to a country. This was complex and labour intensive, reliant on professional networks in climate finance. More than 150 developing countries are eligible to access the Fund. I eliminated non-anglophone nations and those without a DAE. This produced a shortlist of less than 20 countries from Africa, the Caribbean, and the Pacific. South Africa, with two DAEs, was the stand-out option. These contrasting entities offered the prospect of a more varied experience of GCF programming. I provide more detail on this in Section 1.3.4.

South Africa played an important role in the development of the GCF. The 17th UNFCCC COP was held in Durban, South Africa in 2011. Here, the Fund's governing instrument was adopted[7], and the South African COP presidency had a broad effect of 'raising climate change up ministerial agendas' (NDA staff). South Africa – and South Africans – remained involved in the design and implementation of the Secretariat and the country has regularly provided board members and on three occasions has provided the developing country co-Chair. Moreover, South Africa is a country where questions of justice are a part of an everyday national conversation, including critical questions about the energy transition and justice (Winkler, Keen, & Marquard, 2020; Winkler, Tyler, Keen, & Marquard, 2021). This reflects the history of colonialism, white-majority rule, the end of this apartheid and the new democracy, and more recently an endemic state capture crisis. The South African DAEs are bound by regulation to pursue just and equitable process and outcomes in their GCF owing to the policy and legislation that surrounds national development planning and industrial policy.

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[7] https://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_gcf.pdf

1.2 Theory and method

1.2.1   Introduction

My initial line of enquiry sought to explore the potential of direct GCF access to support just climate action, just transitions and transformations to low-carbon and climate resilient futures. The empirical context, and the broad questions, could be approached within many disciplines and theoretical frameworks. I began with a clear empirical setting, questions and objectives which have changed little. By contrast, I had no clear idea of how to investigate and answer such questions. I came from a professional background, have a policy-oriented MSc and an undergraduate degree in archaeology and anthropology. Human geography is a broad church that regularly borrows theory and adapts it, and the early years of my PhD journey were an opportunity to explore widely within political science, sociology, anthropology and development studies. My theoretical and methodological engagement was oriented around the following questions, aims and objectives.

1.2.2   Questions, aims and objectives

1.2.2.1 Primary research question

To what extent can GCF project development support just and equitable progress towards low-carbon and climate resilient pathways?

1.2.2.2 Aim

To critically explore the national experience of programming climate finance in a developing country and to explore how this intersects with and advances national justice agendas.

1.2.2.3 Objectives

- Scrutinize how much autonomy and self-determination countries have when interacting with the GCF.

- Examine the extent to which climate finance is provided to or done in partnership with countries.
- Explore the GCF design principles and criteria, to reflect on this in the context of development cooperation and to offer alternative explanations for how climate finance works in practice.
- Explore the potential of applying critical theoretical approaches, such as the assemblage, in this context to add explanatory value and novel insights.
- Expose the limitations in the current conceptions of justice in this policy context, in particular with reference to its casual application in 'just transition' discourses.
- Generate insights that can benefit research participants and contribute generally to efforts to better climate finance.

1.2.3   Theoretical exploration

The focus on project development, as opposed to the eventual projects, shaped an initial focus on theoretical tools that are attentive to processes of becoming. There is much contingency in project development, possibility, and potential. I was just as interested in what did not happen as what eventually came to pass. This is an equally important ontological position with respect to the justice-orientation of the work. The way that actors – people and things – interact and how ideas, hopes and beliefs combine under the umbrella of the desire to access climate finance. This search for a theoretical framework began by looking at international relations and international development literatures which have engaged widely in global environmental governance (GEG). The turn from legal, command and control type instruments to financial instruments provides a useful framing to this context (Gunningham & Holley, 2016; He, Huang, & Tarp, 2014; Young, 2016; Zhang et al., 2016). This includes much criticism of the prevailing financial orientation (Bracking, 2019; Ciplet & Roberts, 2017; Swyngedouw, 2011). These situating literatures tend to write at a remove from national experiences in developing countries. The PhD process presents the opportunity for in-depth empirical research that goes beyond these.

The GEG literature is vast and inherently inter-disciplinary, but climate finance is a smaller, relatively new, niche within this. Governance is broadly understood to encompass more than

formal government apparatus. In addition to the market instruments that are increasingly central, this includes various decision makers and stakeholders. More complex, inter-scalar versions of governance (Biermann, 2014; Biermann, van Driel, Vijge, & Peek, 2020; B. K. Sovacool, Linnér, & Goodsite, 2015) account for systematic interlinkages, and offer more explanatory scope than traditional liberal focus on institutions and policy decisions. Scholarship that attends to inclusivity in governance is especially helpful (Ostrom, 2010) where polycentrism describes the empirical context better (Jordan et al., 2015; B. Sovacool, Tan-Mullins, Ockwell, & Newell, 2017). The practice theory literature, especially within organisational studies, proved a fruitful way of foregrounding work and knowledge (Nicolini, 2012) to facilitate engagement in these modes of governance.

There is a parallel, more critical, approach that draws on post-structural thinking to better attend to power (Bourdieu, 1984; Foucault, 1972). These grand theoretical traditions have shaped science and technology studies (STS) treatment of GEG (Chilvers & Longhurst, 2016; Forsyth & Levidow, 2015; Hess & Sovacool, 2020). These critical literatures view governance in terms of connections and relations, practice and participation of human and non-human actors. This offers rich potential in a policy context, where liberal institutionalist approaches struggle to account for the mess of policy-making (Law, 2004). Anna Tsing's ethnography of global connection deployed the metaphor of 'friction' to explore the coming together of heterogenous parts, discourses, and norms. Sites of 'the awkward, unequal, unstable, and creative qualities of interconnection across difference' (Tsing, 2005, p. 4) She also writes about technologies of participation. These are 'things' that facilitate the components of an assemblage to act and to have effect. The 'things' that facilitate governance. This, and other literature that constitutes the 'material turn' (Asdal, 2015; Bennett, 2009; Bueger & Gadinger, 2015; Dittmer, 2014; Latour, 2005) shaped a broad ontological commitment to materiality in my research design. This is especially important given the complex agency of physical and environmental things in climate panning and the central role of documents as a technology of participation in the GCF. These play a social role in contestation and convergence (Ferraris, 2015; Weisser, 2014) in governance.

1.2.4 Theoretical approach

The theoretical orientation developed over the first 18 months of my PhD. It cohered around post-structural approaches and political ecology perspectives (Bigger & Millington, 2020; Forsyth, 2008; Gonda, 2019) which foreground power. Murray Li's (2007) work on forest management provided a gateway to start using the assemblage as a conceptual tool. Li complicated governance studies, focusing attention on the coming-together of people, ideas, discourse and knowledge that shape how 'deficiencies are corrected' (ibid. p.1.). This included a focus on agency and the acts of assembling. It is contingent and uncertain, which exactly describes GCF project development. Collier and Ong's 'global assemblage' (2005) complemented Li's forestry assemblage, highlighting how technological, social and ethical concerns factor in global governance. This challenges universalizing interpretations of globalization and offered a framework to think about how a global fund is operationalised in a specific country. The assemblage concept offers a critical vantage point on governance that attends to the contingent and processual nature of work and is especially helpful where the object of concern is more *how* an outcome is reached than said outcome. There is a growing body of scholarship in human geography that is taking advantage of the analytical potential to explain governance. 'Governance in motion' draws on the assemblage to provide:

> *'An explicitly relational view … in contrast to dominant institutional analyses and regime theories that emphasize social structural designs. It thus points to the continuous labour of creating and adapting techniques of governance as opposed to resultant formations'* (Wilshusen, 2019, p. 2)

Wilshusen clarifies the constitutive processes of neoliberal environmental governance and the diffuse power dynamics within this. This diffuse and distributed conception of agency complements Tsing's 'friction', especially via assemblage's explicit purposive orientation. Wilshusen's treatment of power offers a very light engagement with questions of justice but could go further. These texts helped frame my research study around justice in assemblage as one of *justice in motion*. GCF project development is a good example of the problem that they set out to clarify, where global ideas around finance and climate change are re-made in situated contexts. Their assemblage foregrounds difference, emergence and heterogeneity in response to a specific purpose (Briassoulis, 2017). Assemblage approaches seek to understand

the processes, configurations of power and desires which allowed a particular assemblage to come into being (Nail, 2017). These desires are conceptualised 'as an active, positive force' (Ericson & Haggerty, 2000, p. 619) which enrol and arrange various components (people, ideas and things) to produce particular orders (Bueger, 2018) and effects.

Using the assemblage involves a specific material-semiotic interplay that is common with ANT. The productive intersection between ideas and things is central in the ontology of this research project. This research design has benefited from an engagement with ANT texts and the range of conceptual tools for application. Translation, black box, centres of calculation and other terms have gained wide traction and usefully facilitate analysis. There are several reasons why I decided to use the assemblage, however. ANT is narrow and precise. The radical empiricism of ANT forces the scholar to explore every detail of a research project consequently narrowing the scope of the research. It is well-suited to study the translation of specific concepts, like emissions (Blok, 2010) and specific policies (Caprotti, Essex, Phillips, de Groot, & Baker, 2020). I found that the assemblage offered better explanatory value for the coming-together and stabilisation of people, things and ideas in a contingent policy context that is full of potential. The assemblage is especially helpful at exploring why things do and do not happen, whilst ANT is better suited to explain a specific phenomenon. ANT can do this, and has an ontological commitment to make visible historical possibilities which eventually were not realized (Law, 2008). ANT stresses an ontological equivalence in terms of agency and intentionality and also a commitment to immanence and instability that pose challenges for application in policy-oriented research (Müller, 2015), specifically in terms of accounting for historical formations and enduring power effects. Indeed, part of my justification for not using ANT is this assumption, where instead I seek to understand the purposeful, strategic intention of actors based on the enduring context. Assemblages exist with reference to strata – the historical formations that frame an assemblage's purpose and the desires within them (Buchanan, 2020; Deleuze & Guattari, 1988). These are enduring forms, which differentiate the assemblage from the networks of ANT, where assemblages emphasise stabilising change rather than translating facts. This suits the assemblage to policy studies, where enduring historical formations such as nation states have an enduring importance (Hartwick, 2000), whilst ANT conceives a world with less social order. 'Rather, there are endless attempts at ordering' (Law, 1993, p. 101), which does not capture the empirical setting as well. My empirical context requires a theoretical

approach that can account for the enduring politics of the UNFCCC; of debt, colonialism, and other historically deterministic forces. Müller voices concerns that that 'ANT risks describing endless chains of associations without ever arriving at an explanation for the reasons and differences in network formation processes' (Müller, 2015, p. 30). Similar concerns surround the assemblage and its proclivity for 'thin description' (Allen, 2011). But assemblage theory starts from a point of consideration for the difference – including in terms of power, agency and desire – between the different people and things doing the assembling. All of which is crucial for advancing understandings of justice.

1.2.5 Applying assemblage theory to the study of GCF project development: the central importance of human desire

Manuel DeLanda's *New Philosophy of Society* provided an important opportunity for me to engage with assemblage theory on his terms. He stressed the analytical value in exploring social forms like cities, states, financial markets and bureaucracies as part of his 'assemblage theory 2.0'. His interpretation has people and things coalescing and cohering into irreducible wholes that exceed the sum of their parts and have effect in the world. The 'territorialisation' of such a form sees it strengthen its boundaries and internal coherence and identity, whilst 'de-territorialisation' is the opposite, where an assemblage weakens, ultimately ceasing to exist (Deleuze & Guattari, 1988). This provided a conceptual means to frame the project development process as an assemblage which remains the central theoretical framing of my PhD. This assemblage exists to produce bankable projects. This work enlivens the components of assemblage, leading to 'vibrant materiality' of agential things (Bennett, 2005). Both Bennett and DeLanda emphasise the coming-together of people and things and seek to explain the effects of this in the world, but they diverge from the assemblage thinking of Deleuze and Guattari (Deleuze & Guattari, 1988), the originators of the concept, in an important way. This has to do with human desire. DeLanda and Bennet's assemblages are based on the notion that the properties and effects of an assemblage derive from its components. In such a reading, the different people, things, ideas combine and produce an effect that reflects some combination of these. My issue with this interpretation is that it describes systems of things (Brenner, Madden, & Wachsmuth, 2011) without offering sufficient analytical value as to why they happen. This differs fundamentally from Deleuze and Guattari's assemblage, which can be summed up as orderings of human desire that shape and give purpose to an assemblage. Ian

Buchanan, a philosopher, has provided a robust critique of DeLanda, Bennett and others, and more generally of the way that the concept has been incorporated into disciplines such as human geography. He criticises interpretations that focus on people and things rather than about what assemblages do, their effect and what this says about the world. He summarises three 'fatal flaws' in DeLanda's interpretation of the assemblage:

1) the assemblage does not constitute a part-whole relation;
2) the assemblage is not the product of an accumulation of individual acts; and
3) the assemblage does not change incrementally.

(Buchanan, 2015, p. 388)

The criticism hinges on the question of *what* is assembled. Buchanan, referring to Deleuze and Guattari's work, argues that desire is primary. Assemblages are arrangements of desire, where 'desire selects materials and gives them the properties that they have in assemblage' (Buchanan, 2020, p. 56). Assemblages are orderings of desire for something, they are not the bits and pieces that are enrolled in them nor the acts this led to. On the third point, an assemblage is not fixed, it is in flux constantly, but Buchanan's issue with the gradual mode of change in DeLanda's social forms is that this erases the purpose of an assemblage. Assemblages exist for a specific purpose, and this might result in flux and change in the content and form, but the purpose is constant. Buchanan provides a rigorous defence of the assemblage concept as Deleuze and Guattari intended and provides a timely riposte to the sometimes casual use in geography. Geographers have articulated many similar concerns, asking what an assemblage is – a descriptor, an ethos, a concept, a process? (Anderson & McFarlane, 2011). This thesis is a concerted attempt to explore the potential of the assemblage, as an ordering of human desire, in critical human geography.

1.2.6   Key concepts

Each of the standalone papers explores a different opportunity presented by the assemblage or seeks to build the theory in some way. Assemblage theory is well-suited generally to the empirical context in ways now elaborated.

1.2.6.1 Desire

This research deploys two assemblages. The first is an ordering of desire to programme climate finance. The basis for this desire is explored in paper one before the assemblage is used and advanced in papers two and three. The various desires for this common objective enrol people and things to serve this, giving these properties that contribute to the territorialisation of effects. This focus on desire reflects the core, un-changing, objective of GCF project development and anchors the research in the existing political economy, history and structures. The second assemblage is an ordering of desire for a 'just transition', which is a separate objective, but one that intersects with the desire for climate finance for some. This second assemblage provides a necessary counterpoint for the first in elaborating how climate finance relates to domestic justice agendas. This choice reflects an intention to assess the GCF programme in South Africa in terms of what actors are attempting to do, so it fits into the nascent literature on policy assemblage (Baker & McGuirk, 2017; Savage, 2020; Thompson, Sellar, & Buchanan, 2021). Policy is non-linear and messy (Mosse, 2004), conceived of as 'wild' by Lea, so focusing on desire helps foreground what a policy seeks to do and how that intersects with real world contexts (Lea, 2020) and what effects this has.

1.2.6.2 Agency

It is a deliberate choice in this study to focus on dispersed agency in assemblage. That is agency spread across people, things and ideas which combines to have effect, rather than any one source of agency. Orderings of human desire enrol other people, things and ideas, altering their properties and bringing various agential actors and actants into contact. The Kantian notion of causality, that causality is not evident in reality and can be questioned, is central to agency in assemblage. Desire, as the route of production, better accounts for the variety of contingent possibility. Arendt's distinction between origin and cause builds on this (Arendt, 1973) and highlights an important feature of assemblage theory: that given multiplicity, non-linearity and contingency, things are not necessarily a certain way just because *they are* a certain way. This is vital for a politically aware account of project development. Two examples clarify why. First, the multiplicity of a project or thing – this PhD explores the ontological variability of a solar panel for example – means that the same outcome can be good or bad, just or un-just. The added value of the assemblage is to enable examination of what happens as well at what could happen. Secondly, some outcomes are almost inevitable and others

implausible or simply in the future. Assemblage theory looks at the dispersed agency that shapes outcomes and can enliven and illuminate politics in this, where the outcomes are secondary or yet to come to pass. The knowledges that shape what people and things can do are explored in this PhD, adding conceptual clarity to the sometimes loose notion of human desire that is so central for Buchanan.

1.2.6.3 Scale

Deleuze and Guattari invoke the rhizome to explain their conception of connection. It rejects the arborescent, of tree-like conception of the world in favour of 'smooth space' – "a field without conduits or channels"—thus implies freedom of communication among assemblages or "rhizomatic multiplicities" (Deleuze & Guattari, 1988, p. 371). This relational ontology influences how I treat scale in this research. The GCF operational apparatus is portrayed as a linear channel from global, to national and local (GCF, 2011). Assemblages can usefully go beyond this and focus on the practices that build up the connections that form scales and make them knowable. The circulation of universals (Tsing, 2005) therefore leads us not to see a mobile policy but instead to look at the practice that makes policy mobile, how assemblages connect and work with components. DeLanda's assemblages are somewhat additive, where several provinces constitute a nation state, for example.

> *'Assemblages making up these collectives interact with one another, these interactions endow populations with properties of their own … within these collectivities larger assemblages may emerge. Lead(ing) to the formation of more or less permanent articulations between them, yielding a macro-assemblage. Larger assemblages will be created leading to the possibility of even larger ones emerging'*
> (DeLanda, 2006, p. 17)

This thesis offers a different conception of how the GCF works in beneficiary countries, less reliant on pre-figured categories and instead attentive to productive connections, driven by desire.

1.2.6.4 Strategy

Deleuze and Guattari's assemblages are purposeful. Here again, Buchanan disagrees with the somewhat random happenstance of DeLanda, where people and things cohere and have effect. The assemblage is fully formed, an order of desire. In this sense Deleuze and Guattari talk often about nation states. DeLanda's version lacks purpose and direction:

> *'no deliberate plan can be discerned, the change occurring through the slow replacement over two centuries of one set of daily routines by another. Although this replacement did involve decisions by individual persons . . . the details of these decisions are in most cases causally redundant to explain the outcome'*
> (DeLanda, 2006, p. 41).

For Deleuze and Guattari, the state 'was not formed in progressive stages; it appears fully armed, a master stroke executed all at once; the primordial Urstaat, the eternal model of everything the State wants to be and desires' (Deleuze & Guattari, 1983, p. 217). The commitment to centrally exploring human desire in assemblage trains the analytical focus of this PhD on the strategic and purposeful work and experience of actors and actants involved in climate finance. This builds on the policy assemblage literature (Fox & Alldred, 2020; Savage, 2020) by better accounting for how and why some outcomes occur and why some connections are productive. As such, the legitimacy of an assemblage and what it produces can be problematised, which is identified as a shortcoming in both the assemblage literature and also in the policy discourses around climate finance.

The assemblage offers opportunities, both in its application to clarify and demystify climate finance as well as to build the theory where it is currently lacking. Its emphasis on processes of becoming, on purpose and strategy, and its relational ontology make assemblage theory well-suited to explore GCF project development. The added value of the assemblage is to expose the dispersed agency and strategy within this process. Emphasising desire brings these to the fore, and whilst it has been explored in education (Thompson et al., 2021) and housing (Lea, 2020), the unique insights of assemblage are especially exciting for climate policy and the social transformations that policy now pursues. This huge research object benefits from the focus on desire, which permits a clear and precise window into questions of justice. As such, the

theoretical contribution of this thesis is to look at how desires assemble climate finance, to build on nascent climate assemblage thinking by emphasising the unique role of human desire (Fox & Alldred, 2020).

1.2.7   Units of analysis

The methodological choices, approach and application are described in full detail in the next section, but a word on the unit of analysis. This research explores how GCF project development unfolds in-country. As discussed previously, for a country to have full ownership and to aspire to its full transformative potential, it is necessary for a country to use the direct access modality. The unit of analysis is therefore the direct access by a country to the GCF. This is not a case-study of South Africa, which instead provides the context. A second unit of analysis is drawn upon for the fourth paper of this PhD, the South African 'just transition'. This emerged as a distinct unit of analysis, and indeed a distinct assemblage, to the other paper contributions. This reflects the fact that both DAEs in South Africa were explicitly interested in developing projects that engaged with justice and the energy transition. This has yet to cohere into projects, but I was keen to incorporate this into my research, such that I could reflect on the overarching empirical research question about how the GCF might support climate just activities.

1.3 Methods

1.3.1   Case study

The case-study research design (Hammersley & Atkinson, 2010; Ridder, 2012) involved joining interrelated communities focused around GCF project development. My choice to adopt a case-study approach reflects an ontological position drawn from STS, that disputes the idea of knowledge as stable, that it can be known out of context or separated from the practices that generate it (Duffy, 2014; Jasanoff, 2010; Latour, 2005). The case-study provides a version of the epistemic object of study that reflects the researcher. Recognising this reflexivity is key to valid findings (Finlay, 2002), which acknowledge my own bias and that of participants that I access. All qualitative evidence is partial in this way (Ridder, 2012) which makes Lund's question 'of what is this a case?' (2014) especially insightful. This helped me to isolate the

direct access modality as the case but would require constant iteration throughout the research. Lund uses 'generalization, specification, abstraction, and concretization' (ibid. p.224) to tease out the essence of a case from empirical and theoretical work. This fits assemblage theory, which retains an open and contingent framing of its object of study. Assemblage theory is loose methodologically, despite attempts which provide clarity about how to apply as much as how to do (Baker & McGuirk, 2017; Buchanan, 2020). Indeed, assemblage theory is multiple by design (Briassoulis, 2019) and well suited to study governance and its multiple, competing objectives.

1.3.2 Ethnographic approach

Building a field in this way lent itself to ethnographic research, where a growing number of scholars are increasingly looking to access the inner workings of GEG this way (Campbell, Corson, Gray, MacDonald, & Brosius, 2014; Larner & Laurie, 2010; Mosse, 2013). My iterative, snowballing approach involved joining numerous meetings, forums and events. This provided a corrective to some of my bias about who and what to include in my case. Through this I spent a lot of time with people, what Clifford Geertz would term 'hanging out' (2000) and even more time exposed to ideas in-country. Taking an ethnographic approach[8] encourages a different form of imagination. More than a method, 'there is an important sense in which ethnography is not just a set of methods but rather a particular mode of looking, listening and thinking about social phenomena' (Hammersley & Atkinson, 2010, p. 230). Crucially, this goes beyond interviewing in creating an inter-subjective account, where the researcher is both a witness and a participant, iteratively refining the research questions depending on the inputs of others (Emerson, Fretz, & Shaw, 2011; Venkatesh, 2013) via field notes and reflections. Indeed, I think that this approach is vital to open-up the contingent politics of project development and to access the range of desires that shape assemblages. This is especially helpful in considering the complex scalar work in assemblages (Burawoy, 2001; Ghoddousi & Page, 2020) and with respect to emergent and immanent effects, including those that have not come to pass.

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[8] This research is informed by ethnographic approaches but at no stage was it intended to result in an ethnography.

Participant observation also has a political character that is inaccessible via interviewing (Jerolmack & Khan, 2014) because meaning is variable and context specific. Self-reported claims are only partial, and 'abstracted from lived experience' (ibid. p.178.). Research that engages with social justice has an even greater onus on accessing what people do, as well as what they say. Feminist applications adeptly access power dynamics (Gonda, 2019) and those attentive to race in social movements (Lennon, 2021) engage with experience of injustice in a way that is inaccessible otherwise. Beaulieu (2010) frames fieldwork as relational and co-constructed between researcher and participant. This is especially important in an increasingly connected world where social media and ubiquitous WhatsApp access collapse many boundaries and barriers that would have shaped the field. Relationships are fundamentally different now that an interview or spending time with a participant regularly spills-over. The social context of this work spans various knowledges (Bammer, 2018) which conditions the data and my role in collecting it. This is central to the iterative mode of research and accentuates Beaulieu's claim that these relationships construct the field, rather than the field being a fixed object in space and time.

1.3.3   Iteration

Uncertainty was a central tenet throughout the early stages of research design, with two considerations in particular: first: would it be possible to gain access to a suitable beneficiary country? If so, which one? Assemblage approaches tend to use a range of interview methods, policy and document analysis, ethnography and increasingly other online data sources. None of this uncertainty was an issue with respect to the assemblage approach. The focus on desire and assembly of projects in-country would sustain the research questions regardless of the context and the types of data in any country that was working towards direct access, and where people were willing to engage. These are all drawn on to some extent in this research, but clearly the design depended on the two questions here. The extent to which data would be drawn primarily from interviewing civil servants, from international meetings, and from participant observation whilst embedded in DAEs and NDAs all remained unknown as I designed this research. I prioritised a country with a broad stakeholder set that could elaborate on the experiences of the central actors. The nature of climate risk, and the need for finance as set out in nationally determined contributions varies greatly by country. From the outset it was unclear if this research would primarily explore mitigation or adaptation projects, or both.

Income class, domestic private sector, religion, political climate, and linguistic factors all compounded this, as too did cost and logistical considerations which would determine the nature and extent of fieldwork.

1.3.4 Building and entering the field

The iterative nature of this project meant that the boundaries and make-up of my field solidified but remained in flux until the end. Much of 2018 was devoted to the task of engaging with research ethics and securing equitable and transparent country access. I received approval from the LSE's Research Ethics Committee in December 2018, after securing initial access to South Africa. Speaking to technical actors was an opportunity to both refine and test research questions and themes as well as to understand the progress of different country programmes and DAEs. I compared different opportunities based on their institutional set-up. I approached nine entities in eight countries in September 2018 and built on a positive response from the Development Bank of Southern Africa (DBSA). The South African Adaptation Network[9] was hosting its annual general meeting in Cape Town in mid-November. I attended this and used it as an opportunity to meet actors involved with adaptation planning and to pursue a research arrangement with the South African National Biodiversity Institute (SANBI). This is an example of one of the communities I joined to facilitate this research[10]. Physical entry to the field built on desk-based research to populate a stakeholder map and was an opportunity to understand the prospect of carrying out this research in South Africa. My scholarship from the Leverhulme Trust included a research budget and the availability of relatively low-cost air travel to South Africa made this viable. I visited South Africa four times as summarised in table 1.1, and never formally left the field. This important 'rite of passage' was interrupted by the pandemic which forced a hasty exit in March 2020, when the shift to online working extended my data collection into 2020.

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[9] a coordination mechanism for various stakeholder, including the South African National Biodiversity Institute (SANBI), one of the South African DAEs.
[10] I remain a member of the Adaptation Network and served as a member of a sub-committee on finance for a year.

Table 1.1 Fieldwork summary

November 2018	Initial scoping trip to Cape Town
January – April 2019	Johannesburg, Pretoria, and Cape Town
October – December 2019	Johannesburg, Pretoria, Mpumalanga, Kwa-Zulu Natal
January – March 2020	Johannesburg and Pretoria
March – August 2020	Online interviews

Source: Author.

The DAEs are quite separate and distinct, based in opposite sides of the country and pursuing different approaches. These differences are summarised in table 1.2. The processes of accessing the South Africa DAEs were therefore different. Within a month of contacting the DBSA I had shared a range of information with the bank. I had secured a formal research agreement by the end of October 2018 and had full written consent to begin research. I interviewed the Head of their Climate Finance Unit in November. This relationship was premised on a curiosity on the part of the Bank about their own role as an accredited entity and a motivation to better demonstrate their impact. By comparison, SANBI proved challenging to access. I first met two SANBI staff at the Adaptation Network meeting and had productive conversations, but my attempts to engage with their Director proved fruitless. Orienting my research solely around the DBSA would have been sufficient but I remained committed to engage SANBI and had time on my side. Following a formal interview with SANBI, including the Director, in April 2019 I began formalising a research agreement. This was finalised in March 2020, by which time I was leaving South Africa as the pandemic unfolded. I had opportunities to engage SANBI staff and with other actors associated with their project development processes prior to finalising the research agreement, however. This agreement mainly facilitated access to insider documents.

Table 1.2. Accredited entity comparison[11]

	DBSA	SANBI
Entity type	Direct (regional)	Direct (national)
Size	Large (total projected costs exceed USD250m)	Small (total projected costs between USD10-50m)
Fiduciary standards	Basic, project management, grant award, on-lending/blending, loans, equity, guarantees	Basic, project management, grant award
Thematic focus	Adaptation and mitigation	Adaptation
Sector	Public and private	Public
Environmental and social risk category	A - significant adverse risk that may be irreversible	B - mild adverse risk that would likely be reversible

Source: Author.

South Africa is a large, ecologically diverse and upper middle-income country of approximately 60 million people and the third largest economy in Africa[12]. It is termed a 'dual economy' on account of the high levels of poverty, inequality and unemployment, with the highest persistent inequality rate in the world[13]. The legacies of white-majority rule shape the country still, where racialized spatial inequality is acute (Lemanski, 2020; Phillips & Petrova, 2021). The country has strong institutions, including the private sector, civil society, academia and trade unions. Extensive coal reserves shaped the economy for decades but now there is a difficult transition away from this energy (Baker, Newell, & Phillips, 2014; L. Baker & Phillips, 2019; Strambo, Burton, & Atteridge, 2019). This, and the abundant solar and wind potential, provide the context for much of international climate finance efforts. South Africa has various acute vulnerabilities to climate change, especially relating to water, which are exacerbated by and driven by poverty.

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[11] https://www.greenclimate.fund/how-we-work/tools/entity-directory
[12] https://www.worldbank.org/en/country/southafrica/overview#1
[13] https://data.worldbank.org/indicator/SI.POV.GINI

Other entities have GCF projects that include activities in South Africa. These are multi-country projects with activities across different continents and are managed via international access entities. This is a fundamentally different modality which involves minimal involvement from the South African government and the climate finance community. The DAE and NDA staff in South Africa reported a low awareness of these activities. Two projects are under implementation with Pegasus, a US-based private equity firm, focused on environmental investments. Another is a technical assistance project linked to one of the Pegasus projects. The French and German development finance institutions each have projects as well. These are an important source of climate action, and the international access modality has a role in mobilising finance at volume. Something is likely lost in this approach, though there is little research into this at present. It is efficient and expedient but neither engages with and empowers, nor builds domestic capacity the way direct access can. This research only includes the DAEs, as direct access gives a beneficiary country the opportunity, in principle, to pursue just and equitable finance that is driven by the needs and desires of its citizens. Further research could explore the international access modality which will have its own implications for justice.

1.3.5 Academic networks

South African universities and academics across the world are focused on a similar field to this research. This is advantageous in terms of the ready-made communities and a challenge in terms of defining a clear niche and not encroaching on others. Mainly these were a fantastic resource to which I owe a debt of gratitude for the support and guidance, intellectual stimulation, opportunities to learn and occasional desk space. I held a formal visiting researcher position at the University of Cape Town in the Africa Climate and Development Institute and informally spent time with various academics at the University of the Witwatersrand in Johannesburg.

1.3.6 Positionality

These South African links to academic institutions, the research agreements with the DAEs and my membership of the Adaptation Network built credibility and legitimacy in the various communities that I joined. Still, reflecting on my own position as a white, male, British person

at a Northern University was a constant necessity. My focus on the direct access modality – as opposed to South Africa – is a research niche, which was important as many academics and civil society actors routinely voiced concerns as to why I was carrying out the research I was. The just transition space and the much-studied independent power producer (IPP) scheme are crowded and there is an understandable critique of Northern academics extracting this data. Neither my methods training, background in anthropology nor political sensitivities acquired professionally, adequately prepared me for this daily work. South Africa is a complex country where race and social justice exist at the surface. I was required to demonstrate my credentials, often explicitly being challenged about my politics, motivations, and opinions. This was sometimes uncomfortable but paved the way to establish trust and to assert my position as an ally to the various actors pursuing climate justice. This was especially important when negotiating access to communities for participant observation. My relative power, vis-a-vis some (but not all) of my research participants informed both my conduct and the way in which I was able to access and interpret data.

Non-extractivism became an important principle foy my research, and something that many South African partners demanded of me. This is especially important in the context of the CSOs and community members that gave up their time and energy to help me. I am aware that, in truth, I probably took more from these groups than I gave in return. I hope that by sharing information with them, providing practical inputs to their work, telling their story, and highlighting both their issues and their extraordinary achievements that I have given something back in return.

1.3.7   Data collection: Interviews

I adopted a purposive and exhaustive sampling approach. The field coheres around the central GCF actors but encapsulates other actors that participate in discourses about climate, energy and the just transition. This stakeholder set is relatively visible on-line and, in general, I found that most people agreed to an interview. South Africa is a consultative country and consultations were an opportunity to engage with and recruit participants. I was able to snowball a large sample which felt exhausted by the end of fieldwork. I engaged 103 people formally in my research and interviewed 77 people, conducting 84 formal interviews, summarised in table 1.3. Seven repeat interviews were conducted with accredited entity staff.

I had many loosely structured research interactions, conversations 'off the record' and ethnographic encounters. Most of these interviews were conducted in the workplaces of participants. Often interviews were conducted in appropriate public spaces such as cafes whilst a number took place at peoples' homes. A small share took place online, both before and during the pandemic.

Table 1.3. Summary of research participants

	Participants	Interviews
Government	14	14
Academia	10	2
Private Sector	19	19
Accredited entity	11	11
Civil Society	14	14
Policy	8	8
Trade Union	2	2
Community	25	14
Total	103	84

Source: Author.

Semi-structured interviews provide much of the data for this research. These were voice-recorded and transcribed. Each was carried out with prior-informed consent and an example of the consent form is attached in appendix A. Interviews are central to this project but I am aware of the potential over-reliance in the context of ethnographic research, where the insight into subjective experience can be over-stated (Jerolmack & Khan, 2014; Silverman, 2017). That said, interviews are an opportunity for actors to offer insight, reflection and opinion that is unavailable via observation. Many interviewees spoke with great candour and often confounded my pre-conceptions based on their public personas. Government and civil society actors are often 'on show' in this policy space and reported being glad of the anonymity and the opportunity to speak their mind. This opens the possibility for forward looking imaginary (Lamont & Swidler, 2014), where informed speculation is of great value and unavailable via observation. The paper contributions of this PhD present interview data more than either

observations or document analysis, but the iterative and reflexive interplay between design, data collection and analysis owes as much to observations. I do not believe there is a need to privilege either and reflect on them as a continuum, where participants knowingly participated, on the record, across interviews and during interactions. Echoing Hammersley and Atkinson, I conceive that this is all part of the same performance (2010), so more than triangulation. The social construction of accounts, often over periods of months and years, between myself and participants generated the data for this PhD.

1.3.8 Data collection: participant observation

My ethnographic approach generated ethnographic field notes (Emerson et al., 2011) which anchor my findings and are drawn on in the paper contributions. Participant observation has several advantages for the researcher. Goffman distinguishes participant observation from other methods as 'you are artificially forcing yourself to be tuned into something that you then pick up as a witness – not as an interviewer, not as a listener, but as a witness to how they react to what gets done to and around them' (1989: 126). This feeds into the iterative and reflexive approach to my PhD.

1.3.8.1 DAEs

I established research relationships with both DAEs and spent time with both organisations. Most of the participant observation was with the DBSA, during stakeholder meetings and during a GCF mission to the country that focused on one of their projects.

1.3.8.2 Mining affected communities (MACs)

I spent approximately one month between October and December 2019 living in MACs and spending time with activists, coal workers and community members. This experience was formative for the final paper contribution of this PhD.

1.3.8.3 Civil Society (CSOs) and consultation

Government and CSOs orchestrate numerous consultative processes relating to all facets of climate and energy policy. These varied but some were central to my research. These presented a challenge for participant observation given the impossibility of securing prior,

informed written consent. Fortunately, South Africa is a very studied country and there is a high awareness of this approach. I always negotiated prior, informed consent with the organisers and key actors in such consultations[14]. I made myself known at the earliest opportunity. Generally, consultations involved rounds of introduction where affiliations are detailed so I would usually explain why I was there and invite questions. I would often engage in smaller groups and develop data insights with individuals or small groups and would subsequently affirm consent, though this only once ever presented as an issue. I was challenged by a CSO actor who knew that I was a researcher (I had interviewed them). They were concerned that I was writing down notes during a group discussion without consent. In this instance I was taking notes as I had been designated to feedback on a group work to the plenary. This isolated misunderstanding affirmed the generally ethical approach of my work.

1.3.8.4 Academics

Time spent with academics individually, in groups and at events was formative and generative of this research and I am indebted to this welcome and support. Only once did I formally interview an academic, as they had a dual role with the state-owned power utility. It was a conscious decision not to draw on this stakeholder group for data in general on account of their polished and well-formed views on my research questions.

1.3.9   Analysis approach

My analytical journey was concurrent with data collection. Early participant observation and interviews furnished reflections on my research design. I visited South Africa on four occasions and each visit refined my research questions, approach and shaped the evolution of thematic codes. A simplified version of my coding frame is included in appendix B. Later interviews were an opportunity to test themes and arguments generated earlier, so this approach was both deductive and inductive. This meant that in 2020 I had codes established.

Interview transcripts, ethnographic fieldnotes and documents were coded thematically (Braun & Clarke, 2006) to organise the data in support of the theoretical arguments that each paper

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[14] In some instances, I simply attended to speak to people and grow my network, so in these cases I would not necessarily secure permission to carry out participant observation.

contribution set out to make. Following Hammersley and Atkinson, I sought to identify categories 'that make sense of the data… the focus must be on actions, the meanings that underpin or infuse them, and the wider situations that these actions both respond to and shape. And all of these different aspects are intimately related.' (Hammersley & Atkinson, 2010, p. 163). I believe that this iterative and involved analytical process, that took place during and after field visits, resulted in a deep familiarisation and constant checking and cross-referencing, in keeping with the ethnographic approach (de Wet & Erasmus, 2005). This made me alive to alternative interpretations and meant that I actively engaged with confounding examples, issues in interpretation and contradictions in the field, often with other actors involved in the work. I believe that this is vital to understand the social construction of the case by participants, which is the next step after thematic coding.

My coding was neither fully inductive nor deductive. Theory drove the initial code development where I distilled politics, scale, legitimacy and justice as core overarching codes, and built on these from the literature and also fieldwork and initial data analysis. For example, I sought to locate desire in participant accounts as well as conflict and contestation. I used the five dimensions of Jasanoff's civic epistemology as broad initial codes for my first paper, before refining this as it became apparent that three of these more adequately captured the research questions. Equally, I coded for key actors and actants. This includes codes and sub-codes for infrastructure and documents, for example. I carried out two rounds of coding, where the second wave reflexively combined theory and data to bring structure and order in-line with my paper contributions. I thinned-out and compressed certain ideas whilst elaborating codes to furnish the arguments that, by this time, I was constructing out of the data.

I paid close attention to how people things, ideas and process are constructed in different ways in my data. This makes visible different versions of the assembly of climate finance in South Africa, permitting a form of comparison (Chilvers & Longhurst, 2016) of different claims and knowledges. This approach helped elaborate the challenging scalar context of the research questions, where my relational conception of scale is premised on the construction of governance scales by actors, echoing Cohen's demonstrating that different ideologies shape boundaries in environmental governance (2012). Finally, drawing again on Emerson, Fretz, &

Shaw (2011), the writing process was part of the thesis formation, which remains a time of doubt and experimentaion.

1.3.10 Analysis and assemblage theory

Using the assemblage is a theoretical exercise, where many of the thematic codes are distilled with a view to operationalising complex theoretical arguments. Assemblage theory can require considerable prior knowledge or deep exposition of how it is being applied in a paper (Feely, 2020; Nel, 2017; Thompson et al., 2021). Three of the papers in this PhD engage a different aspect of the theory in depth. The first paper is a step removed, instead it focuses on the knowledge claims making surrounding climate finance, which helps to clarify the desire that shapes the assemblages. Assemblage theory is broad, sometimes only loosely articulated methodologically and can result in 'thin description' (Allen, 2011) rather than powerful analytical insights. I have drawn heavily on the work of several Australian scholars who each has advanced the study of policy assemblages (Buchanan, 2020; Lea, 2020; Savage, 2020; Thompson et al., 2021). Buchanan emphasises the central importance of desire (Buchanan, 2015, 2017, 2020). His criticism of the application of the theory by many in human geography often centres on their unit of analysis, and questions of *what* is assembled. He also emphasises the vital interplay between the expressive and material domains of assemblages:

> *The assemblage is the productive intersection of a form of content (actions, bodies and things) and a form of expression (affects, words and ideas). The form of content and the form of expression are independent of each other – their relationship is one of reciprocal presupposition (one implies and demands the other but does not cause or refer to it, for example a sunset is an array of colours produced by the diffraction of light, but this does not cause us to see it as beautiful or melancholic; by the same token, our concepts of beauty and melancholy do not compel us to apprehend sunsets in this way).*
> (Buchanan, 2015, p. 390)

This disposition is central to my data and analysis. It holds the key to the material-semiotic power of the assemblage. Tessa Lea is an anthropologist who has deployed the concept of the assemblage in a policy context to highlight how desires, including racist agendas, shape the mess of 'wild policy' (Lea, 2020), crucially challenging analysts to think about the generation of

multiple meaning. Finally, this research draws on Glenn Savage's policy assemblage framework (Savage, 2020). Savage is weary of the malleability and amorphous nature of the assemblage (Anderson & McFarlane, 2011) so formulates clear applications for policy research, which my PhD contributes towards.

1.3.11 Materiality

My use of the assemblage is broad and experimental. I am committed to the centrality of human desire in ordering assemblages, but not at the expense of materiality. Human desire enrols and encounters material, giving these their properties in assemblage. These materials have agency, often dwarfing that of human actors, but it is all with reference to a desire, to programme climate finance, that material actants such as electricity grids, watersheds, solar panels and trees are of interest in this analysis. The aforementioned importance of the material-semiotic intersection captures the importance of materials in this way, but stops short of ascribing ontological equivalence to all things (Latour, 2005). There is a lively debate amongst assemblage theorists which can polarize the 'vibrant materialists' (Bennett, 2009; DeLanda, 2006) versus those centrally emphasising human desire (Buchanan, 2020). The fourth paper in this PhD picks up the debate. I have found the range of assemblage writing helpful and the diverse interpretations – as Deleuze and Guattari intended the theory to be used – generative.

1.3.12 Reflection on theoretical challenges and limitations

There are drawbacks in the theoretical approach. Assemblage theory offers rich potential to un-pack complex and messy social contexts, but risks being overly descriptive with this. I chose to emphasise desire to clarify the strategy and agency in a bid to overcome this criticism. This brings forth several methodological trade-offs, however. Principally, this mode of using the assemblage can under-specify *what* desire, or even what that desire is. This results in partial accounts and inevitably reproduces certain researcher bias. This methodological choice allows for strong argumentation but risks being selective. I attempted to mitigate this by constantly seeking confounding examples and contrary points of view.

I was fortunate to secure access to carry out this research in South Africa. The GCF country programme, oriented around the two DAEs, was a few years old and making progressive steps towards project approvals. Indeed, the first of these was secured in October 2018 by the DBSA. Time, and timings, is the common denominator in many challenges for this research, however. Country programmes are medium-term efforts, with long-term objectives. My engagement in the field was for less than two years, and I count myself fortunate to have had the access I did, especially considering the pandemic. My research was only going to be a partial window into project development. This posed issues in terms of the nature of the data I collected and the way I interpreted it. Data was variously and interchangeably a recount of the past, the practice of the present and speculation about the future. This is of course true about most research and would have been the case had I conducted this research over the entire period of the South African country programme, but it posed an issue in terms of my ability to ask questions about the potential of direct access and re-focused my attention on the experiences of the modality.

My plans to explore the resultant projects of the two DAEs never materialised. The DBSA secured its project approvals in October 2018 and February 2019. I had an agreement in place with the DBSA to explore the early stages of implementation, but only got as far as meeting some potential off-takers of loans. I was unable to secure an agreement to work with SANBI until March 2020, so they feature less in my research than I had hoped. I was able to engage with the wider stakeholders in their project development and had many productive meetings, including during the pandemic, which resulted in excellent access to their project materials and staff. With hindsight, the limited time and resources of a PhD were stretched to the limit and could only ever have captured a segment of project development. This was compounded by my coming and going, where I would be unable to join certain meetings, or miss out on the opportunity to interview people. The scope of my initial design was arguably too large, therefore the iterative approach was necessary as it allowed me to proactively pursue opportunities and reactively temper my ambition.

The confidential nature of financial transactions proved a challenge in this research. The clearly understood agenda of the project aside, there were simply numerous documents and

processes that I was unable to access. At times this is a limitation to the depth of analysis, especially paper three that looks at documents in detail.

1.4 Paper structure

The papers of this PhD constitute separate chapters and each unpack a part of the assemblage of climate finance in South Africa, and each contribute towards the original empirical motivations of the project. The primary contribution of this thesis is born out of the intellectual journey towards realising these. Questions about whether the GCF can support justice and equity in a beneficiary country are re-formulated. These become explorations of how this climate finance is assembled, and what that means for questions of justice and equity. Each of these four contributions are now discussed and brought together. The contributions to human geography clarify the use of the assemblage and specific theory building in a policy context. I have done this in four ways.

1.4.1 Paper One: Chapter 2. The expert epistemology of climate finance: re-visiting the depoliticization critique

This paper grew out of an attempt to map and understand the landscape of climate finance in South Africa. It is based on an empirical engagement with the DAEs and the wider stakeholders and a foundational theoretical concern. It explores the notion that climate finance is done to, rather than in partnership with, developing countries. This concern – the depoliticization critique of climate finance (Bracking, 2015) – is at the centre of the GCF direct access modality, and would preclude self-determined, autonomous ownership. I explored a range of STS approaches and draw upon Sheila Jasanoff's civic epistemology (Jasanoff, 2011) to explore how knowledge claims about climate finance are created, tested, contested and deployed. The climate finance landscape functions more like an expert epistemology, rendering some of the dimensions of civic epistemology more relevant than others. This lens finds the depoliticization critique inadequate, it offers some description but minimal explanation about what is going on. Through nuancing the depoliticization critique this paper clarifies the political contestation (Barry, 2001) that surrounds the GCF. This helps ground the thesis in an understanding of the

agency and motives of actors working on climate finance. As such, this paper lays the groundwork for the South Africa Climate Finance Assemblage (SACFA) which is deployed in papers two and three.

1.4.2 Paper two: Chapter 3. What can we learn about the 'country ownership' of international climate finance by employing a relational conception of scale?

The overarching research agenda is inherently scalar, yet a hierarchical conception of scale is often used uncritically when describing and seeking to explain climate finance. Building on the domestic and largely expert knowledge-ways set out in paper one, this contribution responds to an introspective piece of research from the GCF that calls for scrutiny of 'country ownership' (GCF, 2019a). Country ownership is a core principle, an investment criterion and an outcome for the Fund. It is considered vital to empowering national climate action that is procedurally just. It is also a tired concept that is widely critiqued in human geography (Buiter, 2007) This paper complicates the simplistic scalar apparatus with a relational conception that deploys a flat ontology to demonstrate the enduring connections that drive and shape the assembly of climate finance. It enlivens country ownership whilst demonstrating the enduring value of scale as a geographical concept (Herod, 2010; Marston, Jones, & Woodward, 2005). I operationalise the SACFA to demonstrate the value of the assemblage as a conceptual tool to human geography and to policy audiences.

1.4.3 Paper three: Chapter 4. Policy assemblage and legitimacy: Insights from the Green Climate Fund (GCF) in South Africa

The assemblage is well equipped to address questions of scale but has been theoretically lacking with respect to legitimacy. Legitimacy, like country ownership, is central but deployed uncritically in climate finance. It is a necessary condition of governance but often an after-thought. This contribution theorizes legitimacy in assemblage theory, where curiously it has also received scant attention. It is sometimes conceived of as an effect of assemblage (DeLanda, 2006) but there is a gap with respect to how legitimacy is produced and the role of this. A 'legitimacy machine' is conceptually invoked in order to explain how this works by exploring the role of documents as actants perform these functions (Weisser, 2014).

Legitimacy is shown to be a property in the SACFA that the DBSA adeptly renders calculable. SANBI struggles or is unwilling to progress projects out of concern about its domestic stakeholders, given the scarcity and significance of the opportunity the GCF confers. The paper, co-authored with Dr Richard Perkins, provides an account of relational power in assemblage, where legitimacy can trigger flows of resources.

1.4.4 Paper four: Chapter 5. Divergent desires for the just transition in South Africa: An assemblage analysis

The fourth paper deploys a different assemblage. It conceptualises the just transition as an assemblage, reflecting the lively national discourse about this in South Africa (Cock, 2019; National Planning Commission, 2019). It explores how desires for a just future diverge based on differing interpretations of justice, where historical, situated, often racialized injustice requires recognition and reconciliation (Lennon, 2020). Without this many South Africans in MACs are unable to participate in the just transition. The paper explores the material-semiotic interplay of renewable energy and space, to tease out differing justice agendas in the same technology and places. It invokes 'net justice' as a caution against deploying the same epistemology as net zero, which seeks to smooth and off-set its way towards a just future (Climate Investment Funds, 2020). This will leave the most marginalised and vulnerable in South Africa behind. Both DAEs have worked towards projects that align and advance the national just transition so this paper contributes towards how to conceive of justice, and for whom, in their efforts.

1.5 Contribution

These four papers offer deep analytical thought about the multiple and contingent processes of becoming in the socio-economic transitions to low carbon and climate resilient futures. They combine to advance understandings about the potential for these to be more inclusive, to promote self-determination, to empower. The assemblage offers unique scholarly opportunities to open up the contingent and emergent character of empirical phenomena. The assemblage offers scholars the tools to explore procedural and epistemic justice in greater detail because of this. It also provides the conceptual tools to scrutinize distributional effects, including those that are yet to come to pass, by showing the multiplicity in an outcome. This

research makes a contribution to the theorization of power in assemblage theory. The theory inherently describes power as it offers explanations for the coming together of people, things and ideas and the effects of this in the world. Assemblage theory can be overly descriptive in this regard, and does have some issues when it comes to explaining power (Allen & Cochrane, 2010; Nail, 2017). Power is explored in several ways in this thesis. Papers one and two explore contestation and politics in the assembly of climate finance as well as agency in knowledge claims. Paper three theorizes the role of legitimacy in the productivity of assemblages which has implications for relational power and the flows of resources. The fourth paper shines a light on injustice and the power dynamics within the just transition. Together, the paper contributions of this thesis add explanatory value to how power works in assemblage.

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Chapter 2. The expert epistemology of climate finance: re-visiting the depoliticization critique

Abstract

The coordinated global response to climate change is orchestrated by international organisations, reflecting the shared, global nature of the issue and requirement of a collaborative response. There is an established critique that these institutions are depoliticized (Louis & Maertens, 2021) – where institutions, policies and discourses foreclose or discourage participation in the political sphere (Wood, 2016, p. 521). This paper explores the downstream effects of this, where global knowledge intersects with national climate change planning. I nuance the concept of depoliticization, drawing on the South African experience of programming Green Climate Fund resources. I argue that there is an urgency framing, underlaid by scientific and financial rationales, which is knowingly and willingly enacted by domestic actors. This limits and restricts the potential scope and participation in climate finance and empowers unevenly, rather than voiding politics completely. These effects are demonstrated by bringing the depoliticization literature together with Jasanoff's notion of civic epistemology (Jasanoff, 2011), to clarify how the epistemic geography of climate change in South Africa formulates, contests and deploys knowledge about climate finance. My analysis reveals a varied picture. Depoliticization is evident in South Africa, where certain knowledges are privileged, technical approaches favoured, foreclosing political contestation. Equally there is a range of political contestation and re-politicization of climate finance within the limits of this urgency framing. Other actors dispute or reject the frame. This abstinence is a political act that serves to de-legitimate climate finance. This is missed in depoliticization literature but is made visible using civic epistemology.

2.1 Introduction

Depoliticization refers to the 'narrowing of the boundaries of democratic politics' (Flinders & Wood, 2015) and when 'institutions, policies and discourses foreclose or discourage participation in the political sphere (Wood, 2016, p. 521). Wood traces the development of the term (ibid.) and its application that is increasingly central to understanding contemporary patterns of governance throughout advanced industrial democracies (Foster, Kerr, & Byrne, 2014, p. 226). Claims of anti-politics and depoliticization are widespread in human geography, especially in the context of international development, where seminal writings criticised Northern projects in post-colonial contexts (Ferguson, 1990; Ferguson & Li, 2018). This critique captures the technical, scientific and financial essence of development, of relations between the Global North and South and the homogenising power of globalisation (Swyngedouw, 2010). International organisations (IO) champion this global mode of work (Louis & Maertens, 2021), whilst espousing contradictory narratives about empowering domestic actors and processes (Best, 2007; Winkler & Dubash, 2016). There is limited engagement in this literature regarding the *downstream effects* of IOs, where their apparatus intersects with national contexts they seek to improve. This paper nuances the depoliticization critique by examining the programming of Green Climate Fund (GCF) resources in South Africa.

Climate change is a global challenge that has spawned a sprawling governance architecture of public, private, multilateral and supranational entities. Only in concert can nations, companies, and communities of the world assemble and govern the knowledges necessary to address the intertwined causes and impacts of this crisis (Bulkeley & Newell, 2015). This 'climate regime' centres on the United Nations Framework Convention on Climate Change (UNFCCC). The GCF is the primary financial instrument of the Convention. As of its thirtieth board meeting in October 2021, the GCF had committed USD10bn towards 190 projects[15], making it the largest climate fund by volume. The climate regime is premised on common, shared knowledge anchored around the Intergovernmental Panel on Climate Change (IPCC)'s policy-oriented science.

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[15] https://www.greenclimate.fund/projects/dashboard

This paper argues that an *urgency framing* (Gills & Morgan, 2020; Swyngedouw, 2011) conditions a technical and financial way of working in climate finance. That is, there is broad agreement amongst those working in climate finance, and the wider stakeholders, to put aside political questions to expedite climate change projects. This technical and financial rendering of climate finance (Li, 2017) has many of the hallmarks of depoliticization (Wood, 2016), but on closer inspection there is contestation and re-politicization within this frame. Depoliticization critiques can miss this (Bracking, 2015b), and also miss acts of resistance that reject this framing, as they fall outside of the technical and financial purview of climate finance. This paper nuances the depoliticization critique by clarifying that this urgency frame is knowingly and willingly accepted, where actors are explicitly or tacitly pragmatic in the assembly of climate finance.

Jasanoff's civic epistemology framework provides a conceptual tool for a granular understanding of how collective knowledge-ways function (Jasanoff, 2011). It highlights how 'knowledge claims come to be perceived as reliable in political settings and how claims pattern as authoritative. Civic epistemology conceptualizes the credibility of knowledge claims in contemporary political life as a phenomenon to be explained, not to be taken for granted' (ibid. p.250). This study looks at the work of developing GCF projects in beneficiary countries within the context of this urgency frame. I adapt Jasanoff's framework to conceptualise this case as an *expert epistemology*, reflecting that public verification and accountability is less important. This expert epistemology offers a window into the intersection of the global governance architecture with national and sub-national actors in beneficiary countries. The spatialities of different knowledges underpin the understanding and response to climate change (Mahony & Hulme, 2018). Geographies of climate change draw attention to knowledge governance in this context – defined as the 'formal and informal rules and conventions that shape the ways we conduct or engage in knowledge processes, such as creating new knowledge, sharing or protecting knowledge, accessing it and applying or using it' (van Kerkhoff & Pilbeam, 2017, p. 30). I combine the depoliticization literature with Jasanoff's civic epistemology to disentangle the knowledge-ways that shape GCF programming in South Africa between 2016-20. South Africa provides an ideal case for this, where two direct access entities (DAE) operate parallel project development processes, with high-capacity and well-informed civil society, academia, trade unions and communities providing scrutiny.

This paper makes three contributions. It provides nuance to the depoliticization critique, that paints countries like South Africa as passive recipients (Bracking, 2015b) and highlights instead the contestation and resistance within the urgency frame. I adapt Jasanoff's civic epistemology in a way that focuses the dimensions of the framework that are most relevant to climate policy that can help explain allocative issues with climate finance architecture (Doshi & Garschagen, 2020; Garschagen & Doshi, 2022). Finally, this paper offers empirical insights into climate finance in South Africa.

2.2 Background – the urgent politics of climate change

2.2.1   Depoliticization in global environmental governance

Critiques of global governance institutions (Louis & Maertens, 2021) have centred on how they depoliticise the issues that they focus on. That is, they foreclose contestation of structural causality and advance technical solutions (Wood, 2016). The effect is widespread in various multilateral agencies (Louis, 2017; Maertens & Parizet, 2017) and there has been specific criticism that the GCF is exclusive and failing to deliver broad ownership (Bracking, 2015b). Swyngedouw sets out that contestation and disagreement is missing in the post-political approach to environmental crisis, arguing that 'disagreement is allowed, but not with respect to the socio-political framing of present and future natures' (2011, p. 267). This captures the critique of climate finance as 'rendering technical' (T. Li, 2007) or anti-politics (Ferguson, 1990), where politics are eradicated.

Drago cautions against 'throwing heavy concepts around too lightly' (Drago, 2020, p. 598) in the afterword of a special issue exploring depoliticization, entreating research to look at situated, temporal sequences of de- and re-politicization. This paper picks up on this theme and offers a more nuanced interpretation of apparent depoliticization in IOs. Louis and Maertens characterise IOs as social constructs, interim solution to the demand for collective action, that reflect the competing self-interests of members and stakeholders (2021, p. 2). The governance of climate change has been criticised along these lines. Marginalising the knowledges that underpin it and effecting a hegemonic response that is technical and financial

in character (Bracking, 2019) and can reproduce or exacerbate vulnerability (Barnett, 2020). The forestry industry is shown to simultaneously be depoliticizing with its progress imaginaries but at the same time re-politicizes other actors as a control strategy, such as promoting rural-urban conflict (Kellokumpu, 2021). This literature highlights contestation but could go further in exploring the knowledge-making, testing, and circulation within this. Furthermore, in addition to looking for politics and re-politicization, it is necessary to actively account for the actions of those who object or decline to participate. This is not a neutral act, rather abstinence contains 'subtexts of distrust and scepticism' (Drew, 2017, p. 825) and some actors do not want to legitimate a process, so will exercise a politics of non-participation (Soss & Jacobs, 2009), itself a political act.

2.2.2   The urgency frame

The urgency framing that I invoke to explore climate finance in this paper reproduces the technical and financial rationales of the climate regime. It opens this to exploration of the post-political context. Swyngedouw claims that depoliticization offers technocrats space to interpret the urgency of a situation and to respond accordingly (Swyngedouw, 2011, p. 267). Elsewhere he notes that the urgent imperative to act contributes to post-political consensus on climate change (Swyngedouw, 2010). This contribution opens the urgency of climate finance to greater empirical scrutiny, which is lacking in the human geography literature. This urgency leads to technical and financial responses, but nuance is required to explain the complexity thereafter. Notions of the Anthropocene substantiate a sense of urgency (O'Brien, 2021) that can justify radical solutions such as geoengineering (Markusson, Ginn, Singh Ghaleigh, & Scott, 2014). Urgency can stymie radical responses and deliberation. Larner criticizes the post-political framing of the climate response, arguing that radical social enterprise offer the best prospect of positive change (2014). There is great scope for post-decisional politics to occur in this space, where knowledge controversies have been shown to influence climate policy implementation (Sharman & Perkins, 2017).

This urgency frame is hegemonic due to its grounding in the IPCC and UNFCCC processes. It is based on the scientific and financial rationales of the climate regime and transmitted through

IOs, including the GCF[16]. I draw on Barry's (2001, 2013) pragmatic and applied notion of politics that attends to contestation in material, technological and regulatory matters. This informs a methodological approach that, following Louis and Maertens, focuses on the interests of people working to programme climate finance. Climate finance is a technical endeavour, in the post-political consensus to support developing countries to address climate change. The urgency frame imports limits and rules and restrictions into the national context. It shapes what is and is not an appropriate focus for a project and which actors can and cannot participate for example. The urgency to act in the face of climate change is broadly accepted and willingly embodied by most of the actors involved in IOs and amongst domestic and sub-national actors involved in climate finance (Gills & Morgan, 2020; Nakhooda, 2013; Stern, 2015). Barry's version of politics encourages scrutiny within this seemingly technical project and is consistent with warnings that framing the climate response as an emergency can be a misleading Euro-American construct (Hulme, 2019, p. 23) and that states of emergency can be restrictive and dangerous.

2.2.3   Civic Epistemology

Global, hegemonic climate knowledge intersects with the lively and varied South African epistemology during GCF programming. I argue that the urgency framing is knowingly and willingly embraced by most parties involved and is not unidirectional. Such an interpretation of depoliticization is too crude to account for the dispersed and strategic agency in the intersection of the urgency frame and the South African epistemic geography of climate change. Sheila Jasanoff's civic epistemology framework can go some way to unpack this, but I adapt this into an *expert epistemology* which better fits this empirical object.

Combining civic epistemology with the depoliticization literature facilitates analysis of contested and shared knowledge-ways to offer a situated riposte to simplistic claims to anti-politics. Jasanoff encourages social scientific scrutiny of global science-based climate knowledge (2010) and the civic epistemology framework can tease out specificities and move beyond tropes. Civic epistemology refers to the institutionalised practices – distilled in Table 2.1. – 'by which members of a given society test and deploy knowledge claims used as a

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[16] a bank like structure that supports climate change activities.

basis for making collective choices…these collective knowledge-ways…are distinctive, systematic, often institutionalised, and articulated through practice rather than informal rules' (Jasanoff, 2011, p. 255). Table 2.1. introduces criteria to specify de-, re- and politicization in the knowledge-ways of climate finance. Together, these conceptual approaches open-up the unit of analysis – climate finance programming in South Africa – to sustained scrutiny of the politics (Barry, 2001). Technoscientific cultures developed tacit knowledge-ways to assess rationality and robustness of claims that order social life. Demonstrations and arguments that fail to meet these tests may be dismissed as illegitimate or irrational (Jasanoff, 2011, p. 255).

Table 2.1. Combining civic epistemology and depoliticization. Adapted from (Jasanoff, 2012, p. 72).

Constitutive and interrelated dimensions of civic epistemology	Definition	Criteria for 1: de-politicization 2: re-politicization 3: political contestation
Styles of public knowledge making	How knowledge claims are constructed and extended, how shared understanding is generated and disputed.	This can contribute to depoliticization of climate finance by establishing facts and imposing limitations, restricting the options for climate finance. Conversely, when knowledge-making processes open to some contestation they are re-politicised. Within the urgency frame this is still limited but might involve more deliberation about the available options. Knowledge claims that challenge the urgency framing might add alternative

		options or explanations or seek to refute dominant framings.
Methods of ensuring accountability	Knowledge claims, once made, need to be credible to public audiences. Emphasis on process, representation, technical soundness and accordance to climate rationale and financial sustainability.	Depoliticization can render a decision or claim accountable, removing recourse for dispute. Alternatively claims can be narrowly accountable to technical and financial metrics. Efforts to either hold actors or claims to account re-politicizes climate finance, for example in highlighting the social/environmental aspects of a claim. Actors can seek to be held to account, as they make themselves responsible. Politicization might involve seeking to hold actors and processes accountable for claims and actions outside of the urgency framing, beyond the remits of climate finance.
Practices of public demonstration	Modes (media, legal, technological) and activities that justify and exemplify knowledge and information. Deliberate, strategic making and supporting of claims.	Technical rendering of claims is central to the depoliticization of climate finance where quantitative and financial rationales demonstrate benefit. Efforts to re-politicize climate finance require that alternative claims to be substantiated with the same financial and technical rationales.

		Public demonstration of claims which challenge the financial and technical rationales of climate finance are political.
Registers of objectivity	Objectivity is a powerful resource that seeks common interest and overall benefit in allocative decision-making without privileging any interest group. Sources of objectivity are variable, but can include quantitative, financial, or social grounds.	Climate finance seeks to represent diverse views and knowledge but can be characterized as depoliticizing when quantitative and numerical knowledges are privileged in decision-making. Re-politicization might involve broadening participation and sources of knowledge, albeit these would still attempt to register quantitative objectivity. Climate finance is politicized when an actor grounds a claim outside of financial and technical objectivity, for example by registering a moral criticism.
Accepted basis of expertise	Expert knowledge and skills manage uncertainty, risk, externalities and to provide and challenge knowledge claims. The legitimacy of expertise is contested.	Climate finance valorises financial and technical expertise. Other expertise is incorporated but has little power or agency. Empowering different expertise including diverse national and sub-national perspectives re-politicizes

		climate finance. Equally, attempting to disperse technical and financial expertise has a similar effect. Nationalistic or morally principled challenges based in either academia, activism or energy security serve to politicize climate finance.

2.2.4   Expert epistemology

I have modified Jasanoff's framework into an expert epistemology which focuses on three of the five dimensions: Styles of public knowledge making; registers of objectivity and accepted basis of expertise. This inherently geographic theory offers tools to understand knowledge claims-making and decision processes, but climate finance relies less on public engagement than the examples in Jasanoff's work. Indeed, the knowledge claims, whilst oriented around democratic government processes, rarely enter the public consciousness and require minimal validation. Citizens could object to an activity, for example trade unions have mobilized around perceived job losses (Räthzel, Cock, & Uzzell, 2018) but it is unlikely. Civic epistemology conceives of public life as a proving ground for competing knowledge claims and as a theatre for establishing the credibility of state actions (ibid., p. 258). This seldom happens in climate finance and the present case is better conceived of as an *expert epistemology*, where the knowledge-claims are put to the same scrutiny by other professional actors. Thus, what appears a technical rendering is a site of contestation.

Civic epistemology was developed for comparative analysis, to explain why publics and scientific experts of different nations reach different conclusions about the same technology. It shifts attention away from universal objectivity, towards the cultural contingency of expert, policy-relevant knowledge. This application of the theory in the context of depoliticization and climate finance builds on research about environmental epistemologies. Knowledge governance in conservation programmes is advanced as a way to incorporate deeper

understandings for better interventions and decision-making (van Kerkhoff & Pilbeam, 2017). Conservation has been shown to privilege scientific and quantitative knowledge (Múnera & van Kerkhoff, 2019). This is broadly true across development cooperation, but the GCF demands inclusive projects. There are concerns that the framework does not always fit in lower-middle income countries, for example with respect to Indian energy planning (Haines, 2020), which partly affirms the lesser relevance of accountability and public demonstration.

Bringing together Jasanoff's framework and the depoliticization critique, I use the expert epistemology framework to clarify how urgency is produced and functions. The civic epistemology of disaster risk reduction is shown to be based on partial information, probability and extreme urgency (Donovan & Oppenheimer, 2016). Disasters result in epistemological ruptures where the public interface with science changes violently. I suggest that similar, albeit less pronounced, effects apply in climate change, where urgency forecloses debate and alternative approaches, but the slower pace leaves ample time for contestation. Kellokumpu (2021) identifies how discursive frames underly the civic epistemology in the bioeconomy. These frame forests as productive, as throughput carbon resources and in terms of national security. Their analysis could have delved further into the reinterpretation of these frames. The urgency framing in a climate context is a similar effect, where impending crisis, risks and political expediency all shape and underly the epistemic geography of climate change (Mahony & Hulme, 2018). Urgency comes from climate science. This has been championed, politically, by developing countries. It has often been suppressed and challenged by developed countries, so the roots to this urgency frame are not in the GCF, nor is it a Northern construction. I argue that it is part of a complex inter-scalar construct that shapes the assembly of climate finance. The urgency frame conditions a need for speed, to work with a wide range of partners, and that 'perfect should not be the enemy of the good'. This is complex and many climate change professionals operate in a state of dissonance, where they supress systematic critique for pragmatism – in terms of climate objectives and their professional careers. I argue that a rigorous examination of these knowledge-ways will clarify the extent to which depoliticization is occurring, the character of it, and the contestation within it.

2.3 Methods and case

This research draws on fieldwork in South Africa between November 2018 and March 2020, using audio-recorded, semi-structured interviews with actors from the direct access entities (DAEs), civil society, government, the private sector, labour, and community members. The case-study research design (Ridder, 2012) involved joining multiple, interrelated communities associated with project development. The two DAEs lead the project development process and are the primary focus of this paper. Memorandums of understanding were signed with each which facilitated insider access to staff, events, and written materials. Multiple, often repeat, interviews were carried out with various staff and participation in forums that were either arranged or attended by staff furnished further insight into GCF project development. The unit of analysis is the knowledge-ways that govern concessional climate finance. Projects are secondary, it is the assembly of projects and specifically, it is the knowledge-ways that order the intersection of the GCF and global hegemonic knowledge with epistemic geographies in South Africa. Prior experience in climate finance and with the GCF helped facilitate this privileged researcher access. Fieldwork was much broader than the remit of this contribution, and included time embedded in other communities such as in mining affected areas and different government groups. Climate finance is quite separate from other climate change concerns in South Africa, even where links are understood, so the framing of an expert epistemology reproduces this rather than reflecting researcher bias.

The five civic epistemology dimensions provide conceptual and methodological tools. These dimensions served as initial thematic codes (Braun & Clarke, 2006) that were used to organise the interview transcripts and ethnographic notes. There is cross-over between these, but the delineation helps to clarify which of the dimensions are more or less important in explaining the South African civic epistemology around climate, which ones clarify the unique, situated national character. The initial codes incorporated constructs and ideas from the depoliticization literature as sub-codes, such as in and exclusion, contestation, resistance, and acquiescence. These were combined with empirical findings, such as observations around the different DAEs or privileged knoweldges. This furnished higher order codes and organisational themes before a second, more inductive and abductive round of coding that orients the findings in the next section. This, in turn, facilitates analysis of which voices, and which types

of knowledge, are privileged and which are marginalised. This is attentive to actors' accounts and experience of the contestation in their work, their own interpretation of the technical rendering of this and their insights about the proposed urgency frame. This approach underlies a picture of the dispersed, strategic agency in project development and includes reflections on the privilege of certain expertise and how these hierarchies are born out. The analysis is based on inductive reasoning oriented around an emergent sense that the depoliticization critique insufficiently accounts for the work of project development. My analysis seeks to identify seeming characteristic effects of depoliticization and scrutinize these for political contestation and re-politicization. It was my intention to nuance the interpretation of instances where project development is rendered technical, by accounting for formative politics elsewhere and to attribute agency that can be stripped from such accounts.

2.4 The de-politicization and re-politicization of climate finance

Urgency shapes how GCF project development proceeds with clearly defined actors, limited thematic scope and stringent knowledge demands. Urgency serves to close debate and deliberation and encourages decisive and expedient action. It engenders a trade-off between a thorough and evidence-based approach on the one hand and a pressing need to act with the best available information on the other. However, there is nuance to the urgency frame. South Africa has a long and storied involvement in the climate regime and was central to the design and establishment of the GCF. Many South African organisations and individuals helped shape the urgency frame and developed in tandem with it.

2.4.1   Depoliticization of climate finance

2.4.1.1. South African agency

The DBSA has had three GCF projects approved. The first of these was in 2016[17]. It was the twenty-ninth project the Fund approved, and subsequently lapsed. The Climate Finance Facility (CFF)[18] and the Embedded Generation Investment Programme (EGIP)[19] followed in 2018 and

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[17] https://www.greenclimate.fund/project/fp029
[18] https://www.greenclimate.fund/project/fp098
[19] https://www.greenclimate.fund/project/fp106

2019 respectively. The lapsed project has slipped from view, removed from the Fund's project dashboard which jumps from project 28 to 33 with no reference to lapsed projects. This highlights to a dual dynamic, where the Fund approved some early projects that were not fully conceived in some way, reflecting the pressure to disburse resources. The GCF is learning and evolving and according to project developers in South Africa:

> *It's a different ball game. Now, the early projects would not get through. What we did for that project, would not pass now*. (Consultant)

Equally, it speaks to the fact that entities such as the DBSA were able to submit bankable projects when the Fund first became operational. The DBSA was primed to partner with the GCF, matching the financial and scientific rationales that underlie its results framework. The GCF requires organisations like the DBSA to blend finance which *'forces you to go talk to a commercial institution, to say what are those elements that you would need it will be to start working together?'* (Director, NDA). There is a degree of foreclosure, only certain actors, like commercial banks, had the opportunity to partner. This is the key to working fast and to leveraging co-finance, which are central GCF tenets.

> *If you do not understand the deal flow, the rest is not going to happen because the GCF asks the first thing where your deal flow is coming from… otherwise all you are going to have is a nice structure, it just goes nowhere. We are fortunate in South Africa that the five South African banks, all of them moved to develop some form of green approach to funding.* (Director, DBSA)

The GCF's private sector facility depends on private sectors in beneficiary countries, where South Africa has an exemplary context. This is not the only way the GCF works but reveals the tight focus of the DBSA's interactions. The DBSA model responds to urgent calls for concessional finance and demand for renewable energy. It is expedient and efficiently leverages private sector opportunities. This depends upon narrowly defined parameters and a market-orientation that by-passes contestation in-country. The necessity for such an approach is, however, evidently country driven.

You cannot have renewables funded locally. Because the players in the South African domain do not have the money to do this. Eskom cannot afford any such investment. The IRP (integrated resource plan) is showing in excess of 16,000 MW of renewables being built in the next ten years, so who is going to pay for that?

Economist, South African think tank

Given the need and the national finance context, there is reasonably no alternative means of financing the renewable energy shortfall. This interviewee effectively argues that accessing external finance is the only way to comply with the law. This is post-political, where the South African energy crises, policy making and the GCF approach now all cohere as the only option, a technical option. This would appear a typical example of depoliticization, or anti-politics, in action, but misses much of the agency involved. The IRP is hotly contested, for example, but project development works in its aftermath:

Once the policy directive is agreed upon, Cabinet has signed off, it really no longer matters whether the view of what person was completely against that, it becomes a government direction (NDA staff).

The urgency frame of the climate regime dovetails perfectly with the DBSA's approach, which combine to frame financial and technical expertise as the only viable solutions. This is not a coincidence. It speaks to an appetite within the DBSA and the private sector to crowd-in more concessional finance. South African, and other developing country actors were formative in this approach within the Fund. The DBSA developed in tandem with the GCF. South African organisations and individuals have been centrally involved in the GCF design, including at the Durban COP in 2011, where the governing instrument was adopted. South Africans have routinely served on the board and as developing country co-Chair. The lack of public contestation, and the seeming technical rendering of the DBSA approach must be cognisant of this.

Read the storyline, there is no way that you unlock and latch onto an institution that is not ready. You cannot burden an institution's shoulders. It ignores the risk procedures, the environmental appraisal process, the track record of having been involved with the

Global Environment Facility (GEF), having designed its own Green Fund, and managed that. You can say 'oh well international people created this thing', but the institution has done a whole lot before anybody else pitched up. (GCF Associate)

The project development was a technical exercise, grounded in decades-long experience in green infrastructure and project development. The expertise and credibility are symbiotic with the Fund, pre-dating it even. It is a stretch to say that the DBSA shaped the GCF in its image, but as a developing country infrastructure bank intent on accessing concessional climate finance, it was part of a global movement looking to grow green baking, including the GCF. These coalitions determined the registers of objectivity of this new approach, where the green finance approach stands alone as the appropriate one. Criticism centres on a lack of public demonstration and accountability, where more communication might allay concerns, but the NDA '*has picked its horses and they are running, it has not necessarily opened up the space as in actively communicating and marketing of fund*' (DBSA staff).

2.4.1.2 Financial logic

The market rationale that underpins the urgency frame, and the DBSA projects, is presented as indispensable and without alternative. This partly reflects the ongoing crisis of state capture, that renders many government functions ineffective, undermining project development. The DBSA is government owned, but the CFF project lead managed to avoid any government intervention which would have slowed things down.

I didn't need to get even one regulatory approval, as this is private sector - we weren't asking the government for money, so we didn't have to do anything with regards to government regulation, legislation or nothing. (DBSA staff)

Private sector ownership is lauded on account of the market-orientation that is perceived as objective and predictable, which in turn expedites investment decision-making. The commercial bank partners require this, where the lack of political uncertainty de-risks investments. This market rationale, rather than wider stakeholder engagement, holds the key to sustainable implementation, according to a commercial banker involved in the GCF programme.

It is remarkably simple, but nobody wants to make it simple… Rules solve nothing. You can write the biggest number of rules and police it, you will never ever get the result on any form of scale. You'll just get some amazingly good reference sites…

Does an elephant have an ROI? I would argue that an elephant that doesn't have an ROI is most probably extinct and there's nothing anybody can do about it okay.
 (Commercial Banker)

The example is absurd, but the claim is clear, and aligned with the GCF. Funded activities must be self-sustaining. This is presented as objective truth, almost natural. Numerous participants drew upon the analogy of the video tape in this context, where VHS video beat out Sony Betamax. At a national consultation on the energy transition a participant invoked this stating with finality that *'(VHS) won not because it was better, because it was cheaper and it was adequate, now there is no longer a debate'* (Consultation ethnographic fieldnote).

2.4.1.3 Consultation and participation

Participatory and consultative opportunities are entrenched in the GCF mode of operating and similarly enshrined in the South African constitution and approach to politics. It what was a cornerstone of the democracy but now *'for a country that talks as much as it does one has to ask about the quality of the consultation'* (Former DBSA staff). There is concern that consultation is no longer a public forum for debate around knowledge, but rather just stakeholder management.

People go to pursue their positions, not to share their positions and discuss and get other views. It's positioning. Not 'let's listen to what other people are saying or what other views are there'. It is so that I can find a way, I can include in my views. (Director, NGO)

Consultation can be a tick-box exercise rather than political contestation. Expediency and the foreclosure of alternatives shapes a consultative dynamic that precludes the formation and debate of public knowledge. Yet, the DBSA has been widely criticised for its lack of consultation

on GCF project development. This includes a concreted critique by national CSOs via the global representative at the twenty-second Board Meeting, relating to the EGIP project. The DBSA subsequently sought to engage CSOs but maintained the stance that they did not need to.

> *We know the challenge in renewable energy, we consult, we consulted with Department of Energy, with you know, the IPP office, with the commercial banks because we needed to crowd in commercial banks. That is where the consultation happens.* (DBSA staff)

The argument goes that the bank is funding infrastructure and has clear mandates that do not need project level consultation. However, another participant asked '*why wouldn't you take the trouble? What is informing their sense of urgency?*' (former DBSA staff). Consultation is not just a nice extra, but should drive and tailor interventions, raising the chances of success. The DBSA's approach to this reproduces the scientific and financial rationales of global climate finance, based on a working knowledge of the economy, but without integrating the local geographies of climate change. This might have no bearing on results, but at a minimum is a missed opportunity.

2.4.1.4 Privileged and marginalised knowledge

Certain knowledges that are aligned with the urgency frame are privileged in project development. Scientific and economic knowledge producers are prominent and deterministic in project development. These knowledge claims are powerful, to the extent that they can make or break projects.

> *I met with SANBI and the GCF, they want to get projects on the ground, to try to develop the concepts of what solutions should be implemented in these regions. My response was that there is a lot of work that still needs to be done to quantify and answer that question.* (Policymaker)

SANBI's attempts to develop a project that would incorporate just transition objectives in Mpumalanga Province stalled. The participant effectively told SANBI and the GCF that they could not proceed without more information. This same actor is a national authority on the just transition, publishing widely and a regular panel speaker. The valorisation of this expertise

is not unique to South Africa, nor specific to climate change, rather classic knowledge inequalities are reproduced. Gender is a central requirement in GCF programming, the fund is rightly lauded for its demanding and ambitious policies. But the South African experience exposes a peculiar effect, where gender knowledge can be powerful and agential, but that the country programme has both depoliticized gender as an issue whilst marginalising gender experts. Experts from an NGO that is an official observer of the GCF echo the critique of consultation.

> *A lot of criteria are set in stone and there is very limited opportunity for us to really raise a voice. And the voice only comes when CSO's consider the proposals*. (Director, Gender NGO)

Gender expertise is not sought such that it will shape or impact projects, rather it is tick-box exercise used to validate options. Staff at the same NGO now decline to contribute to some process, such is the dissatisfaction and resentment in how their knowledge is co-opted. Tired of being nominated for committees and to make inputs to policy, and equally bemused when they '*make submissions that are un-answered, and the exact same document that I wrote turns up in the UNFCCC website. As a submission made by South Africa*' (Gender NGO). Their knowledge plays a vital performative role. The South African government at times is required to demonstrate this knowledge. It is peculiar then that gender knowledge is simultaneously vital and extraneous.

Placing the requirement for gender knowledge so prominently in climate finance depoliticizes it. This seems confounding, but the effect is to contain gender knowledge and prevent this spilling into the project development. Rather than truly mainstreaming gender into the activities and theory of change, the knowledge is marooned, '*just to tick the box which says they have consulted with a gender organisation*' (Gender NGO). The same NGO was instrumental in SANBI's early climate finance programming, providing much of the research and groundwork.

> *It left a bitter taste in our mouth. The funding was secured because of the concept that we put together and then they decided to go to some consultancy.*

We did a lot of fieldwork in faith; we covered our own expenses we drove with SANBI down there we walked the land. In the end, it was given to somebody who didn't even know the history they don't understand the context they don't even understand why Mopani was chosen. (Director, Gender NGO)

This knowledge was premised on local experience and connections which was packaged for climate finance, before detaching the producer. This episode describes the marginalisation of 'probably to best authority' on the intersection of gender and climate change in South Africa. This is a waste. It is also an irony that the knowledge was made such a priority and almost jettisoned, stripped of its context and much of its worth. I argue that this is an unfortunate effect of the urgency frame. In this frame, the knowledge that is central to the epistemic geography of climate change, which could have powerfully informed country programming, has less authority and objectivity than financial and technical claims.

2.4.1.5 Pragmatism

The findings of sections 2.4.1.1 – 2.4.1.4 point to an abiding effect of the urgency frame: pragmatism. Actors evidently are doing enough to satisfy the GCF processes in a strategic sense which can fall short of the spirit of certain GCF policy (which is explored further in Barnes and Perkins, forthcoming, Paper 3).

Climate finance is shown to involve compromise and pragmatism, where actors do what is necessary to access resources. This is made visible when a prominent academic and sustainable development specialist served as Chair of the DBSA board, including in 2019. The DBSA is widely criticised by activists and academics for its role in financing coal which led to criticism. This demonstrates pragmatism, as this academic was able to drive change from within this institution. The affiliation raises their perspective and expertise, bringing this into the bank's knowledge processes. This pragmatism prompts others to alter their behaviours, to fit with the urgency framing.

Some of our comrades say, you sold out, you're working with the DBSA...And I'm like, comrade, you know what? Actually, we have sold out, when the Green Climate Fund

comes, as much as I hate it, when it comes, the community need to be at the receiving end of it. Not having the Fund go somewhere and the community still don't have sewage, still don't have water, electricity, et cetera. (Director, NGO)

There is little choice but to play along, to participate in climate finance rather than principled criticism. This participant is an outspoken champion of social justice acknowledging that it is better to extract some benefit and to pause the politics. The urgency frame has this effect - it forecloses debate and advances a narrow set of opportunities. The depoliticization critique can be overstated, however. As this case attests, two prominent South African actors – an academic and an activist – in different ways have engaged in climate finance, steering it influencing its agenda. Climate finance is restrictive, but compromise within can effect change.

2.4.2   Re-politicizing climate finance

2.4.2.1 Widening inclusion for adaptation
The scientific and financial rationales that underly the urgency frame have shaped climate finance in the image of development finance institutions. Primed to finance mitigation, the model is more awkward when programming grants for adaptation, where the quantification of science-based activities and monetisation are harder. This is particularly the case with public sector projects that seek to channel money towards local-level activities, which is '*complex because the communities are different, their needs are different and each one has slightly different requirements*' (NGO staff). A degree of re-politicization is required and inevitable, in other words, to produce bankable adaptation projects. This is evident in the slow progress of SANBI, which is accredited to programme small grants, between USD10-50m. Their inclusive and participatory approach targets transformational projects that are owned and embedded in national institutions. This is exactly what the GCF policy demands, yet some feel the approach is too slow. Their GCF programme is working within the narrow limits of the urgency frame but is re-politicizing the assembly of climate finance in several ways.

Every comment is really unpacked and looked upon from both sides. How can we frame this better? Where everybody's views are really valued. So that I think really informs

> *SANBI. SANBI is publicly owned, we are government owned, we should follow government processes.* (SANBI staff)

Their GCF programme centred on a call for proposals (CFP) and national roadshows, opening the GCF up to broad engagement in the country, outside of the expert participants. The legacies of exclusion and inequality of the apartheid government shape South Africa today and the CFP represents SANBI's commitment to challenge this. The CFP supports the varied South African epistemologies of climate change to intersect with the GCF. Often DAEs '*have to hire a consultant just to get an application in, which defeats the purpose*' (Energy policymaker), restricting the chance for real self-determination and country ownership. The CFP crowded-in voices that lacked authority and objectivity in a scientific or financial sense but are rich in contextual knowledge and understanding of need.

Both DAEs are government-owned but manifest different modes of accountability. The DBSA's avoidance of government is expedient, and contrasts with SANBI's inclusion of ministry staff and commitment to participatory process. This disperses accountability for SANBI's use of funds.

> *A big part of what we do is not making the projects ours. When that happens you disconnect from this group that needs to be the generator of the ideas and the implementation. We're doing a better job of being very clear about where the ideas are coming from and where the ownership needs to be.*
> Director, SANBI

Accountability and ownership are built via the CFP which also helps shape what is programmed and implemented. This takes time but does not politically challenge the GCF or the climate regime. It is still beholden to the financial and scientific requirements of climate finance and indeed, most of the concepts were rejected as they fell outside of the GCF's scope. Much of this discourse could not be incorporated into the urgency framing. The process resulted in 126 submissions of varying quality, so SANBI '*ended up with a lot of ideas that had potential and we were evaluating on the basis of potential*' (Director, SANBI). The re-politicization of adaptation produced a productive tension within the urgency frame and slowed this down.

The CFP process began in 2018 and had yielded several concept notes by the thirtieth GCF Board Meeting in October 2021, but no project submissions. The participatory process and diffuse ownership does have political effect. Should the same project be approved but with a broad-based support, it is a different, better project. Better, but not strictly necessary. This suggests that the knowledge generated is misaligned with project development's registers of objectivity.

2.4.2.2 Calling out the urgency frame: capacity issues
SANBI has a small climate finance unit facing resource and human capacity limitations. The GCF, recognising this, provides readiness support – finance and consultancy – to help with access. Readiness support helps entities comply with the urgency frame and make progress, rather than to ask questions about the institutional set up, and bias, of the Fund. DAEs and commentators bemoan the difficulty and the weight of process involved and SANBI asked if DAEs can be built-up to deliver better projects.

> *There is an expectation that you can just do this now and it's not possible. The fund paid for everyone to go (to a workshop). But there must be an "everyone" to go in the first place… they need residual capacity to participate because if you dead-lining, you can't go hang out in a workshop for a week.* (Director, SANBI)

This capacity issue is frustrating, '*if we had the skills that are needed for that, we could have flooded GCF with our applications*' (NDA staff). There is a sense that the GCF is asking the impossible of some entities. But it is not simply a lack of capacity. SANBI's commitment to programming transformational climate finance contrasts with some entities in other countries, where speed is emphasised, and accessing money the priority. Their approach eschews quick-wins, and they could likely have secured a bankable project much sooner. There is resistance in the approach. In taking the harder option, SANBI is railing against the urgent demand for results. It is ironic that this resistance takes the form of working faithfully to the stated ideals of the Fund rather than working quickly. This is an attempt to build an accountable structure that promotes national expertise to deliver the results required by the Fund and the global climate change political process. This is resistance to a core tenet of the climate regime that trades national epistemology for expediency.

2.4.2.3 Challenge to the urgency frame

The South African epistemic geography of climate change is open and contested. This does not always intersect with the GCF programme. Trade unions are prominent in just transition discourses owing to the heavily unionised coal sector and exemplify this dynamic. They retain links to the ruling African National Congress (ANC) party and can be antagonistic actors, quick to challenge and contest.

> *We could set up a structure for consultation to comply with the requirements of the GCF. I can approach NEDLAC[20] to subpoena any Government entity … Or I get a Section 77 Certificate, and I pull a one-day strike* (Trade Unionist)

There are options available to trade unions to intervene with government, which extends to the climate finance programme. The recourse to challenge the GCF programme is grounded in the lived experience of workers. This quote speaks to the clear options of public demonstration available to the trade unions that challenge the accountability of other knowledge claims. This is a threat to the assembly of climate finance, a forthright challenge to the urgency frame. There is historic precedent for this. South Africa is home to the Sasol corporation, which transforms coal into liquid fuels. Its refinery in Secunda, Mpumalanga, is the largest point source of greenhouse gas emissions in the world[21]. Sasol applied to participate in the Clean Development Mechanism (CDM) but was challenged.

> *SASOL applied, they applied for CDM credits and we launched an objection with the UNFCCC and Earthlife. And that was the way they were disqualified.* (Activist)

The epistemic geography of climate change in South Africa is premised on strong acts of public demonstration to make and dispute claims, to hold others to account. This has not happened in the GCF project development, but informed and agential knowledge users have this

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[20] The National Economic Development and Labour Council (Nedlac) is the vehicle by which Government, labour, business and community organisations seek to cooperate.
[21] https://www.iisd.org/articles/south-africans-are-paying-pollution-pump#:~:text=The%20Secunda%20plant%20is%20South,greenhouse%20gases%20in%20the%20world.

potential. This is nowhere more apparent than in the national discourse on the just transition. It is widely accepted that this is critical to the climate change response, and that it is a thorny issue that cannot be rushed. This is a trade-off, where '*we will reach a point where we will not be able to influence this 'just' part because everything will be going so fast*' (Director, Central Government). Bringing justice in re-politicizes climate finance. The national discourse included nine provincial meetings during 2018-19 to source wide inputs and a common vision. This deliberative knowledge-making does not challenge the scientific or financial rationale of climate finance, rather it re-politicizes it by extending participation within the frame and opening debate at national and local priorities and preferences.

2.4.3   Non-participation as conscientious objection

It is difficult to challenge the urgency frame. These examples of re-politicization remain within the limits of possibility as determined by hegemonic climate knowledge. The widening participation, deliberation and contest occur within a bounded ideational space. All these actors are pragmatic, working hard for professional and personal reasons to access the Fund. The depoliticization critique is nuanced, but none of the evidence presented thus far represents any challenge to the political status quo or global inequalities and is quiet about the causes of climate change. Arguably, these are issues for other fora. But there are political critiques. I label these 'conscientious objections', as actors effectively opt not to participate in the urgency frame. This can be missed in the literature on depoliticization as there is no visible contestation of climate finance. There is a palpable challenge and a de-legitimation of climate finance, however.

Climate finance for developing countries sustains the UNFCCC process, a condition for nationally determined contributions and keeps developing country parties at the table. The GCF has a political function in keeping the UNFCCC intact. Some actors abstain from the GCF process in South Africa so as not to legitimate the GCF, and the climate regime, labelling them '*criminals, climate criminals*' (Academic). This echoes criticisms which politicize the causes of climate change and especially the alliance of governments with polluting industries. This rejects the urgency frame outright. The claim of this academic lacks the objectivity of the scientific and economic rationale that perpetuates the climate change knowledge hegemony.

In the words of the same academic '*it is not realistic*'. This participant's expertise is grounded in activism and academia but lacks agency in climate finance. Fierce opposition to the loss and damage agenda and resistance to compensation or reparations shape a global knowledge that is weary of this perspective that claims the UNFCCC is illegitimate. The GCF goes some way towards placating this criticism.

Historical responsibility is an abiding issue that the UNFCCC struggles to reconcile. It motivates a political argument in South Africa. Namely, why should South African tax-payers – blessed with a coal endowment – suffer the costs of transitioning to renewable energy?

China is building one Eskom every year, what difference do we make? (Academic)

Regardless of the GCF intervention, there is little prospect of South Africa avoiding economic hardship. This is a product of mismanagement at Eskom, the state-owned power utility, as well as state capture of its resources. But the academic critiques the financial rationale of the urgency frame, arguing that it is not worth the pain when emissions are considered, historical and of emerging polluters like China. This claim is grounded in financial logic but offers a moral challenge to the collective action that underpins the climate response. This is another direct challenge to the legitimacy of that global response and is a common perspective in South Africa where people want coal. This is expressly political like the 'climate criminals' critique, which is idealistic whilst the historical responsibilities argument is cynical. Both offer a political riposte to the global knowledge hegemony and can remain invisible in depoliticization literatures. The results are summarised in table 2.2.

Table 2.2. Summary of results.

Dimensions of civic epistemology	Depoliticization	Re-politicization	Abstinence

Styles of public knowledge making	Hard exclusion of many knowledges/voices. Finance is central. Looks like anti-politics/rendering technical.	SANBI is more inclusive, albeit other knowledges must fit to the urgency frame. Justice is contested, trying to combine with the urgency frame.	Conscientious objectors do not participate, reject public knowledge making. Challenge 'outside' of the frame.
Methods of ensuring accountability	The finance and technical rationales establish narrow accountability. Few actors can engage with DBSA claims.	SANBI establishes a wider accountability, still with reference to finance and science. This accountability not required for GCF access. Justice agenda adds in extra dimension of accountability.	Conscientious objectors' criticisms fall outside of GCF accountability.
Practices of public demonstration	Climate finance work is not widely demonstrated. This is an expert epistemology.	Publicity of GCF programming, especially in adaptation, but this largely remains the purview of experts.	Criticism not public.
Registers of objectivity	The urgency frame is exclusive, premised on science and finance. South Africa played key role in	Efforts at more transformational and consultative processes expand the frame. The GCF	Criticism of higher-order issues such as global politics and historical

| | establishing this register of objectivity.

Climate finance engenders pragmatism that precludes debate. | includes these demands in policy, but they fall away during project development. | responsibility for emissions. |
|---|---|---|---|
| Accepted basis of expertise | DBSA projects build on technical and financial knowledge and preclude other expertise.

Gender expertise is required for GCF programming but is organised out of project activities. | Adaptation and justice discourses reflect more voices but remains constrained by the urgency frame. | Objection depends on specialist knowledge and political awareness, either professional, academic, or activist. |

2.5 Discussion

2.5.1   The depoliticization critique

The depoliticization critique (Bracking, 2015b) does not capture the experience of GCF project development in South Africa. Urgency, and its scientific and financial rationale, caries forwards and applies to both DAEs. This looks like depoliticization but climate finance is by definition a technical and financial exercise and labelling this pragmatism a technical rendering (Li, 2007) is stating the obvious. It also misses the dispersed and strategic agency around the knowledge-ways that programme climate finance (Barry, 2001). The results demonstrate how actors with privileged expertise participate and play along with the rules, putting aside personal beliefs, and working towards accessing climate finance. Far from 'selling out', actors participate in

knowledge-ways that serve the interests they represent. Swyngedouw's arguments (Swyngedouw, 2011) are most applicable with respect to higher order concepts and macro-economic ideas than they are with the work of climate finance. This interpretation is a poor fit for my results on two counts. First, experts knowingly and willingly operate within the rules and structures that they have fed into creating. Secondly, there is a plenty of contestation, negotiation and re-politicization.

Actors have little option but to operate within the structures of capitalism, where dynamics of debt and limited public expenditure are formative of how the GCF project developers must work. There is little value in highlighting this - it is better to instead look at the hard work of actors that is shaped by technical and financial rules and structures. Drago's caution against 'throwing heavy terms around too lightly' (Drago, 2020) is helpful here. My results paint a picture of experts going about difficult work, not being dictated to by an external IO (Louis & Maertens, 2021) which are an effect of rather than the originator of the urgency frame. There remains vast opportunity to contest and negotiate within the urgency framing of climate finance. This echoes a post-decisional politics (Sharman & Perkins, 2017) where politics are made and un-made during implementation.

Furthermore, there is a risk that the depoliticization critique can reproduce Euro-American conceptions of domination that do not reflect modern lived experience. The insights of geographical enquiry into situated epistemologies challenges generalized claims to de-politicization. Bracking's insightful reflections on the GCF and climate finance as anti-political (Bracking, 2015b, 2015a) offers a robust critique of the global dynamics of financial redistribution. She raises important concerns about the opportunistic financialization of climate change and highlights power asymmetries. These concerns largely fail to engage with the knowledge-ways and epistemic geographies of climate change in beneficiary countries, however. This criticism does resonate with the category of actors that I label 'abstainers', who like Bracking, reject or challenge the urgency framing. Depoliticization accounts can miss such dissenting voices despite offering a clear expression of objection and political criticism. Non-participation and a refusal to condone or legitimate process are expressly political acts.

2.5.2 Expert epistemology

The expert epistemology framing reflects the general lack of public demonstration and low requirement of accountability in my results. These are two of the central dimensions of Jasanoff's theory (2011) but the relative lesser importance of these suggests that 'civic' aspect is missing in the context of climate finance. This expert epistemology usefully opens the technical and financial work of climate finance. It narrows analytical focus to the work of project development that in turn makes visible the range of contestation, negotiation and re-politicization that occurs. This revised framework emphasises the varied experience of working within an urgency framing, where the DBSA resorted to less re-politicization as they were well aligned and prepared to work within these structures. SANBI needed to re-politicize climate finance to establish legitimate projects for South African stakeholders. This dynamic is explored in depth elsewhere (Barnes and Perkins, forthcoming Paper 3). This contribution suggests that the GCF, and other providers of adaptation finance might be well-served by deploying a new business model. A model that is attuned to the capacity of DAEs working on adaptation and distinct from the mitigation model. Emphasising how experts work in this way can therefore highlight structural bias, for example that climate finance is primed for actors like the DBSA.

This re-imagining of Jasanoff's theory has nuanced understandings of how complex scalar anti-politics plays out in practice. Claims to depoliticization (Bracking, 2015b; Swyngedouw, 2010) are often generic and lack empirical grounding. This valuable concept benefits from combination with Jasanoff's expressly geographical conception to clarify the priorities and concerns of the subjects of the depoliticization critique. This highlights multi-dimensional domination, resistance, and acquiescence. For example, the expert epistemology of climate change in South Africa is shown to act despite the GCF's policy at times. Its stated requirement for transformational interventions looks performative when SANBI's sincere attempts at this slows project development. Gender knowledge is mandated for inclusion by the GCF, but this falls away once boxes are ticked, reflecting perhaps a national priority for projects rather than gender outcomes.

Depoliticization is attentive to the effects of the urgency frame, but misses the contestation and politics that established it, including the role of South Africans. Some participants were able to refer to the role of South Africans in establishing this but there is a risk that important

politics can be omitted. Jasanoff's framework was developed to compare developed country processes, specifically scientific knowledge processes in these. There is an issue in applying similar notions of a country in the context of climate change in developing nations. This plurality of what constitutes a country is explored further in the next paper (Barnes, forthcoming, Paper 2). The language of diversity and inequality in South Africa are two key barriers to a national epistemic conception. This is more straightforward in the case of the DBSA where the private sector is unified around commerce and largely uses English language, but awkward in the context of adaptation and development. Two key drawbacks of the expert epistemology approach is that it can reproduce researcher and participant biases in determining which knowledges to include and the limits of participation. For example, this might miss informal expertise or disruptive outsider voices. It also risks missing non-participation and therefore presenting an overly coherent version of a national epistemology.

2.6 Conclusion

This paper contributes to the depoliticization literature by illustrating how an urgency frame empowers unevenly, including de-politicizing effects, re-politicization within the frame and resistance to it. It highlights the political nature of non-participation. The depoliticization critique overstates the agency of IOs like the GCF (Louis & Maertens, 2021). The urgency frame appears to have the hallmarks of depoliticization being enacted, but it stems from climate science and has been championed by developing countries like South Africa for decades.

Developing countries have long argued against developed countries that invoked uncertainty and cost as a reason to delay. Urgency, and the imperative to access the GCF are not exogenous to developing countries. Climate finance programming is not one-way, nor dictated by the climate regime. South Africa, and South Africans, played their part in creating this urgency frame. The DBSA has advocated for concessional climate finance access and oriented its own development around this for decades. It would be peculiar if their efforts to programme projects would have sought to re-enliven political battles fought elsewhere. There is much re-politicization and even rejection of the urgency frame, which amounts to a full political critique and de-legitimation of climate change politics. These acts of conscientious objection do not

register with climate finance though. The urgency frame is driven by actors and processes in South Africa that pragmatically align with it and seek to order and articulate the required knowledge to satisfy the demands of climate finance. I argue that the depoliticization critique in human geography (Bracking, 2015b; Swyngedouw, 2011) is based on insufficient empirical research. Such claims echo the views of the conscientious objectors more than any actor working in climate finance.

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Chapter 3. What can we learn about the 'country ownership' of international climate finance by employing a relational conception of scale?

Abstract

Country ownership re-frames development aid as development cooperation that empowers national governments to chose and implement policies. This paper addresses a conceptual impasse where a lack of clarity about what it means and how to use it blunts country ownership. I argue that a relational conception of scale can un-pack development work and look beyond reified generalities that limit explanatory value in a hierarchical interpretation. The Green Climate Fund (GCF) exemplifies this muddled thinking, where country ownership is simultaneously presented as a principle, investment criteria and an outcome. South Africa has a varied and dynamic partnership with the GCF which I frame as an assemblage to explore who and what steers climate finance in a relational ontology. Four analytical categories are distilled to operationalise and distinguish a relational approach from a hierarchical one. This permits an empirical analysis of how projects are assembled that acknowledges the wide range of contingency and possibility. I demonstrate 1) a material-human hybridity; 2) how complex social actors imprint in proceedings indirectly; 3) what shapes categories of actors that own proceedings in an emergent sense; and 4) how raised expectations and misunderstandings help and hinder different project development processes. This re-affirms the value of relational scale in human geography and enlivens country ownership conceptually. It advances a heuristic generalisation that highlights partial scalar effects and moves analysis beyond pre-figured labels and a version of ownership premised on multiplicity, immanence, and emergence. This nuance is missed by a hierarchical conception of scale.

3.1 Introduction

Country ownership is a central tenet of modern development cooperation, where aid used to be 'done in' or 'given to' beneficiary countries, today it is nominally done in partnership (Savedoff, 2019). The aid effectiveness agenda reflects donor-awareness of the inefficiencies of their work and, in some cases, harms. This prompted a renewed emphasis on partnership (OECD, 2005) and today, development assistance seeks to build capacity and empower decision makers in recipient countries (OECD, 2011). It is intended to reinforce and advance national policy and planning with the overarching goal of supporting sustainable, lasting, positive change. This approach comes together under the rubric of country ownership with broad support from donors, recipients, critics, NGOs, private actors alike. Most agree that it is a good idea, and it is readily incorporated into many aid relationships today[22]. The issue is that it is hard to define or operationalise this central term, rendering it meaningless (Buiter, 2007; Winkler & Dubash, 2016). I argue that this reflects the hierarchical conception of scale that country ownership is based on. Development cooperation involves the transfer of resources, technology and ideas between different territorial actors and remains oriented around nation states. This is still conceived as a transfer from North to South and often a downwards channel. Scale is a foundational concept in human geography (Herod, 2010), yet the diverse deployment and malleability of the concept has exasperated geographers to the point that there have been calls to do away with it (Marston, Jones, & Woodward, 2005). Marston et al. claim that scale reinforces the binary opposition leading to problems in distinguishing between concrete and abstract forms so resort to a flat ontology instead.

This paper contributes to academic and policy literatures by re-framing country ownership with a relational conception of scale. I employ assemblage theory to analyse the desires (Buchanan, 2020) that shape and steer country ownership. I conceive and deploy the South African Climate Finance Assemblage (SACFA), which is an ordering of desire to produce Green Climate Fund (GCF) projects in South Africa. This centres on two contrasting national organisations that are accredited to access the GCF and the surrounding stakeholders and material context. The GCF is the primary financial instrument of the United Nations Framework

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[22] Country ownership is less applicable in some aid dynamics, for example in some fragile state contexts.

Convention on Climate Change (UNFCCC) and has since its inception in 2010 made country ownership a guiding principle[23]. There remains plenty of doubt about how to operationalise this, however. Subsequent GCF policy (GCF, 2017) and research (GCF, 2019a) have explored the issue yet there remains only a very broad definition and little consensus on how the concept should be operationalised. Assemblage theory employs a diffuse and dispersed conception of agency and resists reified generalities (Savage, 2020) which problematizes country ownership in this contribution. This facilitates novel insights that complicate the picture about who and what determines the use of GCF resources.

3.2 Background

3.2.1 Country ownership

Country ownership is a central principle of the aid effectiveness agenda (OECD, 2005). The OECD asked the provocative question if country ownership was 'Political correctness or a practical key to better aid?' (2011), before concluding that it is in fact a 'challenge to both partner countries and donors to actually carry out their respective responsibilities and get better development results from aid spending' (ibid). Country ownership is ever-present in GCF policy. All parties – donors, developing countries and civil society – were unequivocal in calling for its inclusion (CAN International, 2011) and it was readily incorporated (GCF, 2018). The problem is that there remains conceptual plurality around what country ownership means. There are calls to do away with country ownership all together (Buiter, 2007), but as the term remains in constant use I take it seriously and problematize it in order to add to critical literatures. Country ownership can reproduce injustices and create structures that perpetuate the exclusion of sub-national actors (Omukuti, 2020), but stops short of theorizing why. Others question if the concept is any different to the conditionality that shaped development previously (Dornan, 2017) and that some beneficiary countries able to 'own' development cooperation more than others (De Renzio, Whitfield, & Bergamaschi, 2008). Neither of these contributions distil what ownership should, or could, look like instead, however.

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[23] https://www.greenclimate.fund/about

3.2.2 Country ownership and the GCF

Country ownership remains central to the GCF's operations, policy and results. The GCF released advanced guidelines for country ownership in 2017 where it was defined as a 'measure through which countries, through meaningful engagement, including consultation with relevant national, local, community-level, and private sector stakeholders, can demonstrate ownership of, and commitment to, efforts to mitigate and adapt to climate change.' (GCF, 2017). Today it is invoked as a general principle, an investment criterion, a process and an outcome (GCF, 2019a), muddling understanding and contributing to an analytical bluntness. The Fund's Independent Evaluation Unit (IEU) was mandated to conduct a study of the principle. The Report published in 2019 (ibid.) highlighted issues and re-stated the necessity for an expansive and flexible interpretation. This paper is partly a response to that call.

Referring to more than the partnership between donor and recipient, country ownership calls for intra-national reflection and highlights how the nation state can be afforded a misleading privilege (Winkler & Dubash, 2016) whilst missing the heterogenous and often conflicting views and interests within a country (Buiter, 2007). This speaks to a lack of clarity about who 'owns' project development, where the priority for quick disbursement can clash with civil society around expectations for inclusion (Kalinowski, 2020, p. 2). The GCF Board has also sought to maximise engagement with private sectors (GCF, 2014, p. 62) which introduces more actors still with a stake in project development and raises concerns about co-option and financialization (Bertilsson & Thörn, 2021). Zamaroli et al. have shown that there is an adequate infrastructure for country ownership at the Fund level but that many developing country institutions lack the capacity to realise the principle (2020). These concerns that focus on the beneficiary country identify deficiencies with how specific stakeholders struggle with ownership without critically engaging with what ownership implies, nor what it would look like.

Country ownership is conceptualised as a scalar transfer from Fund to country and then down to the local level by the GCF, as depicted in figure 3.1. This graphic is reproduced from the Fund's operational guidelines and emphasises a 'funnelling' down of resources overseen by

the NDA. This conception is the root-cause of much of the confusion regarding country ownership.

Figure 3.1. The GCF scalar business model. Source: (GCF, 2018)
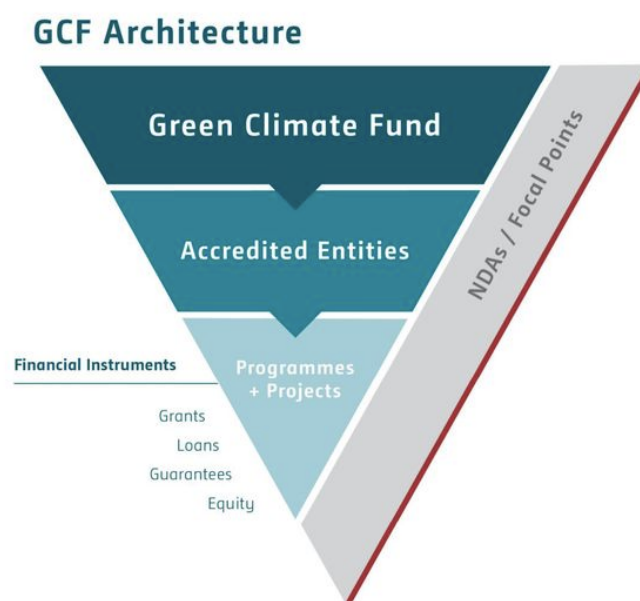
Country ownership was never defined in an operational sense. The IEU recommended that it stays this way, and practitioners utilise a 'normative definition of country ownership that goes beyond national ownership' (GCF, 2019a, p. xxix). Scholars and policy actors alike are at something of an impasse with country ownership, which geographers can re-enliven with the post-structural conceptions of scale. How this interacts with the GCF's own understanding of scale, as referring to growth in quantity, and other related ideas such as replicability and long-term sustainability facilitate a novel examination of country ownership. This ought to go beyond a-priori, reified categories of actor which reproduce and entrench misunderstandings.

3.2.3 Unit of analysis

Part of the challenge in the appraisal of country ownership is the lack of a viable unit of analysis. Much of the literature cited thus far locates deficiencies in specific actors and processes or focuses on the eventual projects. These struggle to qualify who or what amounts to a country or how those things carry out ownership. I elaborate a relational conception of scale in the next section that is based on an assemblage ontology. I deploy the South Africa Climate Finance Assemblage (SACFA) as an analytical object that is an ordering of the desire to access the Green Climate Fund in South Africa. In making this desire the unit of analysis, I expose how people, things and ideas combine to shape and steer project development. Projects must target paradigm shifts, which 'can catalyse impact beyond a one-off investment…should be accompanied by a robust and convincing theory of change for replication and/or scaling up of the project results' (GCF, 2019b, p. 2). Projects must have the potential to deliver a considerably greater quantity of results than the initial project scope and finance. In this sense, 'scale' and 'scaling-up' refer to larger portfolios and bigger results. The paradigm shift implies that projects need to be scalable to help turn the billions into trillions (African Development Bank et al., 2015). There is a disconnect between this policy scalar language and the human geography literature on the production of scale. The policy equation of scaling with replication and quantitative increase (Haarstad, 2016) is intertwined with the varied academic interpretation (Papanastasiou, 2017). I now elaborate on how I understand and operationalise scale.

3.3 The South African Climate Finance Assemblage: operationalising relational scale

3.3.1 Relational scale

Geographers can conflate abstract and metaphorical conceptions (Jonas, 1994) where labels – such as global and local become naturalized abstractions that do little analytically (Moore, 2008). Brenner highlights the analytical blunting that occurs when scale is blended with other concepts, for example when scales are invoked to describe a specific socio-spatial territory (2001). Distinctions between scale as size and level and associated untenable binaries, chiefly macro-micro and global-local motivate arguments to do away with hierarchical conceptions of

scale. Marston et al. demonstrate a 'grid epistemology' that simplifies phenomena into the language of scale that reproduces socio-spatial inequalities (Marston et al., 2005). Following Moore (2008), I use of scale as a category of practice rather than a category of analysis. Scaling can be a process of discursive translation and purification, where different knowledge agendas cohere and simplify (Caprotti, Essex, Phillips, de Groot, & Baker, 2020). Energy transitions in South Africa rely on these dynamics to reproduce scale (ibid.). It moves towards a relational conception, with analysis focused on how scales are made, extended and reproduced. The scalar production of energy precarity in South African households is shown to be shared and contested (Phillips & Petrova, 2021), demonstrating the value of complicating North-South framings. I extend this approach to consider the role of external finance in relational scalar constructions. This employs a flat ontology – as advanced by Marston et al. and other post-structuralists (DeLanda, 2006; Latour, 2005). Relational scale helps analysts to move beyond pre-figured scalar labels. For scale to remain useful conceptually it can draw on ideas such as the negotiation and construction of flows, connections, networks, sites, places and materiality (Bulkeley, 2005; Leitner, Sheppard, & Sziarto, 2008). Hierarchical and relational conceptions of scale offer different perspectives on the same social context. Several of these differences are now distilled into analytical categories that will furnish the subsequent empirical analysis. These categories are summarised in table 3.1.

3.3.1.1 Ontology

Relational conceptions of scale employs a flat ontology consistent with post-structural thinking (DeLanda, 2006; Latour, 2005). A flat ontology opens analysis to contingency and politics between human and non-human components, where form is always emergent (Deleuze & Guattari, 1988), which is valuable to scholars concerned with divergent and potential futures (Bridge, Bouzarovski, Bradshaw, & Eyre, 2013) as much as what results.

3.3.1.2 Magnitude

Hierarchical conceptions of scale establish and reinforce structures and entities, such as cities and nation states. There is no a-priori privilege of anything over anything else in a relational conception of scale, and 'size' is more a product of the number and strength of connections than pre-given (MacKinnon, 2010).

3.3.1.3 Endurance

Mackinnon (2010) developed Bergson's (2014) notion of duration in a bid to acknowledge the temporal flows that inter-mingle and contribute to emergent forms. It refers to how different objects and ideas interact in deeply processual ways leading to 'mutually transformative spatial structure and strategies' (M. Jones, 2009). Endurance captures the evolving nature of the social forms. It acknowledges the histories that shape social forms in an emergent and contingent way, so helps analysts look past pre-figured categories and to consider contestation.

3.3.1.4 Multiplicity

Contingency and possibility can be explored in greater depth with a relational conception of scale in assemblage theory. Emphasizing multiplicity avoids privileging any socio-spatial dimension over another (Leitner et al., 2008) and looks at how scale interacts with other concepts (MacKinnon, 2010). There is also a performativity in the construction of scale and a representational trope (K. T. Jones, 1998).

Table 3.1. Analytical categories to operationalise relational scale vis a vis a hierarchical conception.

Hierarchical conception of scale	Relational conception of scale	Analytical category
Up, down, sideways links in tangled hierarchies of scales.	Flat ontology between people and things	Ontology
Pre-figured size and hierarchy between levels	Connections: More/stronger connections = 'bigger'	Magnitude
Pre-figured categories/forms (town, country, supra-national block)	Immanent and emergent categories/forms	Endurance
Fixed and constitutive	Fluid and multiple	Multiplicity

Hierarchical conceptions of scale are useful for highlighting and describing power dynamics, in part because scalar language contributes to reproduce domination and resistance. Marston et

al. claim that scale is unhelpful in this regard, as it reproduces socio-spatial inequalities and chokes the possibility of resistance (2005), yet equally the scalar constructs, labels and levels are formative and generative of power dynamics. Assemblage theory conceives of power as dispersed and diffuse across human and non-humans, or actants. Where power is not held as a resource or wielded, it operates in concert in a relational sense (Allen, 2011; Lawhon, 2012).This is a critical divergence between the relational and hierarchical conception of scale that underlies each of these analytical categories. These in turn elaborate on why things happen the way that they do.

3.3.2   Scale and assemblage

Assemblage theory is part of the post-structural turn and is centred around the notion of a flat ontology, consistent with a relational conception of scale (Deleuze & Guattari, 1988). Assemblages are characterized by immanence, they are never fixed but always in flux and in a process of becoming (Bennett, 2009; DeLanda, 2006). For example, actor-network theory has many commonalities, but is focused on the stabilisation of effects via relations (Fredriksen, 2014), whereas an assemblage is always fluid. What remains constant is the human desire that orders an assemblage, where desire enrols components – people, things, ideas – and gives these their properties (Buchanan, 2020, p. 56). Assemblages are in flux and components may come and go but the human desire that distils the purpose of an assemblage is consistent.

In this paper I frame the desire to produce GCF projects as an assemblage, the SACFA. When this assemblage territorialises, when its identity solidifies and it becomes more coherent and established (Baker & McGuirk, 2017), it will have the productive effect of making 'bankable' projects (Ellis & Pillay, 2017). Territorialisation is the process whereby components of an assemblage are ordered to produce an effect (Smith & Protevi, 2008), equally de-territorialisation occurs when these weaken. This ebb and flow demonstrates the complexity and contingency of assemblages. This process of territorialisation occurs with reference to the components of the assemblage: the civil servants and activists, the solar panels and ecosystems, as well as ideas like justice and value for money. Bouzarovski demonstrates similar dynamics in urban low-carbon transformations, where territorialisation is shown to be immanently constituted of politicization, enrolments and the hybridisation of human and material agencies (Bouzarovski & Haarstad, 2019). Territorialisation offers an analogy for

country ownership in this way. Territorialisation and country ownership both describe how projects take shape in, reflect and reproduce, and are contested and accepted in a national setting. They both describe how a pipeline of projects narrows to become a small number of bankable and implementable activities. Given the diffused and dispersed agency, these components all participate in the powerful ownership of project development. This is a good fit for GCF project development which is a fluid and messy process (Law, 2004), with lots of contingency and possibility. Using assemblage theory makes analysis attentive to the scope of what *might* happen, rather than just to what *does*.

3.3.3 The added value of the assemblage

Using the assemblage to explore scalar politics eschews reified generalities. It offers a picture of concrete assemblages instead. These are abstract concepts (generalities) that are made to exist through classification along essential characteristics (reified) (DeLanda, 2006). This is useful in policy analysis as ideal types and hierarchical labels lack explanatory value. Material and relational lenses make visible the *tangible stuff* of policies (Savage, 2018, p. 310; emphasis in original). This overcomes a critical deficiency in the current scholarship about country ownership: the notion of a 'country'. Relational scale does not jettison such labels, it problematizes them. In the case of the nation state, it makes visible how 'territory cannot be reduced to national or state territory' (Sassen & Ong, 2014, p. 22). This facilitates analysis to 'expand the category of a territory to a measure of conceptual autonomy from the nation-state' (ibid.). This means that rather than trying to formulate the 'country' we can question how such a pre-existing category came to exist, how it is sustained and what it might achieve (Savage, 2020). Conceptualizing how people and things combine in a flat ontology, how they connect and the quality and quantity of these connections and how these endure will allow me to scrutinize who and what shapes and steers project development.

Problematizing country ownership includes a range of factors and features including, but not limited to those outlined here, in project development. It broadens the set of actors and actants that constitute the country whilst placing a far greater emphasis on how these combine relationally to contest and shape project development. Ultimately, it arrives at an acceptable project that reflects the history, culture, politics, economics, ideas and prevailing power dynamics in and surrounding the country. Acceptable in this sense refers to the project aligning

with and advancing national development plans and receiving a letter of no-objection – the formal GCF requirements. But country ownership is more than policy and letters of no-objection, projects must also fit the resource and infrastructure context of the country, as well as the specific geographical factors and cultural norms including religion and colonial legacy.

3.4 Methods

3.4.1 Data collection

The research draws on fieldwork in South Africa between November 2018 and March 2020. It draws on audio-recorded, semi-structured interviews with actors involved in the GCF project development. This is complemented by ethnographic fieldnotes and observations. The case-study research design (Ridder, 2012) involved joining multiple, interrelated communities with a vested interest in GCF programming in South Africa. Initial field construction was built out from the organisations formally involved in GCF project development in South Africa. A case study methodology is employed, informed by the critical ethnographic approach to cases as created dialogically through the researcher (Lund, 2014). I employed a purposive approach to sampling that began by producing a stakeholder set through desk-based research and then building my research field with a snow-ball approach through interviews and events.

3.4.2 Case and approach: South African climate finance

This research deploys an assemblage that is an ordering of the desire to programme the GCF in South Africa, where the unit of analysis is the direct access to the Fund. This is organised around the national designated authority (NDA) and two direct access entities (DAEs). These are the formal links to the Fund, around which various other stakeholders cohere. These organisations oversee country ownership viewed a hierarchical scalar conception of the term. The two DAEs lead the project development process and are the primary focus of this paper, from which the dataset was built out. Memorandums of understanding were signed with each which facilitated insider access to staff, events and written materials. Multiple, often repeat, interviews were carried out with various staff and participation in forums that were either arranged or attended by staff furnished further insight into GCF project development. Country ownership is greater, in a processual sense, where beneficiary countries seek direct access to

the GCF (GCF, 2019a). South Africa is unusual in having two DAEs, each accredited in 2016: the Development Bank of Southern Africa (DBSA) and the South Africa National Biodiversity Institute (SANBI). The differences between these are summarised in table 3.2. The DBSA is a regional development finance institution that is accredited to programme loans and grants for adaptation and mitigation projects, up to USD250m in size. SANBI is a national quasi-governmental conservation organisation. It is accredited to programme grants for adaptation up to USD50m in size.

Table 3.2. Accredited entity comparison[24]

	DBSA	SANBI
Entity type	Direct (regional)	Direct (national)
Size	Large (total projected costs exceed USD250m)	Small (total projected costs between USD10-50m)
Fiduciary standards	Basic, project management, grant award, on-lending/blending, loans, equity, guarantees	Basic, project management, grant award
Thematic focus	Adaptation and mitigation	Adaptation
Sector	Public and private	Public
Environmental and social risk category	A - significant adverse risk that may be irreversible	B - mild adverse risk that would likely be reversible

These two DAEs combined with a high-capacity public sector, an active and engaged civil society and large domestic private and financial sectors, make South Africa an attractive option to explore this research question. I joined many communities focused on climate and energy issues. There is a climate adaptation network, climate change community with a specific focus on electricity issues, a climate justice-oriented community and an academic activist scene. Additionally, ethnographic fieldwork was conducted in and around mining affected communities, especially with communities suffering from the pollution of the coal economy and local activists opposing it. Living and working in South Africa in this time was an opportunity

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[24] https://www.greenclimate.fund/how-we-work/tools/entity-directory

to experience the electricity crisis – regular and lengthy load-shedding (blackouts) – first-hand and to learn how it impacts everyone from local communities to suburban families. The material components of climate finance include the coal infrastructure, the urban context that still echoes apartheid planning, the geography and climate. The legacies of colonialism and apartheid still shape the country, whilst poverty, inequality and unemployment are acute (National Planning Commission, 2013) especially in rural areas and in some of the largest metropolitan centres. Corruption is endemic, with the Presidency of Jacob Zuma (2009-18) amounting to what has been labelled a 'state capture' crisis (Ashman, 2019). Public resources were drained from services and infrastructure including from the country's state-owned electricity utility, Eskom. South Africa also has a strong constitution and legal system, legislated participatory processes of consultation and a large and active civil society. It is against this backdrop that the GCF is seeking to reproduce its mandate and result areas by extending finance to address climate change.

3.4.3   Analytical approach

Interview transcripts and ethnographic fieldnotes were coded and analysed thematically (Braun & Clarke, 2006). This as an iterative process that explored how participants understand country ownership with recourse to both hierarchical labels and also the relationships and connections that they consider important. Data collection was attentive to participants' experience and desire around GCF project development and related concerns. For example, actors engaged in the energy transition might speak to their concerns about environmental justice that shape their orientation in the policy space. The analytical categories that are outlined in the previous section formed broad, initial codes from which analysis proceeded. Further coding sought to identify different ways that participants socially construct and make sense of the assembly of GCF projects, within these four scalar categories. This approach develops a partial interpretation that reflects my own bias and interests and will have missed important factors and actors which shape project development.

3.5 A relational conception of country ownership

3.5.1 Flat ontology

The flat ontological conception of scale emphasises the range of potential connections. Project development has a clear and concise purpose and actors in this space navigate these connections and seek to make some of them productive to help territorialise projects. Certain organisations and people can help un-lock this finance, including those with prior experience of the GCF. The DBSA collaborated with several organisations to distil the Climate Finance Facility (CFF)[25] into a bankable project. This drew on relationships with 'experts in these application processes who know exactly what's going to be passed' as a consultant I interviewed explained 'so they have experience, or potentially one of the members has actually been part of the GCF appraisals team, but they know the steps very clearly and very well'.

I label such actors 'green go-betweens'. These are people, usually with technical backgrounds that are adept at forging productive connections and moving the projects forward. Part of their job is to enrol and reflect material components and networks of human-material hybrid agency. One such consultant from a South African energy think tank explained that their efficacy in this regard owed to a close network and rapid access to information.

> *I could walk to three desks away, and ask them what is the biogas price per megawatt? And they pick up a phone, phone a friend in the centre, or the head of biogas industry association* (Consultant)

This is an example of a way that material is represented in and shapes project development. Equally, how the technical inputs relating to renewable energy are produced by a diffuse policy community whose membership is characterised by mobility across it. It is very common, for example, for one person to have worked in government, the private sector and the third sector. This consultant was formally a utility developer in South Africa, for example. This forges connections that facilitates quick and effective working and brings order and control.

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[25] https://www.greenclimate.fund/project/fp098

The role of materiality in country ownership is missed with a hierarchical scalar lens. This hybrid agency complicates notional ownership of the process. Renewable potential and the transmission infrastructure are key determinants in the energy transition and together have prompted solar developers to pursue 'Crazy ideas, like building solar PV in Mpumalanga'. Energy planning in South Africa locates solar development in the Northern Cape where irradiation levels are greatest. The province is sparsely populated and far from load-centres. These material factors combine with the just transition discourse to motivate building solar sub-optimal generation locations.

The CFF seeks to 'crowd in' private sector investment in green activities, changing behaviour over time until 'you no longer need finance to de-risk it. You've de-risked it … it should influence other banks to look at the space differently' (DBSA staff). Risk reduction and credit enhancement are rubrics of connection in this flat ontology, whereby actors combine around shared objectives and mutual benefit. The territorialisation of projects is gradual and will reduce the need or additionality of the project. This means that the scale that is produced by the project is intentionally partial. Crowding in the private sector will catalyse spending on renewable energy and other climate objectives. Indeed, staff in the NDA conceive of the GCF to 'buydown risk to scale up action' so that in time the GCF could be used for increasingly challenging sectors and problems, re-focusing on water and adaptation.

Participants deploy scale in various ways when they discuss the possibility of expansion and opportunities associated with project development, including outside of South Africa. Solutions and technologies may form new export products. South Africa has an advanced industrial sector and geographically has 'the biggest un-tapped market in the world over the border, of close to 600 million people who don't have access to electricity' (Government policymaker). This is an example of the scalar connection and construction of opportunity. In the adaptation space people are thinking about how to market innovations:

> *Maybe relocate wine production. Alternatively, maybe we can generate an asset that could be sold and become intellectual property that becomes valuable in other wine producing countries.* (NDA staff)

Flat ontology collapses categories and distances and makes visible the productive connections between people, things, and ideas. Dispersed power and agency can be harnessed to territorialise projects.

3.5.2   Magnitude

The pre-figured idea of a country is misleading to scholars and policymakers alike whilst the national government is a poor proxy for one. The notion that a country 'owns' development cooperation is metaphorical and serves to shut-down a more flexible understanding of the term. Thinking differently about the 'country' in country ownership can be productive. There is relatively little national oversight in South Africa.

> *…the NDA has never come to any GCF events. They never come. They never accept invitations, they never engage on issues. From the Fund's perspective they are disengaged.* (GCF Advisor)

The NDA has created a context where the DAEs lead on project development. This might be a deliberate diffusion of agency to orchestrate the assemblage at arm's length from the ruling African National Congress (ANC) party. Project development is shaped by the ANC which is all-pervasive in institutions and consciousness, but has no formal role. Rather, actors navigate and avoid the ANC:

> *There is a block, and it is the government in the middle, blocking… I think it is more like a maze. Things might get through, but it will take a long time and things will get watered down.* (Climate justice activist)

Whilst the national government and the abiding notion of a country is misleading, it remains important to a relational analysis. How actors work with, evade and reflect these pervasive categories is central to project advancement. The ANC conforms neatly with a hierarchical categorization with provincial, municipal and community level structure. Yet this fails to account for the influence and agency of the apparently weakened Party. Informal links of corruption better account for the magnitude of the ANC, where the civil service has, according to a solar developer, been reduced to 'extract economic rent out of the system'. It is helpful to

avoid the trope of corruption – which closes discussion – and instead highlight how the ANC works. The most senior figures in the ANC, including the President and the Minister for Energy fall on alternate sides of a power struggle around energy. This context shapes South Africa and is a barrier to progress:

the ANC can't deal with real world issues now because it is still fighting its own battles, who's going to be next in this feeding frenzy? If Cyril wins, will it be a feeding frenzy as because Cyril hasn't won yet. He's the president but he ain't in power yet. (NGO Director)

This is deterministic of energy policy and accounts for the pressures and challenge of project development better than pre-figured, reified notions of a country. Eskom is a related force that shapes South Africa. The just energy transition seeks to transition the energy economy from a centrally planned, vertically integrated monopoly to one that is far more distributed. Eskom is in crisis, in no small part due to ANC corruption and mismanagement. The crumbling coal-fired infrastructure cannot meet demand and Eskom is billions of dollars in debt. Eskom is totally pervasive in energy and climate change discourses, and in day-to-day life thanks to load shedding. This amounts to a 'huge' presence, where it touches everything. Emphasising its magnitude in this way better accounts for agency and determinism which is missed without a relational lens. Many community members in the Highveld, where most of Eskom's infrastructure is located, refer to individual power stations simply as 'Eskom'. This reflects a framing, employed by the community group I spent time with, as a unitary and coherent whole. This captures its monolithic significance which also reflects the dependence and entitlement to free electricity in the post-apartheid democracy. The constitution is 'very pro poor', an Eskom staff member told me 'we have a lot of human rights, for example, the right for electricity. Where else do you have a right for electricity?'. The connectedness and agency of Eskom augments the conception of South Africa in terms of the challenge and restrictions in climate finance.

3.5.3   Endurance

Project development targets climate action to contribute towards the GCF's aggregate objectives, such as resilience and emissions reduction. Domestic actors must advance national development agendas with ambitious and catalytic projects. Assemblage theory emphasises

the emergent and immanent categories of actors that shape this work and the role of these in the production of scale. Projects must reflect beneficiary country contexts and become symbiotic to advance pre-existing, shared objectives. For example, the private sector has reacted to institutional failings in utility provision by 'becoming more responsive to providing it themselves … businesspeople are sane people. They need energy, if the government cannot provide it, they will provide it'. (DBSA staff). This is a motivation for many off takers of credit enhanced products via the CFF. Actors are using the CFF loans to secure their access to electricity. Bankers and private sector parties are unified by a motivation that is not primarily environmental. One commercial banker claimed that 'Eskom is an opportunity. If it wasn't for Eskom the cost of renewables would be years behind where it is now. Why is my house predominantly off the grid? Because I have no faith in Eskom' (Commercial banker). This is a widely held belief that the energy transition is less to do with environmental justice and 'came about through maintenance issues of the power stations'. (Central Government staff). Eskom, and the desire to hedge against supply issues, shapes an emergent category of actors with a shared goal to bring down the cost of renewable energy. As such, this provides a better explanation of 'ownership' of the GCF programme.

In November 2019 the DBSA hosted a team of consultants employed by the GCF as part of its Learning-Oriented Real-Time Impact Assessment (LORTA). This explored the early stages of the CFF with a view to conducting an impact evaluation. The week-long mission was an opportunity to learn the mechanics of the project and to meet some of the off takers of finance, including real-estate firms. The sector is important in the move for roof-top solar to counter-act load shedding. During a tour of a supermarket near Johannesburg a property developer extolled the value of the climate-related measures. The reliability and pay-back of solar, let alone on the ability to keep in-store lighting on during load shedding. The store is vast and windowless. I know from experience how sinister a shopping mall is when the lights, music and customers all disappear. Another client invokes Eskom supply as the greatest driver of roof-top solar a PowerPoint introduction. We then had a tour of an aerospace factory where the sound of heavy machinery fills the cavernous warehouse. Jonas is showing us around. He explains the impact of load shedding, how teams must work overnight and weekends, whenever the power comes back on, to keep up with orders. The CFF meets the demand of an emergent category of potential off-takers relating to the Eskom crisis. This group and the CFF have strengthened

and territorialised symbiotically, and sub-projects were in the final stages of preparation as the COVID-19 lockdown came into force. The pandemic highlights the immanence of this. Reduced electricity demand during lockdown briefly ended load shedding. It did not address systemic issues, but it temporarily removed supply issues. This highlights the immanent and emergent nature of ownership, where actors cohere around enduring need.

3.5.4   Multiplicity

GCF projects must be catalytic and transformational rather than an end in itself and this way produce partial scalar effects. This chimes with the confusion about whether country ownership is a process or an outcome, a means or an end. The DBSA's engagement with the GCF is part of a much larger scaling exercise to become a major Green Bank in Africa.

> …9*0% of concessional funding is targeted towards preventing climate change in the developing market, this is an enormous opportunity. I told my boss … I want to set up a green bank.* (Director, DBSA)

The DBSA is looking to expand across the continent and the GCF offers a stepping-stone to build up its green finance credentials and solidify experience. Their relationship with the Fund produces the necessary scale effects in terms of its results but also lays the foundations for both transformations in South Africa and in the bank itself. Emphasising desire in assemblage makes this multiple purpose visible. Indeed, the multiplicity in targeted results contributes to the lack of clarity around country ownership in general, where the diffuse future benefit and ownership are necessarily un-specified. The intended growth of the DBSA as a green bank is well known and understood, but it goes beyond the formal scope of their GCF partnership.

There is a degree of confusion in South Africa, outside of the official GCF partners, regarding the scope to participate in project development and access to the Fund. This partly reflects the lack of clear national oversight from the NDA, but also that SANBI has raised expectations in civil society. SANBI produced a climate finance strategy that covered the period 2017-22 which refers to the GCF having 'no country cap, and no limitation on the number of projects a country or Accredited Entity may submit for approval' (SANBI, 2017, p. 3). This carried forwards into their approach to raising awareness and encouraging a broad and diffuse sense of ownership

and participation. There is a long association with the USD100bn figure that the GCF is contributing towards mobilising. This contributes to confusion and raised expectation, including in government where 'people get taken in by the 100 billion number, and the media feed on that, in reality it's very tough and it's very difficult to deal with' (Director, NDA). Expectations around the GCF have been falsely raised. SANBI engaged in a lengthy consultative process that involved a call for proposals which led many actors to believe that they could participate when this was never an option.

> *You wonder how that finance is going to be managed with reference country ownership and I am not sure about the GCF, it was discussed at COP17 in Durban, and as you said…how should civil society groups access such funding?* (Climate Justice Activist)

This generated a broad sense of buy-in from a range of stakeholders. Many CSOs and other organisations collaborated to submit projects, often in partnership with a government agency. Although most of these proposals were unsuccessful this engendered a sense of ownership across civil society that means that even those dissatisfied actors feel included. The Director of this climate finance programme at SANBI did this quite deliberately, as part of a commitment to transformation. This not only reflects an institutional commitment to good practice but is also close to the GCF's stated goals around participation and ownership. Their approach has been lauded at the GCF.

> *If you're going to consult then you must do so properly and if you want people to buy into the kind of intervention that they are trying to build. They are taking their time to plan carefully so that when they do actually draw on the funds, they can be very effective'* (GCF Advisor)

SANBI acknowledge the trade-off between 'this huge amount of interest. The limited resources we have to do the process and the need to move quickly' when it comes to enacting country ownership. SANBI sought to include a wide range of actors beyond the notional government orientation of a country that a hierarchical conception of scale invokes. Their approach comes at a cost given that it has still, as of the thirtieth Board meeting in October 2021, yet to secure an approved project. Equally, there are frustrated people who were encouraged to participate

and saw their proposal rejected. The alternative would have been to centrally orchestrate project development in a target sector, which is a more common approach in other countries.

> *I'm not convinced that just choosing one would have been the right thing to do. I think we would have undermined what we're trying to do here. Direct access can create a whole lot of transformative delivery that I don't think you would achieve in other ways'* (Director, SANBI)

Hierarchical conceptions of country ownership suggest that SANBI is unable, or unwilling, to fix the scalar effects of the GCF in South Africa. This is despite clearly 'being ready to secure a project' (NDA staff). Hierarchical conceptions might frame this as a blockage. Relational ontologies instead emphasise the multiplicity in their approach which is expressly designed to target the complex and elusive transformation that GCF policy seeks. There is a risk that project developers will trade-off transformation in favour of speed, reflecting the pressure that all parties are under.

The raised expectation of civil society to be able to participate via SANBI has had an un-intended side effect. The CFF provides loans exclusively to private actors so is quite separate to the stakeholders SANBI engaged. The raised expectation in civil society engendered possibility and hope that anyone can apply and participate in GCF programming. This placated criticism of GCF programming in South Africa, and specifically of the DBSA. The CFF is owned by and will benefit the private sector off-takers. It confers a narrow benefit on this group whilst not advancing the adaptation and developmental agenda. Civil society might be expected to have opposed this and called for a different use of the GCF resources had they not been operating under the expectation that the resources will flow freely via other channels. Misconceptions about the different sources of money[26] also contribute to maintain a sense of possibility for civil society and activists.

Connected to this is the broad and malleable category of the just transition, that resonates and has multiple meanings across the research context. The sense of multiplicity surrounding the

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[26] The South African Green Fund and the Green Climate Fund, for example.

just transition also contributes to quell resistance. Central government, labour, the private sector, academia, the community and civil society have all held workshops, published research and sought to define the just transition. The national government convened in a nationwide, nine-province structured dialogue to seek consensus around the term and what it means for South Africa in an environmental context (National Planning Commission, 2019). The conflation of the just transition with a renewable energy transition in South Africa has restricted progress for both (National energy policymaker). Multiple divergent views can be carried along under the inclusive rubric of a just transition. The CFF will play a part in this by increasing renewable energy capacity in South Africa which is better than nothing for some groups that might be expected to criticise. Without this broad possibility, project development would have faced greater challenges. All this paints a fragmented picture of ownership of the GCF country programme in South Africa.

3.6 Discussion

3.6.1   Concrete assemblage of a country

Relational conceptions of scale provide concrete assemblages of the component parts of a country and what they do, rather than providing reified generalities (DeLanda, 2006, p. 35). As a GCF project territorialises, the processes, actors and things that shape it, that it must avoid, that it must satisfy and work with are visible. This offers a sense of the magnitude of a country, its constituent parts, and the way that components interact. Countries are not neat containers nor a level of government. Actors cannot work or think in this policy space without recourse to reified generalities such as 'country', but this contribution provides a critical re-interpretation of this label. I challenge the a-priori spatial or institutional notion of South Africa – rejecting 'the fixed coordinates' (Savage, 2020, p. 327) - and instead train my focus on the relations that are established across this space. This highlights the paucity of explanatory value offered by a fixed notion of territorial scale (Allen & Cochrane, 2010). Any combination of people, ideas and things can shape the assembly of a country, but the inter-related examples of the ANC and Eskom demonstrate the formative and deterministic effects of these complex sets of relations. Each of these shapes project development by precluding options, creating problems and prompting avoidance. This determines what scalar effects the DBSA can produce via its GCF

partnership, leading to a private sector focus that meets a specific and feasible demand. This demand is a hybrid effect of human and material interactions (Bouzarovski & Haarstad, 2019) where the electricity grid, solar irradiation levels and a political economy of corruption shape project development to a large extent.

Assemblage theory provides useful analytical tools to support this analysis. The emphasis placed on the coming together of components, or territorialisation around an outcome accounts for a far wider range of human and non-human agency than a hierarchical scalar conception of project development. The GCF's understanding of country ownership is especially shaky where the private sector is concerned. The private sector is poorly accounted for as a level or label in a hierarchical sense. The GCF's internal policy frames the private sector as an important stakeholder. However, it also finds that private sectors are insufficiently integrated and that project pipelines remain limited (GCF, 2019a, p. 147). The private sector is better conceived of as a dynamic of interconnectedness that spans individuals and multi-national corporations and that is highly reflexive to material reality. Actors like 'green go-betweens' play a linking role to help cohere this private sector and forge human-material links.

3.6.2   Diffuse and emergent ownership

Power is understood to be diffuse and dispersed across people and things in a relational ontology. Emphasising the co-constitution of agency in this way enlivens a varied conception of ownership that better explains how GCF project development works. I have shown how this shapes understandings of transformation in different human and material combinations in the country. The DAEs are gatekeepers of sorts and manage the direct communications between the GCF and South Africa, but by destabilising this linear image of a transfer a relational ontology exposes the complex way that actors and actants enrol in service of the desire to secure GCF projects. Even in the case of DBSA, which has worked efficiently and quickly to secure two projects, ownership is shown to be an emergent identity that form as much to hedge against Eskom supply issues as it reflects climate ambition. This enduring category of actors and actants looks to have 'purified' (Caprotti et al., 2020) the knowledge discourse around renewable energy into a financial proposition that is clear and agential. An important

contribution of this paper is to show the formation of categories of actors, as an alternative conception of private sector ownership.

Project development is full of contingent possibility. SANBI's approach demonstrates how inclusivity and diffuse ownership conferred potential on the country programming that was never there. The GCF requires a pipeline of projects such that this can be whittled down into strong concepts and then projects for approval, most of which will not be funded. This invokes a linear imagery, narrowing like a funnel producing bankable projects. This is enticing in its simplicity. Assemblage theory usefully complicates this picture. Project development is required to consult with stakeholders, but this conception fails to account for how conflicting perspectives are then accommodated. Multiplicity can help scholars to consider how outcomes are reached without making its achievement inevitable. This is missing in a hierarchical scalar conception of country ownership. Multiplicity highlights how the South African project development accommodates diverse and broad participation in such a way that placates criticism, echoing the 'tyranny of participation' critique (Cooke & Kothari, 2001). The consultative processes surrounding GCF programming and progress towards a just transition provides an example of the enrolment of would-be critics to quell resistance. Confusion about the different funds and a misconception that applications are open to all, specifically via SANBI, have allowed the DBSA's projects to go under the radar. SANBI's approach provides an important insight into the potential of country ownership. It makes clear the trade-off between expedient results and deep transformation. Relational scale makes this plainly visible and facilitates debate around the potential for this to support greater ambition, especially relating to climate justice agendas.

3.6.3   Partial scale effect

The GCF has a stated objective to instigate systems-level change and transformation, yet much of the attention resorts to mitigation and adaptation outcomes. The experience of the LORTA mission brings home that it is challenging to qualify and measure these bigger transformational goals. Catalysis and paradigm shift are central concepts for the GCF which require actors at the Fund and also involved in project development to relinquish control of activities. Hierarchical conceptions of country ownership suffer due to an inability to do this, which partly explains why there is often a stubborn notion of ownership ascribed to central government. This

analysis has demonstrated the value of thinking about country ownership as a process of assembly. This is less focused on questions of who is doing what and instead recalls Deleuze and Guattari's encouragement to ask what an assemblage is for, or what it can do? (Deleuze & Guattari, 1983). By emphasising multiplicity and endurance, this contribution makes the contingency of project development visible, clarifying how these processes lead to partial scale effects. This orientation explains how human and material forces combine in pursuit of bigger objectives, that include but exceed the GCF. The scale that is produced is intended to be catalytic, as a means rather than an end in itself. Assemblage theory demonstrates this effect as on-going work by focusing on the objectives, whilst a hierarchical conception of scale stops short after describing the work of building an enabling environment.

3.7 Conclusion

Country ownership is paradoxical. It is totally pervasive in development cooperation policy and best practice (GCF, 2017; OECD, 2005) yet most practitioners are exasperated by this un-implementable and pluralistic concept. This paper was motivated in part to the GCF IEU's assessment of country ownership (GCF, 2019a) which provided perhaps the most detailed interrogation of the concept without offering a clear definition nor clarifying many of the inconsistencies. The writing was on the wall when there was such universality in the call for its inclusion in GCF policy (CAN International, 2011) from all parties. The IEU report recommended a definition that goes beyond national government. This paper has addressed this conceptual impasse by paying attention to concrete assemblage rather than the reified generality of country ownership (DeLanda, 2006; McGregor & Knox, 2017). This looks at how desire to programme the GCF enrols things, people and ideas that constitute South Africa rather than a territorial notion. I distil four analytical categories: flat ontology, magnitude, endurance and multiplicity which distinguish a scalar conception of scale from a hierarchical one. This captures the co-constituted agency and the material-human hybrid scalar formation. These combine to offer an alternative to hierarchical conception of scale that ought to benefit policy actors whilst also re-affirming the value of scale in human geography.

The theoretical approach and the analytical dimensions offer a heuristic generalization and can equally be applied in any GCF beneficiary country, across sectors, financial instruments and in the public or private sectors. It is more likely to yield interesting findings in countries that are pursuing direct access to the Fund and have open and consultative processes. The IEU also cites confusion about the term: is it a principle, an investment criterion, an outcome or a process? This confusion stems from the lack of specificity in country ownership. The analytical framework deployed in this paper has focused on country ownership as a process, drawing on assemblage theory to explain how it is operationalized.

The conceptual issue facing an analysis of country ownership is how to account for the diversity of actors, things and ideas. This diversity of agency is better accounted for by drawing on a flat ontology. It is helpful to emphasise the immanent and emergent categories of actors that project development either enrols or creates which stand to benefit from projects. These actors and actants do not 'own' project development. They focus attention on the scalar effects of the GCF and how these territorialise. This approach offers opportunities to critical scholars of human geography and international development to consider the potential of interventions like the GCF. The contingent and emergent nature of this scalar conception makes a wide range of possibility visible. It includes ideas and positions that might not be 'bankable' in a conventional sense but has important implications for social justice agendas in highlighting the scope for transformation. This is a benefit of SANBI's approach to project development which offers a window into the desire for transformation in South Africa in a way that the DBSA's narrower project development does not.

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Chapter 4. Policy assemblage and legitimacy: Insights from the Green Climate Fund (GCF) in South Africa

Abstract

Legitimacy is a central concept in political science closely linked to notions of governance. Yet it has not been systematically theorised or explored in the context of assemblage thinking. The present paper seeks to narrow this gap in understanding, arguing that policy assemblage approaches can be enriched by paying greater attention to legitimacy. We ask how legitimacy is produced, what role it plays, and the effects different types of legitimacy have in and on policy. A central theoretical contribution is to advance a heuristic concept, the *legitimacy machine*, to explore this productivity of assemblages. This abstract machine transforms components into sufficiently legitimate ones to progress policy objectives. Legitimacy establishes and strengthens connections, potentially leading to flows of authority, resources, and material effects. Empirically, we focus on Green Climate Fund (GCF) project development in South Africa, addressing a puzzle regarding the uneven productivity of two accredited entities. Parallel processes to access the GCF offer a rich empirical case to explore the production and role of legitimacy. Documents provide the conceptual and methodological basis for analysing how legitimacy is produced and how legitimate, or legitimate enough, projects are developed. Our paper reveals how an assemblage approach helps to take us beyond thinking of legitimacy as a static, binary property, positioning it as a dynamic asset which unlocks relational power. An assemblage approach also usefully foregrounds the agency involved in the production of legitimacy and highlights the contingency and sometimes conflicting desires that shape the strategic use of legitimacy. We conclude by reflecting on the value of bringing assemblage and legitimacy closer into dialogue. We also discuss implications for critical debates about current modalities of international climate finance.

4.1 Introduction

Much of the debate on international climate finance has focused on the inadequacy of concessional flows (Roberts et al. 2021, Khan et al. 2020). Less scholarly attention has been

paid to the challenges of disbursing funds and getting projects "off the ground" (Christophers 2022). A keystone organisation confronting these difficulties is the Green Climate Fund (GCF): the United Nations' primary financial instrument for climate action. It has an operational architecture oriented around accredited entities that interact with the Fund, liaise with and represent the national government in beneficiary countries, and programme climate adaptation and mitigation activities. "Unlocking" these resources is a notoriously challenging job (Mungai, Ndiritu and Da Silva 2022).

Drawing from the foundational work of Deleuze and Guattari (1988), this paper brings an assemblage perspective to the work of the GCF. It seeks to address an empirical puzzle of project development in South Africa where two national accredited entities have had contrasting experiences. Projects developed by one accredited entity (a development bank) have been approved for financing by the GCF, while another accredited entity (a governmental institute) has not had any projects approved[27]. Assemblage thinking pays particular attention to the processes through which people and things are brought together to achieve specific desires (Ureta 2015, Buchanan 2017). Iterations of the approach have been applied to a range of policy issues (Thompson, Sellar and Buchanan 2021, Köhne 2014, Palmer and Owens 2015). More recently, attempts have been made to forge a connection between assemblage thinking and other concepts, such as governance, power, and liminality (Briassoulis 2019, McConnell and Dittmer 2018, Allen 2011). The present paper explores the value of foregrounding the concept of legitimacy within policy assemblage[28].

Legitimacy is a foundational concept in sociology, political science, and international relations. It is also widely deployed within studies of environmental governance, where things are governed when they are legitimate, as much as legitimacy makes things governable (Kraft and Wolf 2016). Despite this prominence, the concept of legitimacy has tended to be episodically invoked, rather than systematically theorised or explored, within past work on assemblage (e.g., see Köhne 2014, Vasstrøm and Lysgård 2021). A key argument of the paper is that legitimacy can productively enrich assemblage analysis and the wider literature on legitimacy

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[27] As of the 13th GCF Board Meeting in October 2021.
[28] By adopting a policy assemblage frame, we situate the paper within a literature concerned with applying assemblage theory to understanding policy-making processes and outcomes (for a review, see Savage, 2020).

can benefit from insights derived from assemblage. Within the present context, integrating legitimacy into assemblage facilitates analysis of why certain actors and processes cohere around bankable GCF projects while others cannot.

Our paper makes several significant contributions. First and foremost, we make a theoretical contribution by advancing a heuristic concept, the *legitimacy machine*, to explore the productivity of assemblages. We posit that this abstract machine transforms components, and configurations of components, into sufficiently legitimate ones to facilitate progress towards the assemblage's objectives. Furthermore, we show that legitimacy functions by establishing new or animating existing connections – unlocking relational power (Lawhon 2012) – leading to the flows of authority, resources, and material effects within policy assemblages. Unsettling binary, deterministic accounts of legitimacy, we also reveal how legitimacy considerations may frustrate the productivity of assemblages. In doing so, we offer a political and strategic reading of legitimacy, which is attentive to the contingency of its effect in situ.

A second contribution is to foreground the performative role of documents within policy assemblages (Bennett 2020). We seek to address a common critique; namely, that despite its materialist ontology, assemblage does not always take non-human actants seriously (Bennett 2010). Within the current setting, documents provide the conceptual and methodological basis for analysing how legitimacy is produced and how legitimate, or legitimate enough, projects are developed. We explore the effects of documents both "in" and "on" practice by demonstrating how they are empowered and empower (Weisser 2014). A third contribution is to debates about international climate finance and the impact of the GCF (Garschagen and Doshi 2022, Bracking and Leffel 2021). Our findings reveal how current modalities of GCF financing in South Africa privilege financialised logics which find expression in mitigation projects (e.g., in renewable energy). We conclude by highlighting the need for greater support for programming more challenging but ultimately more transformative adaptation investments.

The rest of the paper proceeds as follows: Section 4.2 provides a background on legitimacy and assemblage; Section 4.3 introduces the South African Climate Finance Assemblage (SACFA) and key concepts which inform the heuristic of the legitimacy machine; methods and case are

outlined in Section 4.4, while Section 4.5 presents empirical findings, detailing the contrasting experiences of two Direct Access Entities (DAEs); and discussion and conclusions follow in Sections 4.6 and 4.7, respectively.

4.2 Bringing legitimacy and assemblage together

4.2.1   What is legitimacy?

Legitimacy – when 'the actions of an entity are desirable, proper, or appropriate' (Suchman 1995, pg.574) – is fundamentally concerned with accepting authority and the rationale for doing so (Zelditch 2018, Bernstein 2011). It can be conceived as an inherently political condition predicated on the ability to justify an action or entity as reasonably acceptable (Clark 2007). Such a perspective allows us to move away from binary conceptions wherein something is inherently legitimate or illegitimate based on the application of norms like legality or morality. It also foregrounds the socially constructed nature of legitimacy, wherein legitimation (i.e. the process of acquiring or maintaining legitimacy) is a fundamentally communicative process (Suddaby, Bitektine and Haack 2017, pg.458).

The policymaking literature commonly distinguishes between input and output legitimacy. The former is concerned with the participatory quality of decision-making involved in the creation of laws, policies and rules, while output legitimacy refers to their 'problem-solving qualities' and ability to meet expectations (Schmidt 2013, pg.4, Botzem and Dobusch 2012, pg.741). In the present paper, two additional forms of legitimacy are of particular interest: throughout and promissory. Throughput legitimacy focuses attention on procedure in the sense of 'how input (ideas, plans, expression of interests) is processed throughout the policymaking process' (van Meerkerk, Edelenbos and Klijn 2015, pg.747). Situated between input and output legitimacy, a particular advantage of throughput is that it recognises the dynamic nature of legitimacy and how legitimation can be understood as an ongoing process of negotiation between different actors (Suddaby et al. 2017). Promissory legitimacy is gained 'from the expectations followers have regarding the future effects of the actions pursued' (Beckert 2020, pg.319). It is predicated on claims about future states which are seen as sufficiently credible to legitimate political decisions. Promissory legitimacy is performative, both stabilising the 'social

order', whilst also contributing to shaping it (ibid). Throughput and promissory legitimacy are both attentive to contingency, agency, and emergent configurations of power. They therefore have the potential to be incorporated into an assemblage approach which we outline next.

4.2.2   Assemblage and the legitimacy machine

Underpinned by a relational, processual and emergent ontology (Savage 2020, Briassoulis 2019), assemblage theory can best be understood as a way of 'analysing a situation or thing' (Buchanan 2020, pg.132). An assemblage approach involves examining how different components are brought together, albeit provisionally, to create something. This paper focuses on the production of GCF-funded climate adaptation and mitigation projects. The goal of assemblage is not to generate generalisable laws but to understand the processes and configurations of power which allowed a particular assemblage to come into being (Nail 2017). Desire, conceptualised 'as an active, positive force' (Haggerty and Ericson 2000 pg.609), is the central force driving the productivity of assemblages. Assemblages are thus strategic, in the sense of purposefully transforming things to achieve desired outcomes, impacts and realities (Savage 2020).

Within this context, we suggest that legitimacy can be helpful in understanding 'questions of events' – such as why, how and by whom? – which are at the heart of assemblage thinking (Nail 2017, pg.24). Policy assemblage is particularly attentive to socio-spatial governance arrangements (Fox and Alldred 2020, Murray Li 2007, Savage 2020), and emphasising legitimacy can help explain why and how some things happen in situ, and others do not.

While not ignoring the concept, past work on assemblage has not afforded legitimacy analytical primacy. DeLanda (2006) suggests that legitimacy plays a role in *territorialization*, that is, the processes through which different components of assemblage come together and cohere to enact productive effects. Likewise, legitimacy may be important in resisting *deterritorialization*, in the sense of coming apart. Studies have drawn attention to various discursive and material techniques which are used to legitimate assemblages or their effects (i.e., outputs). For example, conceptualising diplomatic encounters in British Overseas Territories as assemblages, McConnell and Dittmer (2018) explore the entrepreneurial efforts of diplomats to transform and legitimate, political relations and forms during geopolitical crises (McConnell & Dittmer,

2018). Of particular relevance here, Nel (2017) explores various processes through which carbon forestry assemblages are made possible. Amongst others, the author describes 'how appeals to scientific and market authority' are enrolled to legitimate carbon forestry, as well as the carbon offsets they produce (pg.146). Similarly, van Veelen (2021) identifies how verification processes have been central to legitimising low carbon agriculture as a vehicle for green investment and the 'stabilisation of the emergent assemblage' (pg.135). These cognate studies on green finance (Bracking 2015, Kumar 2021, Perkins 2021, Slager, Gond and Moon 2012) emphasise the construction of legitimacy and the "work" involved in rendering certain arrangements legitimate. They also hint at the inclusionary/exclusionary effects arising from processes of assembly (Buchanan 2020, Vasstrøm and Lysgård 2021). Assemblages involve a diversity of actors, interests, and approaches (Havice and Iles 2015, Köhne 2014, Murray Li 2007). Which, and indeed whose, legitimising practices and logics hold sway can have political (and anti-political) effects with material consequences for what is assembled.

Building but also advancing on these insights, the present paper develops the legitimacy machine concept to explore assemblages' productivity. We posit that this abstract machine[29] (incorporeally) transforms components and configurations of components – *making* them legitimate. Assemblages involve the strategic manipulation of people and things such that productive connections are established (Ureta 2015). We suggest that this may involve the strategic manipulation of legitimacy – to create the 'conditions of possibility for certain policies to emerge' (Savage 2020., pg.331). The desires ordered in policy assemblages seek to legitimate component parts such as people, documents, contracts, procedures, companies, and ecosystems. These components can sustain and advance the assemblage towards its policy objectives or, alternatively, block and frustrate its progress. The changes, or productive effects, that take place in the word depend upon the recognition of components as, or transformation to, legitimate ones.

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[29] Assemblages are conditioned and derive their purpose from networks of external relations. These shape and hold an assemblage together. Deleuze and Guattari's refer to these conditioning relations as the "abstract machine" (Nail 2017, pg.24).

4.3 The South African climate finance assemblage (SACFA)

The SACFA is conceptually invoked as an example of a legitimacy machine to elaborate and expose the theorisation of legitimacy and assemblage. The legitimacy machine draws attention to the desires that are assembled to programme climate finance in South Africa. It makes visible the production of legitimacy and offers hitherto missing explanatory value regarding why legitimacy is sometimes productive and at other times not.

South Africa has two direct access entities (DAEs) accredited to the GCF: the Development Bank of Southern Africa (DBSA) and the South African National Biodiversity Institute (SANBI). These are the primary actors around which the SACFA is oriented. Both DAEs are domestic, quasi-governmental organisations with experience in climate finance predating the GCF. The DBSA is a Regional DAE, meaning it can channel funds into other African countries with decades-long involvement with green finance (Naidoo 2019). SANBI is also accredited to the Adaptation Fund and has experience programming grant resources (Omari-Motsumi, Barnett and Schalatek 2019). Each has proven the necessary administrative and fiduciary capacity to programme GCF resources and for these to be channelled via them into South Africa. Both were accredited to the GCF in 2016 and then embarked on project development, targeting "bankable projects" (Ellis and Pillay 2017), the ultimate goal of the SACFA.

The South African case can appear confounding. The DAEs adopted different approaches to project development. The DBSA has worked fast and expediently throughout the process and has had three projects approved[30]. SANBI has taken a slower, more thorough, and inclusive approach to project development. It has developed three proposed project ideas into full concept notes[31] and received project preparation funding approval for one of these at the thirtieth board meeting in October 2021. This frustrates many in South Africa and at the GCF, keen to mobilise funds and address acute adaptation needs. SANBI would have little problem securing a project approval but is committed to high standards in the eventual project and meeting the demands of different beneficiaries. Indeed, SANBI has a greater normative and

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[30] As of the 13th Board Meeting in October 2021, though one has lapsed and will not be implemented.
[31] Concept notes summarise proposed projects and are submitted to the GCF for feedback to support full project development.

empirical claim to legitimacy within South African civil society than the DBSA, which is regularly pilloried by climate change and anti-coal protestors. Yet, this has no influence on either DAEs ability to produce sufficiently legitimate projects for approval by the GCF.

To make sense of this case and explain the uneven productivity of the SACFA, we draw on several concepts which form part of *Deleuzoguattarian* assemblage thinking (Deleuze and Guattari 1988): strata; incorporeal transformation; and flow.

4.3.1   Strata

While assemblages are emergent, they nevertheless draw components from enduring forms, the so-called *strata*. Strata are muti-layered, historical formations 'that give shape to daily life' (Thompson et al. 2021, pg.9). For example, racial bias is inscribed into the South African strata (Phillips and Petrova 2021), with assemblage offering a vehicle to problematise and explore its effects. All assemblages exist between multiple strata which sustain them by establishing the relationships, problems and the desires which define the assemblage's productive purposes.

The SACFA connects the GCF and South Africa which, in the present context, are taken as representing the strata. It is with reference to these that the legitimacy machine produces legitimacy. The GCF strata distils social realities such as the international climate change regime, the financialization of climate governance, the legacies of colonialism, and dominant modalities of international development. Likewise, the South African strata is a complex formation that reflects aspects such as the country's ethnic diversity, the legacy of apartheid, climate change vulnerability and greenhouse gas emissions profile (Caprotti et al. 2020). These are non-exhaustive examples of the historical, but dynamic and changing, characteristics of the strata.

The GCF and South Africa mutually depend on each other. The SACFA can be conceived as an ordering of desire to channel resources from the GCF to South Africa and to channel results (i.e., emissions reductions, resilience, etc.) from South Africa to the GCF. The assemblage connects a series of environmental challenges and funding shortfalls in South Africa, on the one hand, and the desire for a new source of concessional finance, on the other. The assemblage is equally coherent the other way around: where the GCF is a problem to solve,

which needs to mobilise its resources, and where South Africa offers an opportunity to spend that money.

Assemblages exist in a state of productive tension between two variables which make up each strata and their component parts: *content* and *expression* (Buchanan 2020, Deleuze and Guattari 1988). Content is selected from the strata and ordered semiotically. Content could refer to a physical policy document, whilst the underpinning discourses are the expressive dimension. Content is contested in the assemblage, for example, in terms of the type of project, where to implement it, geo-physical features, and infrastructure (c.f. Kasdan, Kuhl and Kurukulasuriya 2021). The work of the assemblage, particularly the DAEs, is to fix this content, rendering it, rather than something else, suitable for inclusion and intervention. The expressive dimension holds the key to justification, where acceptance and appropriateness can be negotiated or conferred in a given context (Lea 2020).

4.3.2   Incorporeal transformation

We conceptualise the SACFA as a machine which exists to *incorporeally transform* bodies, human and otherwise, into legitimate components and processes in the pursuit of bankable projects. Incorporeal transformation refers to how, through the act of language, it is possible to alter a body's[32] (non-physical) status and/or its relations to other bodies. As Thompson et al. (2021, pg.11) observe:

> *The corporeal body is not changed, but what it can be and do is changed. For Deleuze and Guattari, there is always a series of events in which attributes (which manifest in language) become attached to bodies, and this changes how they are perceived and acted upon. The incorporeal transformation is the specific event in which a new attribute is attached to a specific body.*

Viewed in this way, incorporeal transformation can be interpreted as an intervention to categorise, regulate and act on the social order (St. Pierre 2017). An oft-cited example from

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[32] Bodies here refer to components of the assemblage, both humans and other "things" such as policies, organisations and ecosystems.

the work of Deleuze and Guattari's *Capitalism and Schizophrenia* is a judge passing a sentence. The words of the judge carry power and meaning vested in them by the state authority and myriad contextual factors. The sentencing of guilt transforms the body of the accused into that of a prisoner (1988, pg.96). The prisoner's body is unchanged but now means something different; it has had its liberty removed. The production of throughout and promissory legitimacy can be conceptualised in these terms – as an incorporeal transformation enacted during the project development process (Table 4.1).

Table 4.1. The production of throughput and promissory legitimacy through incorporeal transformation

Incorporeal transformation	Description
Throughput legitimacy	Collaborative or contested negotiation of meaning during the policy process. Procedural work to demonstrate capabilities or appropriateness with reference to standards. Charisma, availability of resources, coercion, and luck can all influence the production of throughput legitimacy.
Promissory legitimacy	Components in assemblages are legitimated based on a shared commitment to future states or outcomes with reference to, for example, a standard, benefit, or investment return. This can be either implicit or explicit.

Source: Authors

4.3.3 Flow

Assemblages are orderings of desire consisting of both constructive and disruptive flows (Deleuze and Guattari 2013). Policy assemblages typically seek to control the unruly and disruptive and to bring these to productive order. This helps explain the momentum and throughput of an assemblage as it progresses towards its objective(s). GCF project development is usefully conceived of in this way as a series of flows that bring coherence, order, and ultimately bankability.

Incorporeal transformations legitimate certain component relations, establishing or extending configurations of power such that resources (including project results) can flow. This relational conception of power (Allen 2003) explains how the assemblage enrols and interacts with the strata to productively arrive at climate change projects. Such projects are inclusive of a range of desires: ranging from the GCF's strategic priorities, donor pressures, the electoral mandates of governments, the requirements of the private sector, through to the demands of local communities. Each and any of these might derail the legitimacy machine and stall the flows of resources and results. The control and manipulation of such flows is a strategic endeavour infused with agency. Incorporeal transformations might defer a thorny issue for the sake of expediency, producing a promissory legitimacy.

The role of strata, incorporeal transformation and flow in theorising legitimacy are summarised in Table 4.2.

Table 4.2. Theorising legitimacy in assemblage theory

Assemblage dynamics in the legitimacy machine	Definition within assemblage thinking	Function in the legitimacy machine
Strata	Strata are the historical formations that structure, shape and subjugate social reality. Assemblages face the strata and depend on them to function.	The strata give the machine purpose, providing the problem(s) to solve or objective(s) to pursue.
Incorporeal transformation	A change in the attributes of a body, or the sense made of a body, within a broader set of relations.	When content is made legitimate, or proven to be legitimate, it is transformed to enable or facilitate flows in the assemblage.

| Flow | Assemblages depend on flows between their components. They are orderings of desire that consist of both constructive and disruptive flows. | Flow captures the progress of the assemblage, towards and including its ultimate objectives. Constructive flows result from the production of legitimacy. |

Source: Authors

4.3.4   Documents

Incorporeal transformation relies on expressive change, which can occur linguistically via documents[33]. Documents frame and stabilise particular understandings of problems, often with the aim of shaping the appropriateness of solutions (Bacchi, 2009; Krekula et al., 2019). The ability to fix problems and solutions in documents, in turn, contributes to the legitimate capacity to govern. Technical reports, official mandates, and formalised inputs from participation can hold the key to advancing policy processes. The control of documents is therefore 'a function of, and vehicle for, power' (Sanches and Day 2020, pg.1), and can assume far-reaching importance.

Weisser (2014) distinguishes between documents as the 'effect *of* practice' from the 'effect *in* practice' (emphasis added here). Approaching the former means considering the practices, material arrangements and contested political processes through which policy documents were brought into being (ibid, pg.48). Focusing on the effects of practice highlights the performativity of documents in the sense of understanding their role in enacting new realities. Documents can function as 'props, allies, rule-makers, calculators, decision-makers, experts, and illustrators' (Prior 2008, pg.828), helping to persuade and justify particular courses of action (Bennett 2020, Rydin 2013). Weisser's distinction usefully develops documentality for application in a policy context where documents are a site and an actor in policy assemblages, producing both throughput and promissory legitimacy. Only a thin description of GCF project

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[33] Incorporeal transformation here does not merely denote that a component becomes legitimate because it is explicitly and linguistically labelled as legitimate. Rather, it describes how legitimacy is constructed through statements, justifications, pledges, and so on, inscribed in documents. As such, incorporeal transformation can be understood as a linguistic act, but also a bureaucratic one.

development is possible without a rigorous analytical appraisal of the role of documents. The gradual assemblage of bankable projects depends on a complex interplay of desires, codified through documents (effects *of* practice) which also act (effects *in* practice).

4.4 Methods and case

This paper draws on fieldwork in South Africa between November 2018 and March 2020. A case-study research design (Thomas 2016) involved multiple, interrelated communities with a vested interest in GCF programming. Initial field construction was built-out from the organisations formally involved in GCF project development, with a strong focus on DBSA and SANBI. Memorandums of understanding were signed with both DEAs, facilitating insider access to staff, events, and written materials. Multiple, often repeat, interviews were carried out with various representatives and a total of 80 semi-structured interviews were completed. Participation in forums, either arranged or attended by staff, furnished further insights. Additionally, semi-structured interviews were undertaken with relevant actors from the GCF, civil society (incl. community members and NGOs), labour unions, and the private sector (e.g., commercial banks).

A range of documents formed data for the analysis. Material not in the public domain was sought from each of the DEAs (e.g., internal minutes, process documents, etc.). This was supplemented by publicly available information (e.g., project proposals and meeting documents downloaded from the GCF website). More information on the documents used in the paper is provided in Table 4.3.

Several documents and documental processes are especially important for understanding project development. Historical documentation relating to the Renewable Independent Power Producer Programme (REIPPP) is formative in the renewable energy space where the DBSA contributes via GCF programmes. The DBSA also commissioned a market study, which was an attempt to qualify and quantify opportunities for private sector participation in the green economy via its Climate Finance Facility (CFF). The DBSA has two approved projects that are built from various document inputs, term sheets, science-based targets, and clear

implementation plans. There are accompanying critiques, including a coordinated input of civil society organisations (CSO) that was presented at the 22nd GCF Board Meeting.

Table 4.3. Types and examples of documents drawn on for the analysis

Category	Description	Examples
GCF project materials	Publicly available on GCF website*. Include proposal documents, concept notes, gender action plans, and accreditation agreements.	DBSA project documents; SANBI concept notes; Accreditation Master Agreements (AMA).
Processual documents	Not publicly available. These include documents about the project development processes, information for stakeholders, strategy and planning materials.	CFF market study; SANBI CFP materials.
Documents from other sources	Publicly available documents such as communications from CSOs and relevant national policy documents.	CSO communications; REIPPPP documentation.

Notes: *see www.greenclimate.fund/ae/dbsa and www.greenclimate.fund/ae/sanbi
Source: Authors

SANBI has a track record in climate finance gained from its experience with the Adaptation Fund[34], with programming capacity carried into GCF work. SANBI organised its project development around an open call for proposals (CFP) which sought to crowd-in ideas and concepts. This lengthy process included participation from central government ministries and the national designated authority (NDA). It involved roadshows that explained the GCF in community forums. The CFP refined over 100 project concepts into six to be developed into concept notes with a view to submitting these as GCF projects. As of the thirtieth Board Meeting in October 2021, SANBI had submitted three to the GCF for feedback.

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[34] The Adaption Fund, which predates the GCF, was created in 2001 under the auspices of the UNFCCC to channel finance for adaptation in vulnerable developing countries.

Data were analysed thematically (Braun and Clarke 2021). The preliminary empirical enquiry focused on project development, the challenges faced by the DAEs, and the role of documents in navigating contestation. The initial codes reflected constructs and ideas from the literature, such as strata and flow. These were combined with empirical ideas like legitimacy and documents to form preliminary ideas. This furnished higher-order codes and organisational themes before a second, more inductive and abductive round of coding. Different documents (such as the market study) and processes (such as SANBI's call for proposals) are central to the coding frame. References to legitimacy were coded from the outset, based on existing categories, including throughput and promissory. Following Weisser (2014), documents as the effects of practice and the effects in practice were differentiated for key points in project development.

4.5 Assembling climate finance in South Africa

Using the analytic of the SACFA, this section examines SANBI and the DBSA's experiences programming GCF resources. We take a chronological, synoptic perspective which covers three sequential phases, as well as an additional phase when the desires "overflowed" the boundaries of the assemblage (Figure 4.1). Although there is a degree of overlap between the phases, the periodisation nevertheless helps us take a processual perspective on how legitimacy is produced in the SACFA, what flows are triggered, and instances when the assemblage stalls.

Figure 4.1. Phases of GCF project development within the SACFA

| Accreditation to the GCF in 2016 (DBSA in March, SANBI in October) | Alignment of South Africa with the GCF | Managing challenges, extending opportunities | Exceeding the limits of the SACFA |
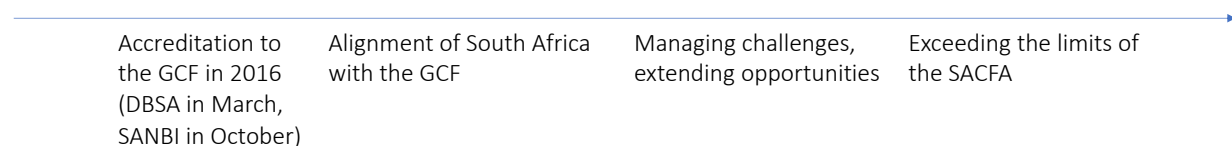
Source: Authors

4.5.1   Accreditation

The DAEs demonstrated their suitability to partner the GCF, based on their existing characteristics, as well as committing to specific improvements. Both were good candidates for direct access, with track records in programming climate finance. The GCF requires

accredited entities to complete Accreditation Master Agreements (AMA)[35][36] which codify responsibility and accountability. This process formalises the relationship with potential partners into legitimate channels for throughput flows of resources and trusted results. AMAs are generic documents, but their contents would preclude most organisations from participating. They are contracts that detail the covenant of being an accredited entity, including legal specificity regarding the project size, level of risk, and environmental and social safeguarding capacity. SANBI's AMA contains the following provision from the GCF Board in Annex 2 – Conditions Precedent to Disbursement. It states that they must:

> *"submit at least one periodic monitoring report for each of the projects…*
> *approved by the Adaptation Fund in order to provide evidence of the track*
> *record of SANBI in monitoring projects under its grant award mechanism".*
> (SANBI AMA, 2017, p.41)

The clause justifies the expedient accreditation of SANBI to the GCF, based on its existing credentials as an accredited entity with the Adaptation Fund. This legitimation is based on performance and the specific ability to report on the impacts of adaptation projects. It is almost circular where throughput legitimacy from one fund serves as an input to another. The international climate regime, of which the GCF is part, determines the type of organisations in developing countries that can participate in climate finance. This reflects a 'need for control and value for money' (GCF Board Member). The validation of another fund holds the key to the transformation of SANBI for the GCF in the clause above. This is detached from SANBI's characteristics, the people who work there, or its civic legitimacy. It relies instead on a track record, reproducing existing configuration of privileged access to resources in climate finance and development cooperation.

The DBSA went through the same accreditation process where it demonstrated its existing credentials. The CFF project proposal provides additional detail on the Bank's suitability as a DAE. This strategically references past experiences with other funds:

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[35] https://www.greenclimate.fund/sites/default/files/document/ama-dbsa.pdf
[36] https://www.greenclimate.fund/sites/default/files/document/ama-sanbi.pdf

> *The GEF-DBSA portfolio is further proof that the Bank has a good track record for implementing projects such as the CFF. In terms the DBSA's recent track record with regards to sustainability measures, the DBSA continues to work towards embedding sustainability in its core business.* (CFF, project proposal, p. 39)

This excerpt is typical in terms of the explicit claims the proposal makes. It portrays the DBSA as a "safe pair of hands" with ready-made partnerships and institutional capacity. In this way, the project document performs the work of codifying the throughput legitimacy of the DBSA as an entity. There is also a commitment to improving, namely, by greening the 'core business' of the Bank. This partly reflects widespread concerns that the DBSA's management of the South Africa Green Fund was not 'really looking for sustainable business models as much as they were interested in getting money out the door'. (Climate and energy lawyer). The Lead Specialist at DBSA working on the CFF was aware of such criticism and that 'the ability to measure impact is crucial to attract concessional funding', so is central to the future ambitions of the Bank. The CFF materials thus include a commitment to benchmark its progress towards better environmental impact reporting, including that it would attain a certain level by 2022. This centres on a Development Results Reporting Framework, which provides:

> *…an accurate portfolio breakdown of the DBSA commitment to climate change thereby enabling credible and accurate reporting to stakeholders including the GEF, GCF and the International Development Finance Club.* (CFF Project proposal, p.41.).

This asserts a promissory legitimacy that the DBSA is building via the CFF document. The aim is partly to satisfy the demands of the GCF, but it also targets other audiences such as the International Development Finance Club (IDFC)[37]. The CFF proposal has a performative effect in practice, disseminating future achievements derived from the GCF financing to justify the DBSA's credentials to wider legitimacy-granting audiences.

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[37] The IDFC is a partnership between development banks and not formally associated with the CFF or GCF.

4.5.2 Alignment of South Africa with the GCF

Accreditation established the DAEs as legitimate partners for the GCF, which must in turn develop investment opportunities for the Fund. Their role is to provide adaptation and mitigation projects which match the GCF's investment framework and result areas. Each took a different approach. The DBSA quickly defined a narrow, clear scope whilst SANBI opened a CFP to crowd-in partners and ideas.

The DBSA expediently advanced several projects, including one that was approved and has since lapsed without implementation. The development of their CFF[38] illustrates the documental politics of practice, where the DBSA commissioned an instrumental report. The CFF's "paradigm shift" seeks to crowd-in private investment for projects with a climate rationale in South Africa and the other Rand economies in Southern Africa[39]. It frames the private sector as a series of investment opportunities. The project blends GCF finance with DBSA resources and those of commercial banks to enhance credit terms for off-takers. An underpinning logic is that lower interest rates and longer tenor on loans will encourage green investment. The development of the CFF hinged on the transformation of economic sectors into tangible investment potentialities. This was accomplished via a market study that quantified need and opportunity in terms of climate rationale and financial viability. The market study details and fixes the content of the DBSA project. Commenting on the process, a consultant who had contributed to authoring the CFF market study remarked:

> *I was responsible for what a 10 billion Rand intervention would mean in the form of technology, and carbon emissions reduction and employment. We have a water team, we a waste team, an agricultural team, an energy team. We've got market intelligence. All our information comes from to-date information, from over 1,760 members.*

Thus, the study is informed by sector-specific information, conveying techno-economic credibility and authority. This substantiates the rendering of the private sector as calculable to

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[38] https://www.greenclimate.fund/project/fp098
[39] eSwatini, Lesotho and Namibia

the GCF which territorialises a more coherent subject. It makes the market known and safe for investment, assuaging potential concerns that the project would struggle to attract co-financing or be capable of delivering sustained returns. It also clarifies the type of activity that will help realise the desires of the SACFA. This legitimates the project – in a promissory sense – where credit enhancement becomes the rubric of connection and the basis for productive relationships and future results.

The CFF is based on green bank principles (Orozco 2019), targeting market gaps, and driving private climate investment in support of South Africa's nationally determined contribution. It uses public funds (the GCF's and its own) to leverage private investment at ratios ranging from 2:1 to 10:1, depending on sector and project specifics[40]. The ratios derive from in-depth working knowledge of the economy and are vital to the GCF, which 'wants to take one dollar and turn it into ten' (Commercial banker). The GCF must scale up its resources: marking the CFF out as a viable GCF project. The market study further provides concrete details of the scope for investment in six key sectors. For solar PV, the report states that the current market value of ZAR280m could be grown to ZAR25b by 2030. The opportunity in commercial and industrial energy efficiency is even greater. The current ZAR750m market could potentially grow to ZAR480b by 2030[41]. The sector breakdowns combined with the leverage ratios constitute linguistic transformations the economy – which remains unchanged – into a series of economic opportunities. This can be understood as an exercise in what Nel (2017) describes as "speculative virtuality", wherein conjectures of future benefits are leveraged in an effort to cohere the assemblage. Yet it is an exercise grounded in detailed, technical analyses aimed at demonstrating the credibility of future projections and, with it, producing promissory legitimacy. The GCF is under extraordinary pressure to disburse resources and generate results. The CFF offers a route to safely mobilise a large tranche of finance. The market study forges a connection between the GCF and the SACFA's core objectives: the circulation of resources, legitimating off-takers for concessional loans. This incorporeal transformation drives flows in the SACFA and was a principal factor in the territorialization (i.e., the "coming together") of the project.

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[40] From the market study, not publicly available.
[41] Ibid.

SANBI crowd-sourced priority focal areas for project concepts. They held awareness-raising events and then launched a CFP in accordance with their 2017-22 Funding Framework[42] to widen the scope for potential project partners and originators. The difference with DBSA – whose market study narrowed options – partly reflects the differences in adaptation and mitigation programming. Whereas 'mitigation is easy because you always get things that are tangible' (Government Monitoring and Evaluation specialist), 'the socio-economic benefits of adaptation are subjective'. Although this is a universal challenge, the complexities of the South African response are compounded by a commitment to inclusive and participatory development. As a senior representative from SANBI remarked:

> *We defined our niche and built the capacity of institutions to apply. Now this is tricky because who can apply for a GCF project? Is it only someone who is from an institution with a track record to manage a USD10m project? How is that transformative? Especially in a country like South Africa where if you only work with privileged or the only ones who will benefit are privileged?*

The legacy of exclusion and inequality is at the forefront of this approach which seeks to address this uneven privilege. Direct access to the Fund sacrifices quick results to empower local institutions to participate and build capacity to govern climate change. SANBI's CFP frustrated some in South Africa and the Fund alike. However, it was underpinned by an ambition to build a legitimate process with domestic stakeholders, who constituted the key legitimacy-granting audience. This reflects a focus on throughput legitimacy rather than legitimate outputs, which SANBI could have delivered. The CFP was effectively more legitimate than strictly necessary for GCF access. SANBI could have established legitimate *enough* connections with would-be beneficiaries to advance its project development given, according to a GCF Board Member in February 2020, that 'money is there, we are waiting for them'. Its drive to be transformative saw a deep engagement with the people, ideas and things that would potentially be incorporated into the SACFA as adaptation investments. SANBI's thorough, inclusive approach yielded multiple opportunities, enrolled potential collaborators,

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[42] https://www.sanbi.org/wp-content/uploads/2018/03/sanbi-gcf-funding-frameworkoctober-2017.pdf

and built a broad sense of ownership. Yet it also resulted in large volumes of submissions of varying quality.

To reduce the number of options, proposals were shortlisted and reviewed by a committee of sector experts, drawn from government ministries. Committee members also found it challenging to prioritise different projects. Asked how it achieved consensus, a Steering Committee member recalled how:

> *(Laughs) We put the projects on a board, and we had round little stickers. Instead of making an open discussion, you just took a sticker and stuck it there so the decision was made by counting the number of stickers because we were talking non-stop, and we were not progressing.*

The pragmatic use of stickers to break deadlocks maintained the flow of the SACFA by resorting to decisive decision-making and removing deliberation. This manipulation of the politics of documents in practice arrived at outcomes that were legitimate to those involved. It established connections with sub-national actors to participate in the SACFA, but this approach to project development has still only yielded project concept notes rather than full proposals to the GCF. It narrowed options, moving the assemblage forwards toward its objectives, but the content remained in flux. This restricted the productivity of the SAFCA in the adaptation space.

4.5.3 Managing challenges and extending opportunities

Why did SANBI embark on such a long and difficult process that brought in so many different actors and possible end-uses when the GCF would likely have accepted less? A conventional reading of the situation, emphasising legitimacy as a forward-facing qualifying attribute, might suggest that SANBI did not need to keep building legitimacy because it already had enough. The strata framing of the SACFA, which foregrounds problems and desires, offers an explanation. It has proven challenging to stabilise and fix climate change adaptation projects in South Africa, compared to programming mitigation, and even to adaptation in other countries. SANBI staff would joke about how straightforward the process is elsewhere. Whilst discussing their progress in the margins of a consultation, one of the climate finance team at

SANBI shared their exasperation about how' they just sign off on any project' in neighbouring countries. SANBI's approach is no less urgent than DBSA's. The difference is that SANBI seeks to establish and enhance lasting, productive connections without risking its legitimacy and social licence to operate. As a senior official from SANBI noted:

...you know, I can't develop a project and then go work next door while all hell breaks out around why was that project selected and not others. We're in-country and we're here to stay. The relationships we have with the sector departments go way beyond this GCF work. They are our brothers and sisters in the execution of the National Development Plan.

For SANBI, it is more important to get things right than to move fast. SANBI sits in a complex power dynamic in South Africa, where they hold the keys to multiple flows of concessional climate finance for adaptation. Triggering short-term flows of resources by unlocking GCF finance might look good in annual reports but could compromise SANBI's privileged position and ability to drive future change. SANBI is therefore cautious, which reflects the greater challenge they face in bringing order to the strata. The ideas and values that characterise the desires for adaptation and development are less coherent and more numerous and varied than those around mitigation.

Stabilising climate change adaptation solutions is further complicated by discerning and engaged would-be beneficiaries. This scrutiny reflects decades of experience in development cooperation. For example, an NDA staff member commented on how:

We went to a community that wanted a different project to what the Fund could offer because it was trying to fuse in rainwater harvesting, climate smart agriculture and this community did not want anything to do with rainwater harvesting because in their mind this is just to bring in the JoJo tanks.

JoJo tanks are water storage tanks, common in South Africa. Here, they symbolise one-way, passive development that "gives things to", rather than partners with, communities. The above quote emphasises SANBI's task, to involve all its partners, from the government through to

communities. This is compounded by suspicion and fatigue amongst would-be community beneficiaries:

> *…outsiders must stop this Father Christmas syndrome – Father Christmas comes with this sledge, loaded with presents.* (Community member and activist)

The broader point is that SANBI cannot expect to design projects and then apply them to – indeed, impose them on – a community. This challenge contrasts with the CFF's unifying rationale: credit enhancement. Parties to the CFF, i.e., the commercial banks and off-takers of loans, need only buy-in to this rather than to project specifics. Table 4.4 provides a comparative summary of the work of DBSA and SANBI.

Table 4.4. Summary of the work of two DEAs

Phase	DBSA	SANBI
GCF accreditation	DBSA transformed into a legitimate partner.	SANBI transformed into a legitimate partner.
Alignment of South Africa with the GCF	The South African economy rendered an investment opportunity and legitimated to the GCF. Process built on existing work in the renewable energy procurement, experience with the national Green Fund and private sector demand. GCF engagement organised around a private sector market study and experience with REIPPPP.	Multiple South African adaptation options proffered and considered, but not stabilised as investments. Process built on experience as accredited entity for the Adaptation Fund and ecological management function in South Africa. GCF engagement organised around a call for proposals oriented around National Line Ministries.
Managing challenges,	The DBSA works closely and expediently around the rubric of credit enhancement with a	SANBI operates an inclusive project development process which does not foreclose connections,

extending opportunities	narrow set of actors (commercial banks, etc.) whilst maintaining distance from CSO critique.	struggling to fix solutions to develop concept notes into full bankable GCF projects.
Exceeding the limits of the SACFA	DBSA pursuing a wider objective of green bank expansion, where GCF projects can legitimate the DBSA to new audiences and access new sources of finance.	SANBI approach to SACFA continues to prioritise its wider role and social licence to operate above securing a GCF project.

Source: Authors

The DBSA's management of challenges from both domestic stakeholders and the GCF help explains its productivity. For example, the DSBA could maintain that they did not need to consult on the CFF because it is a facility, and the eventual sub-projects will be subject to their own stakeholder consultations. Moreover, the off-takers of loans will not be their clients but those of the commercial banks. As such, responsibility could be passed on and furthermore deferred. The DBSA is thus expedient and fast, extending and maintaining productive connections which trigger and protect flows, whilst excluding some actors which might otherwise slow processes of assembly. In February 2019, the DBSA received approval for its third project, an embedded generation project based on the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP)[43]. South African CSOs submitted concerns in writing to the Global CSO Representative, who presented these to the Board. These related as much to process and consultation as to project characteristics. The concerns were noted by the Board, which then promptly approved the project. An important factor here is that domestic CSOs were not considered direct stakeholders (either by the GCF or DBSA), and their critique in no way impacted what the project offered or could deliver. CSOs directly challenged the legitimacy of the DBSA and its project development to the GCF, which had no bearing on the SACFA's production of legitimacy[44]. The episode contrasts with SANBI's ongoing efforts to maintain throughput legitimacy through extensive stakeholder engagement.

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[43] https://www.ipp-renewables.co.za
[44] Underlying this critique is a wider source of discontent, stemming from CSOs' desire for GCF funds to be used differently, e.g., by SANBI for adaptation.

Another distinctive feature of the DBSA's expedient approach is that it seeks to keep the off-takers of the CFF loans separate from the politics of the assemblage via the commercial bank intermediaries. The DBSA directly partners with commercial banks. These are bought in to the credit enhancement and serve as a conduit for sub-projects, carrying out much of the screening and client management for the DBSA:

> *…deals come through the banks, through a screening process because the bank is not going to put forward credit or an opportunity unless they've vetted it. They're doing a lot of the due diligence, so it is unlike an investor coming to DBSA to use the CFF, it is the banks coming.* (CFF origination lead, DBSA)

The DBSA published a request for information and proposal templates that distil the precise needs of the GCF into a format that the commercial bank partners take responsibility to populate. These documents strategically distribute agency by refining and aligning off-takers around credit enhancement to ensure the smooth realisation of the potential in the market study. The future results promised by the CFF enact a speculative virtuality, wherein they promise certain credit terms, leverage ratios and climate impacts. This is fixed now, and the deal sourcing with the commercial bank partners is an effort to fulfil those promises and realise the potential that is communicated in the market study.

4.5.4   Exceeding the limits of the SACFA

The SACFA produces legitimacy and forges productive connections where legitimacy plays a role in advancing the flows of resources and, eventually, results. The SACFA is one assemblage of many and its intersection with others offers further clarity to each entity's strategy.

The DBSA is on a journey towards becoming a ''green bank'', a desire which exceeds the SACFA. The GCF programme was partly intended to demonstrate the DBSA's credentials, where the impact of the projects would have a performative effect in legitimating the DBSA for other finance opportunities. The Bank began improving its environmental and social safeguards and risk standards in the 1980s (Naidoo 2019). Impact evaluation provides an insight into the DBSA journey. The DBSA successfully applied to include the CFF in the GCF's Learning-Oriented Real-

Time Impact Assessment (LORTA). Exemplary GCF projects are identified for full impact evaluation to establish the causal impacts of investments. This would demonstrate the impact of the paradigm shift: the crowding-in of the private sector. Consultants working for the GCF visited the DBSA in November 2019 for a week-long mission to plan the evaluation and visit potential off-takers of the CFF's loans. Impact evaluation requires a clear counter-factual which proved difficult to identify. Acceptance of this emerged in the first few days of the mission before a compromise was reached to assess the impact in terms of the climate rationale. This is a core GCF result area but would not measure the impact of the CFF in terms of its paradigm shift, which would have contributed to building promissory legitimacy of the DBSA as a green bank. It is not possible to conduct a randomised controlled trial to determine the ability of the CFF to 'crowd-in' the private sector. The CFF remains a legitimate and exemplary project that will deliver the promised results. However, the DBSA had intended that the LORTA findings could play a role in advancing the legitimacy of the bank in other contexts. The SACFA succeeded in producing legitimate subjects, processes, and projects before the throughput and coherence of the assemblage ebbs as it has done its job.

The establishment of the GCF projects serves the broader strategic goals of DBSA in green bank expansion. This legitimacy is intended to trigger future opportunities. This is a requirement of the GCF, which is not intended to provide concessional finance and credit enhancement in perpetuity. This contrasts with SANBI where there is also a bigger objective at play. The DBSA strategically manipulated legitimacy such that projects could be expediently approved, perpetuating a virtuous cycle of new concessional finance access. SANBI is more inward-looking, more concerned with its status as a trusted partner in South Africa. We summarise these insights in Table 4.5.

Table 4.5. Summary of results

	Accreditation	Alignment	Managing challenges/Extending opportunities	Exceeding the limits of the SACFA

Production of legitimacy	Subjects are transformed into legitimate ones once the DAEs are accredited as partners for the GCF.	The DAEs work to stabilise legitimate investment opportunities in South Africa.	DBSA produces legitimate projects with narrow stakeholders and financial rationale; SANBI retains range of possible partnership and project ideas.	The DBSA seeking to transform into a green bank, using the GCF experience to effect this change; SANBI concerned about losing its legitimacy.
Legitimate connections	Accreditation establishes new and reinforces existing relationships. These relationships are productive, and trigger flows associated with project development.	GCF project development build upon and establishes new productive connections in South Africa; the DAEs work to turn South African people, ideas and things into calculable opportunities.	DBSA forecloses opportunities with commercial banks and private sector; SANBI has not excluded options for potential connections and is more concerned that the right connections are forged and justified.	Some of DBSA's productive connections prioritise expediency over resolution, deferring issues. SANBI unwilling to expedite proceedings if it risks future critique and contestation.

Role of legitimacy	Legitimacy of the DAEs maintain flows, moving the desires for GCF projects (resources and results) forwards.	South African components can only participate in the GCF project development process if legitimated.	Strategic manipulation of legitimacy renders some connections productive, whilst others are not.	Legitimacy of DBSA enhanced by the GCF involvement, legitimating it as a green bank for other assemblages. SANBI is unwilling to manipulate legitimacy for strategic purposes in case it damages their stakeholder relations in South Africa.

Source: Authors

4.6 Discussion

Buchanan (2020) reminds us that assemblage should not be interpreted as a means of describing people and things. Rather, it is an analytical approach that directs attention to questions such as 'what holds it together?', 'what functions does it fulfil?' and 'what are its limits?' (pg.132). Our exploration of the SACFA foregrounded the concept of legitimacy in this endeavour. Doing so simultaneously opened the empirical context and assemblage to more strategically attentive forms of analysis which also recognise socio-political complexities. The

inherently purposeful, goal-directed, and locally embedded nature of assemblage is emphasised further by drawing attention to strata, incorporeal transformation, and flow.

The strata dictate the essence of the SACFA, distilling the values, problems, and desires that propel the assemblage and the content it draws upon. Strata also usefully help to clarify the audiences for the legitimacy produced in the SACFA. In the case of the DSBA, these audiences are actors from the private sector in South Africa, while for SANBI they are from civil society. In a sense, the strata evoke Kingdon's (1995) model of agenda-setting, wherein the streams (problems, policies and politics) are manipulated and coupled by policy entrepreneurs to advance their policy goals.

The productivity of the DBSA is enacted through its ability to "forge alignments" (Li 2007) between the GCF and South African objectives and fix the content around which these desires operate. This documental process strategically framed South Africa as a series of economic opportunities in quantitative and qualitative terms. Expressively, these opportunities are appropriate for audiences such as the GCF, commercial banks, would-be off-takers, and indeed the DBSA. The same assemblage struggles to stabilise the content in SANBI's case, whose roadshows and CFP expand the South African strata as an ever-larger series of challenges to be addressed. The DAEs have agency in determining which configurations of components to include and the extent of their involvement. For example, the DBSA could have involved CSOs more, whilst SANBI could have sought less legitimacy from this audience. The DBSA excluded certain people, things, and ideas to avoid potential entanglements which might disrupt its productivity. Conversely, SANBI's purposefully participatory approach created connections to a broader, more unruly, network embodying many problems, interests, and solutions. This made it difficult for SANBI to narrow and fix legitimate projects. The desire to programme climate finance is premised equally on South African need, but whilst this is straightforward for mitigation, it is relatively much more difficult in adaptation.

The legitimacy machine heuristic shines a light on the work of policy assemblage. We show that an important function of this machine is to incorporeally transform things, people, and ideas into legitimate components. Legitimacy un-blocks and triggers flows of ideas and resources. It sustains the momentum and throughput of the assemblage in service of the core

desire: project approvals. For the DBSA, credit enhancement, whereby every party gets some concession, something that they need or want, incorporeally transformed the economy of South Africa into a bankable set of opportunities. The body is unchanged: it is the same economy, energy infrastructure, financial sector, and so on. What has changed is the link forged around the rubric of credit enhancement that legitimates the CFF, making possible the flows of resources and in turn, the flow of results. Any of the project concepts being developed by SANBI could be adequate GCF projects. SANBI would not struggle, in other words, to effect an incorporeal transformation. Their accreditation to the Fund goes a long towards empowering them to do this. Yet SANBI is unwilling to submit just any old project. Whilst they could easily legitimate a project as conceptually understood with the SACFA, there might be adverse consequences amongst their wider stakeholders should the project disappoint. Through its strategically important relations of exteriority, SANBI is somewhat "hobbled by legitimacy" in this way.

In making these observations, our findings help us better understand the strategic contingency of assemblages (Savage 2020). More specifically, underscoring the strategic nature of policy assemblages and the importance of desire, our analysis shows why actors might sometimes purposefully elect not to see a change through and why. They may wish to protect or insulate themselves from legitimacy-diluting associations and outputs. Viewed this way, assemblage usefully complicates an evaluation of the South African DAEs, helping us see beyond simple assessments of effectiveness. It would be easy to lambast SANBI for its apparent "failure" to secure project approval from the GCF. An assemblage approach, which remains attentive to the autonomy of components and the constraints of the established strata, offers a more sympathetic reading. Any effort by SANBI to supply-push projects could ultimately prove counterproductive for its (longer-term) productivity in the adaptation space. That is, a temporary accomplishment of territorialising the SACFA might compromise the production of legitimacy in other contexts, foreclosing future possibilities of enacting flows of finance and bringing about transformative change. Equally, it would be easy to criticise the DBSA for its limited engagement with civil society and instrumental approach to project development which privileges a favourable risk-return profile above other principles. However, just as SANBI sits within a set of constraints, so does the Bank. Were it to take a slower, more inclusive approach, it could prove destabilising to the DBSA's efforts to quickly fix bankable mitigation

projects at scale. Its quick work benefits national climate action and supports the GCF in mobilising its own resources and growing as a nascent climate finance instrument. Taking a different approach could also undermine the DBSA's ambitions to become a green bank.

SANBI's project development indicates a limit point in the assemblage. The desire for project approval and resources cannot be productive due to other desires, outside of the SACFA, to maintain the social licence to operate beyond GCF-funded activities. The SACFA retains its core objective to attract concessional climate finance into South Africa. In the DBSA's case, this might be with reference to new strata, i.e., new sources of finance with new lines of credit and new goals. The performative effect of the GCF project documents in practice may increasingly connect the DBSA to these new actors in a bid to trigger new flows and make these connections productive. The DBSA is establishing itself as a trusted gatekeeper for concessional finance in Africa. Its relationship with the Fund has already changed significantly since accreditation. The partnership has been generative and, judged on conventional criteria at least, a success for both. Yet there are signs that the DBSA's green finance strategy is exceeding the SACFA and beginning to orient desires for progress elsewhere.

A benefit of the assemblage approach is evident when we think about these limits and the changing configuration of desire and strata involved in the DBSA's shift in strategy. We could equally imagine other limits, should climate change suddenly either stop being a concern or if sufficient climate-aligned finance began flowing without the need for concessional support.

4.7 Conclusion

Our goal in this paper was to bring the concept of legitimacy into dialogue with a policy assemblage approach. A key theoretical innovation was to introduce the heuristic of the legitimacy machine and conceptualise legitimation as a strategic form of incorporeal transformation. This takes us beyond thinking of legitimacy as a simple, static property possessed by actors (Bennett and Satterfield 2018). Rather, it emphasises the desires, processes and agency involved in the purposeful making (and, indeed, remaking) of legitimacy. Moreover, it foregrounds the productive potential of legitimacy and its role in territorialising policy assemblages – in the sense of enrolling, ordering, and cohering different component

relations to generate policy outputs and effects. Within the present paper, we used the legitimacy machine concept to understand the (uneven) production of climate finance in South Africa, revealing its potential to provide insight into why certain actors, processes, and configurations progress while others stall.

A particular advantage of bringing legitimacy and assemblage together is that it can shed light on relational power. Relational ontology is a central tenet of assemblage thinking, where power is dispersed and diffuse, and everything is theoretically connected to everything else (Briassoulis 2019). Despite this, relational power remains under-explored and theorised within work on assemblage. We suggest that closer engagement with the concept of legitimacy can help address a blind spot in relational power, namely, the under-specification of attributes through which relational networks are forged, maintained, and ultimately rendered productive (for an exception, see Lawhon 2012). Lau et al. (2020) theorise legitimation as a form of relational power. Conversely, our assemblage-based reading suggests that legitimacy does not constitute power as such but rather helps build, authorise and animate the connections which potentially enact relational power. In doing so, relational power can maintain or enhance flows of resources through the assemblage, moving it closer to its productive potential.

An assemblage approach also alerts us to how legitimacy is a strategic resource (Suchman 1995). Legitimacy is not simply a marker of normative or empirical appropriateness or a measure of the fit between an organisation and its environment. Moreover, it can be viewed as a relational asset that is purposefully and strategically acquired, maintained, and/or deployed to pursue actors' desires. The idea that assemblages are strategic orderings of desire is well-established (Buchanan 2017, Ureta 2015). Our specific advance exposes how legitimacy can be actively enrolled and manipulated in these processes to create new possibilities. In making this claim, we are not seeking to essentialise legitimacy, positioning it as a necessary condition or determinant. Indeed, our case-study shows that different interests may approach legitimacy differently to advance their own goals, such that legitimacy may both play a role in "bringing things together" and "keeping things apart".

Another reason legitimacy adds value is that it helps centre politics into assemblage thinking (Richmond 2019). Attention to legitimacy reminds us of the different, potentially

contradictory, interests, goals, and logics that characterise assemblage (Köhne 2014, Vasstrøm and Lysgård 2021). Yet it goes further by revealing legitimacy's dialectal role in (re-)politicising and depoliticising (Bond, Diprose and Thomas 2019). On the one hand, the requirement for legitimacy can lead to new actors, interests, and rationalities being enrolled into the assemblage, opening-up governance processes to contestation, negotiation, and change. On the other, legitimacy can be a vehicle for depoliticization, in that it can be acquired, configured, and strategically incorporated in ways which purposefully (or otherwise) narrow the scope for critique. Our observation that assemblages can be cohered and rendered productive by "just about enough" legitimacy is especially useful, foregrounding the role of bureaucratic gatekeepers in these dynamics. The idea of promissory legitimacy is similarly helpful, enriching the familiar critique about anti-politics by exposing one mechanism (or even "tactic") through which this can be enacted.

One question is what an assemblage approach brings to the understanding of legitimacy? Besides, it would be possible to analyse key elements of the case without recourse to the (sometimes complex and confusing) ontology and vernacular of assemblage. Yet doing so would risk under-emphasising the agency-infused production of legitimacy and the constituent labour, practices, and strategic alignments involved. It would also risk neglecting the purposeful and productive nature of legitimacy within a policy context, whereby legitimacy (and legitimation) is a strategic means to realise human desires rather than an end in-and-by itself. In an important sense, an assemblage approach sheds light on what legitimacy "does", revealing its role in bringing certain realities into existence. The language of assemblage can be useful here, for instance, in helping us conceptualise how legitimacy facilitates or frustrates *flows* (e.g., of resources) required to enact outcomes in the real world. Assemblage thinking also complicates assumptions about the effects of legitimacy by exposing the contingent potential of outcomes. These can only be understood with reference to situated relations with other components and even with respect to other assemblages. Within the present context, SANBI was sufficiently legitimate to progress GCF projects, but its complex entanglements in civil society precluded it from using its legitimacy. By conceptualising agency as distributed, an assemblage approach also complements past work which recognises the existence of different audiences for legitimacy whose expectations and qualifying criteria may vary (Bernstein and Cashore 2007, Haack and Rasche 2021).

Our paper contributes to debates about international climate finance. The findings lend weight to claims that current modalities of financing through mechanisms such as the GCF privilege neo-liberal, financialised logics which shift power to market actors (Bracking and Leffel 2021, Bertilsson and Thörn 2021). They moreover identify one mechanism through which this operates: by targeting "low hanging fruits" in the form of mitigation investments via development/green banks. This is not a critique of the DBSA (or others like it), which has proved adept at strategically leveraging the opportunities presented by the GCF through financial models to crowd-in private actors. Rather, it speaks to the need to attend to the structural, procedural, and economic constraints that preclude greater adaptation engagement (Bracking 2015, Garschagen and Doshi 2022). This matters because the GCF exists to fund transformative and ambitious climate action. Our findings nuance the suggestion that this neglect is simply "baked-into" the GCF, revealing the agency of domestic, civic-facing actors (i.e., SANBI in the present context) in the decision not to advance adaptation projects for financing. An important policy insight from this paper is that the GCF should nevertheless prioritise more risky, challenging climate-aligned investments. This could imply development banks such as DBSA being compelled to develop, propose and finance more projects in the adaptation space. It also implies availing greater resources for organisations such as SANBI to carry out the difficult, uncertain, but vital work of stabilising the strata for adaptation projects. Without this, there is a risk that the GCF will fall short of its remit, failing to address the market (and other) failures which perpetuate vulnerability to climate risks in the global south.

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Chapter 5. Divergent desires for the just transition in South Africa: An assemblage analysis

Abstract

In this paper I establish a 'just transition assemblage' as a theoretical and empirical case-study to explore the plurality of justice in South Africa's energy transition. The coal phase-out is complicated by the legacies of apartheid, poverty, inequality, unemployment and structural crisis in the state-owned power utility. This transition is loaded with expectation but there is no consensus on what would qualify it as 'just'. The assemblage analysis clusters desires around two distinct post-carbon imaginaries. The first is an ordering of desires for justice in a diffuse, distributional sense, targeting greenhouse gas emission reductions and looking to smooth the negative impacts of the transition. I label this approach 'net justice'. This targets more justice overall in defined political spaces, and contrasts with the second orientation around recognising, reconciling, and addressing specific injustices. These desires are distinguished by a contrasting purpose of renewable energy and differing attitudes to its appropriateness or fit. There are incoherent spatial effects, where net justice is shown to be a territorialising project whilst specific injustices need to be de-territorialised. Emphasising desire shows how material and history are enrolled and enlivened, contributing to post-carbon imaginaries. This approach enables injustice and net justice to be understood as conceptually distinct, despite seeming unified calls for a just transition. It forces attention on the question of: 'justice for whom?'

5.1 Introduction

Combining insights from climate justice scholarship and assemblage theory, I offer a novel conceptualisation of climate justice as it is being played out in the South African energy infrastructure transition. Interpretations of climate justice are varied (Meikle et al., 2016) where justice means different things to different people and an individual's own interpretation is variable in time and space (Thorp, 2014). Jafry et al. ask whether climate justice should abandon its anti-establishment roots and instead head in the direction of praxis (2018, p. 4), suggesting tension between pragmatism and idealism. But climate justice has gone mainstream. World leaders, activists, private sector organisations all champion the cause though it is not always clear how justice is invoked and used. The question comes to the fore when policymakers attempt to operationalise justice. This paper explores this tension, where justice is syncretic (Law et al., 2014) or stretched to accommodate both pragmatism and idealism in energy transitions.

South Africa's energy infrastructure transition is underway and somewhat inevitable. Coal-fired power stations are scheduled for de-commission (Strambo et al., 2019; Wright et al., 2019) and renewable energy, as the least cost generation option, is meeting a growing share of demand. Presently, coal accounts for 90% of electricity production and remains the largest export as well as a major employer (Department of Mineral Resources and Energy, 2019). It is going to be an especially challenging transition. Here, the move from coal toward renewable energy is widely referred to simply as the 'just transition'. This refers to decarbonisation that attempts to address negative social and economic impacts of the change (Heffron & McCauley, 2018, p. 74). There is broad-based support for a just transition in South Africa's energy context but no consensus about what it means or how to do it (Climate Investment Funds, 2020; Cock, 2019).

To counter this impasse, I conceptualise the just transition as an assemblage to clarify the different expectations within it. South Africa represents a useful empirical case to explore climate justice as well as a theoretical case-study to examine tensions in the application of assemblage theory. I pick up on a debate about the importance of human desire. Assemblages are purposeful, not a collection of things but a deliberate ordering of intention and desire

(Deleuze & Guattari, 1988). They are the productive intersection of a form of content (actions, bodies and things) and a form of expression (affects, words and ideas). It is the interplay between these domains of expression and content that makes assemblages analytically powerful (Buchanan, 2017). The concept is deployed to study how people live with, think, and feel about energy infrastructure.

This assemblage approach facilitates analysis of the plurality of justice. I invoke and deploy 'net justice' as a concept to capture diffuse and general policy-oriented desires in the just transition. This shows how the project of achieving more justice and in targeted locales is distinct from desires to acknowledge, reconcile or address injustices. Beyond South Africa, net justice captures an attitude to climate policy that smooths and glosses over difficult pragmatic and philosophical justice questions, though facilitates progress. This novel contribution is made possible by emphasising desire in assemblage. Without this approach, scholarship of energy transitions would miss how different future imaginaries are produced and co-exist in relation to material.

5.2 Justice and the environment

Climate justice can be characterized as divergent, between social movement on the one hand and normative inquiry on the other (Boran, 2018, p. 27). South African discourses reflect this tension. There are overlapping calls for a just transition from the President, communities, business and labour but civil society presents the most coherent views that dominate national discourses (Halsey et al., 2019). These are all different post-carbon utopias – desires that what comes after coal is better than now[45]. The persistent paradox is that everybody seemingly wants the same future yet cannot agree how to go about it, partly because of the breadth and plurality of justice interpretations invoked.

Scholarship has emphasised the importance of several justice dimensions: distribution, procedure and restorative justice (McCauley & Heffron, 2018), leading to emergent notions of

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[45] Post-carbon utopias (and indeed dystopias, for those wedded to coal), reflect multiplicity and diversity of perspectives. These are not prefigured, external ideas.

energy justice (Sovacool & Dworkin, 2015). Agency and influence in decision making is unequal (Walker, 2012) which undermines good procedure and substantiates critique of the utopian ideal of a just transition that delivers a post-carbon, fair society (Jones, 2008). Earlier scholarship oriented around awareness-raising and retribution for injustices (Bullard, 2008) focused attention on disproportionate exposure to environmental harms (Ikeme, 2003; Lazarus, 1994; Novotny, 2000; Reich, 1992). Focusing on injustice as a distinct category (Heinze, 2013) eschews the tendency to frame it as the inverse of justice. Moreover, considering injustice rather than justice might support better distributional effects (Barnett, 2018) which echoes Simon's argument that injustice is easier to agree upon and does not impose a version of justice upon others (1995).

Lennon challenges the overly-neat idea that just transitions would simultaneously transform energy infrastructure and address racial inequalities (2020), arguing the need for recognition (Whyte, 2011) of racial grief in transitions. Representations and discourses of justice are sometimes conflicting in the South African case, reflecting different interests, experiences, and normative positions. Tensions between different interest groups within social movements are common. The Chipko Himalayan forestry movement is a classic example of this effect, which spawned various environmentalisms (Rangan, 1996). Environmental discourses have been distinguished more recently (Bäckstrand & Lövbrand, 2006) to account for divergent underlying ethical and economic rationales and expectations. This contribution to justice scholarship untangles varieties of justice and injustice in South Africa, which is especially important here given that the transition starts from a point of structural injustice.

5.3 The just transition assemblage

This section elaborates how I establish and methodologically use the just transition assemblage. It contextualises the debate in assemblage theory, justifying the focus on desire. Then I explain how I approach the assemblage methodologically before introducing the empirical and material context of the South African energy infrastructure transition. This provides a theoretical and empirical case-study to advance two contributions:

- What novel insights are possible when desire is emphasised in assemblage?

- What can we learn about climate justice by examining how varieties of justice, and injustice, have grown in South Africa?

5.3.1   Assemblage theory and desire

Assemblage thinking is part of a suite of theory in Science and Technology Studies concerned with understanding knowledge production and claims-making (Foucault, 1972; Jasanoff, 2012; Latour, 2005). It is part of the material turn which enlivened social theory with a focus on the agency and politics of things (Joerges, 1999; Winner, 1980). For Deleuze and Guattari, who originated the concept that has spawned diverse interpretations (Nail, 2017), assemblages capture the coming together of diverse things: discourse, ideas, institutions, social forms. Their analytical interest lies in how and why these relations function and to what end. This coming together is purposeful and productive (Ureta, 2015), leading to interconnected relations and shared agency that reflect human intention (Deleuze & Guattari, 1988). Methodologically, these effects are visible in the social construction of justice accounts, this is what the just transition assemblage produces. Assemblage theory is differentiated by demonstrating how knowledge claims emerge from complex relations, the product of the intersection of material and affective forces. The subject is always emergent and immanent, constituted of relations and virtual possibility. Whilst Actor-network theory (ANT) focuses on observable networks of people and things, assemblages are never fixed, always becoming. The assemblage approach is distinct from discourse analysis (Hajer & Versteeg, 2005), which would not provide the same clarity about the intersection of discourse with materiality. Assemblage theory is not limited by language and can interrogate meaning beyond people's accounts and claims. It can explore how and why certain desires find expression and not others. Deleuze and Guattari asked the question 'given a situation, what assemblage would be required to produce it?' (Deleuze & Guattari, 1980, p. 3). The just transition is variously idea, ideal, hope, policy. Framing it as an assemblage captures the contested tension of this future state. The assemblage, more than other knowledge theories, can explain the construction and maintenance of such post-carbon future imaginaries.

All proponents of the assemblage acknowledge a debt to Deleuze and Guattari (Deleuze & Guattari, 1980, 1988), there is little prescribed method in their texts. Debate amongst assemblage theorists offers different conceptions of *what* is assembled. Some stress that material things are assembled, to advance analyses of electricity grids (Bennett, 2005) or markets (DeLanda, 2006). Buchanan critiques this over-emphasis on materiality, labelling it an overly descriptive 'systems of things' (2015). His issue with the so-called 'vibrant materialist' approach is that human desire falls away (Buchanan, 2020). He stresses the centrality of desire to Deleuze and Guattari, who at times referred to assemblages as desire machines. Human desires are ordered in assemblages, which in turn enrol and order materials, giving rise to their properties. These desires are not prefigured but they do reflect social history. The interplay between desire and materiality can be missed in vibrant materialist approaches.

Emphasising desire is a productive way to think about just transitions. Assemblages do not seek to generate generalisable laws, they advance understanding of the desires that lead to particular outcomes (Nail, 2017). Desire is an 'active and positive force' (Ericson & Haggerty, 2000, p. 609), so conceptually distinguished from 'interests' and 'values' by its purposeful and agential quality. The foregrounding of desire in this study has also been informed by examples of responses to energy infrastructure developments from affective energy geography scholarship. Rohse et al. demonstrate how space is produced by affectual agency in energy infrastructure assemblages (2020). Emotional responses to energy system changes, including the shift towards renewables (Huijts, 2018; Pini, et al., 2010) and lingering attachments to fossil fuels (Devine-Wright, et al., 2014), highlight varied responses to change. These can be desires for things to change or stay the same.

Justice is inherently normative, an expression of how people think and hope. The just transition is a utopian expression of desires for a post-carbon future (Heffron & McCauley, 2018). Different desires for the future are ordered in the assemblage which accommodates contradiction, cross-over and pluralistic interpretations of justice. Rather than offering a binary generality it makes visible the specific semantics of individual accounts. Emphasising desire clarifies material relationships including current and future energy infrastructure, but also things like schools, jobs and houses. This includes material that maybe has yet to come to pass or that an actor has no material experience of. Thabametsi power station can help clarify this.

The coal-fired power station has been a focus for South African environmental justice campaigning in recent years. It was announced in November 2020 that Thabametsi would not be built[46]. Nobody experienced the materiality of Thabametsi, yet it was central in desire for environmentalists, the coal incumbents and ordinary citizens who just wanted the lights to stay on. This is an example of how such desires are embedded in experience and have a material backstory. There is a trade-off between the different assemblage approaches. Vibrant-materialists could explore the manifestation of justice issues in the infrastructure roll-out and the eventual materiality of the transition. Emphasising desire illuminates difference where seemingly the materiality is the same, in turn clarifying how rival claims about the same infrastructure can both be substantiated.

5.3.2 Assemblage theory as method

The assemblage captures divergent desires around the energy infrastructure across two core domains: expression and content. Expression refers to affects, words, ideas. Content refers to the materiality: things, people, actions. The productive interplay between these makes the assemblage a powerful analytical concept (Buchanan, 2017). The assemblage demonstrates how people make sense of their own hopes for justice (expression) in the energy transition (content). This is the unique value of the assemblage. Desires are made visible in these two interdependent and reciprocal dimensions which are not causal to each other. For example, neither the materiality nor the semiotic expression of a solar panel depends on the other to exist, but when taken together it is possible to determine specific characteristics of a solar panel according to the desire that enrols it. It can be elitist and exclusionary or egalitarian and inclusive.

The outcomes of assemblages territorialise and de-territorialise in space. Energy infrastructure is constituted through relations that are continually remade, such that the geographies, histories and politics of transitions are ongoing. This refers to the distribution of energy activities across space and the underlying processes and connections that shape this (Bridge, Bouzarovski, Bradshaw, & Eyre, 2013, p. 333). When this wains, assemblages de-territorialize

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[46] https://www.reuters.com/article/us-climate-change-safrica-coal-exclusive/exclusive-consortium-pulls-plug-on-south-africas-thabametsi-coal-plant-idUKKBN27X2LC

and eventually reach their limits and disappear (Buchanan, 2020). Infrastructure will territorialise space in South Africa, re-working patterns of authority and spatial order (Rasmussen & Lund, 2018). The contestation and planning of infrastructure extension will re-make South Africa in this way and justice discourses play a role in that territorialisation. There are places where there is simultaneously entrenched injustice and a concerted project to address it (Kirshner et al., 2019; Swilling et al, 2016). This results in the production and contestation of spatial forms such as renewable energy development zones (REDZ). Equally, justice claims can be substantiated to establish pollution sinks as spatial injustices.

Lea demonstrates this approach with respect to indigenous housing in Australia (2015). Housebuilding produced expensive, inadequate buildings that were deemed suitable by the government and homebuilders. The interplay of the materiality of sub-standard housing combined with the expression of indigeneity that justified these as 'appropriate' demonstrated the racist policy at play (Lea, 2015). This complements policy assemblage conceptions (Fox & Alldred, 2020; Savage, 2020) and challenges notional policy coherence. Indeed, the just transition in South Africa is explicitly non-coherent, accommodating disparity. Lea problematises housing, asking if it is materially and semiotically fitting (Lea, 2015), with reference to an indigenous housing assemblage. Similar thinking is applied to this case to explore how desires frame infrastructure as just, or not, and for whom, in a material and semiotic sense. It teases out the differences between, and limits of, different justice interpretations. It explores the semiotic 'fit' of technology. This has implications for the operationalisation of the transition as a spatial project in areas most affected by the decline of coal. By inference, if an individual's desire cannot be ordered in the assemblage, then they would resort to a new conception of the future.

5.3.3   The South African energy infrastructure transition

Desires around the energy infrastructure are made visible in accounts, observations, policy documents and media. Infrastructure is central in state-making (Whitehead et al., 2007) and reproduction. The energy infrastructure transition is central to state re-building in South Africa and this interface is full of desire. The assemblage is plugged into international discourses and processes. Climate change motivations are inherently international, the decarbonisation of electricity generation and the transition are global policy objectives (Climate Investment

Funds, 2020; Huxham et al., 2019). Novel financing options such as the Just Transition Transaction (Winkler et al., 2021) are central. Activists participate in global networks that have tangible impacts on the movement in South Africa, and vice-versa. Earthlife Africa is now a radical proponent in South Africa and beyond, linking struggles internationally and to the grass-root level. External sources of finance play an important role in imaginaries of the new state, not least given the memories of participation in the Clean Development Mechanism that have left a sense of mistrust and outrage (Bond et al., 2012). The South African struggle is inseparable from others elsewhere.

The democratic potential of decentralized governance and electricity distribution in South Africa is shown to be frustrated by political, economic, technical and regulatory challenges (Baker & Phillips, 2019). Following Baker and Phillips, who 'conceive of the electricity sector as a site of 'struggle' over the governance and ownership of generation, distribution and transmission' (ibid. p 180), this paper explores the complex response of different actors. I go beyond 'prosumers' (ibid. p. 178) of electricity to explore wider affective responses to the energy transition, including amongst the most marginal in society. The state-citizen conception of electricity infrastructure is mediated via the just transition. Infrastructure grounds this discussion, providing a material context for hope and expectation to be borne out, permitting exchange of ideas (Larkin, 2013). Gas infrastructure has been shown to be socio-technical assemblage that plays a territorializing role in articulating the European Union (Bouzarovski, Bradshaw, & Wochnik, 2015). This account explores the power and agency of assemblage but could better account for the desires that provide the drive and purpose for the project.

Renewable energy can achieve multiple objectives. It is both an investment opportunity and a driver of socio-economic development in South Africa (Baker, 2021). This diversity is explored to ask what renewable energy is *for*. Following Lennon (2020), the utopian ideal that a post-carbon future will simultaneously deliver a fairer society is augmented to ask, fairer for whom? Two solar panels generating the same amount of electricity are not the same. Infrastructure – renewable and fossil-fuel alike – is ontologically variable, it has emancipatory potential.

The legacies of colonialism, apartheid and the democratic transition shape South Africa's energy infrastructure. South African development has been defined as a minerals-energy

complex (Fine, 2018), where commodity extraction supports elite regimes. Racial divides persist (Phillips & Petrova, 2021) and inequality has worsened since the democratic transition in 1994 (Gibson, 2015). The transition is rooted in this context of injustice, where, for example, graves are relocated to accommodate mining (Skosana, 2019). Spatial justice is a useful construct, to look beyond inter-group inequality and look at marginalised places that can be denigrated (Bouzarovski & Simcock, 2017, p. 642) by coal. Bringing together underlying structural causes of spatial inequality is especially important regarding health inequalities. These 'increase the likelihood of energy poverty in certain communities and intensify the consequences of the condition. While all energy poverty might be considered a form of energy injustice, this injustice is most severe if it is spatially concentrated in localities of relatively poor health' (ibid. p 645). The coal economy is the engine of injustice for those living and working in the vicinity of its infrastructure. This paper foregrounds these specific semantic experiences of injustice. Transitions are opportunities to (re-)build social trust, which requires harms be reckoned with or distanced from (Joshi, 2021). In an energy context this is often framed as energy democracy, where people in the vicinity of installations are able to benefit from the energy source and gain from the land-use (Caprotti et al., 2021). This can be expanded to national scale as well, where all South Africans might claim equitable access to its resource wealth.

South Africa has a long heritage of extractive industries focused on centralised coal-fired electricity (Fine, 2018). The Highveld area in Mpumalanga Province, East of Johannesburg, is home to vast, shallow coal reserves (Figure 5.1.). Much of the coal value chain is in Mpumalanga. Around 85% of national coal deposits are here, so most of the coal-fired power stations are too (Figure 5.2.). Domestic electricity is centralised in the state-owned, vertically integrated utility, Eskom. Eskom historically owned the bulk of generation, transmission and distribution infrastructure, though generation and distribution is gradually transferring to independent power producers (IPPs). Eskom still generates over 90% of the electricity in South Africa (Baker, Newell, & Phillips, 2014). Democracy saw attempts to address the inequalities of apartheid. There was a concerted drive to connect the population to the grid at the end of apartheid, increasing access to electricity from around a third of the population to over 90% (McEwan, 2017). Electricity access was considered central in the new South Africa. This became a pillar of the government and today the free access to services movement provides

households with 50kWh per month[47]. Despite this, many low-income households are connected but cut-off due to an inability to pay, or remain un-connected.

Figure 5.1. Distribution of coal fields and mines in South Africa. Reproduced from (Lusilao-Makiese et al., 2012).

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[47] https://www.gov.za/faq/government-services/how-do-i-access-free-basic-municipal-services#
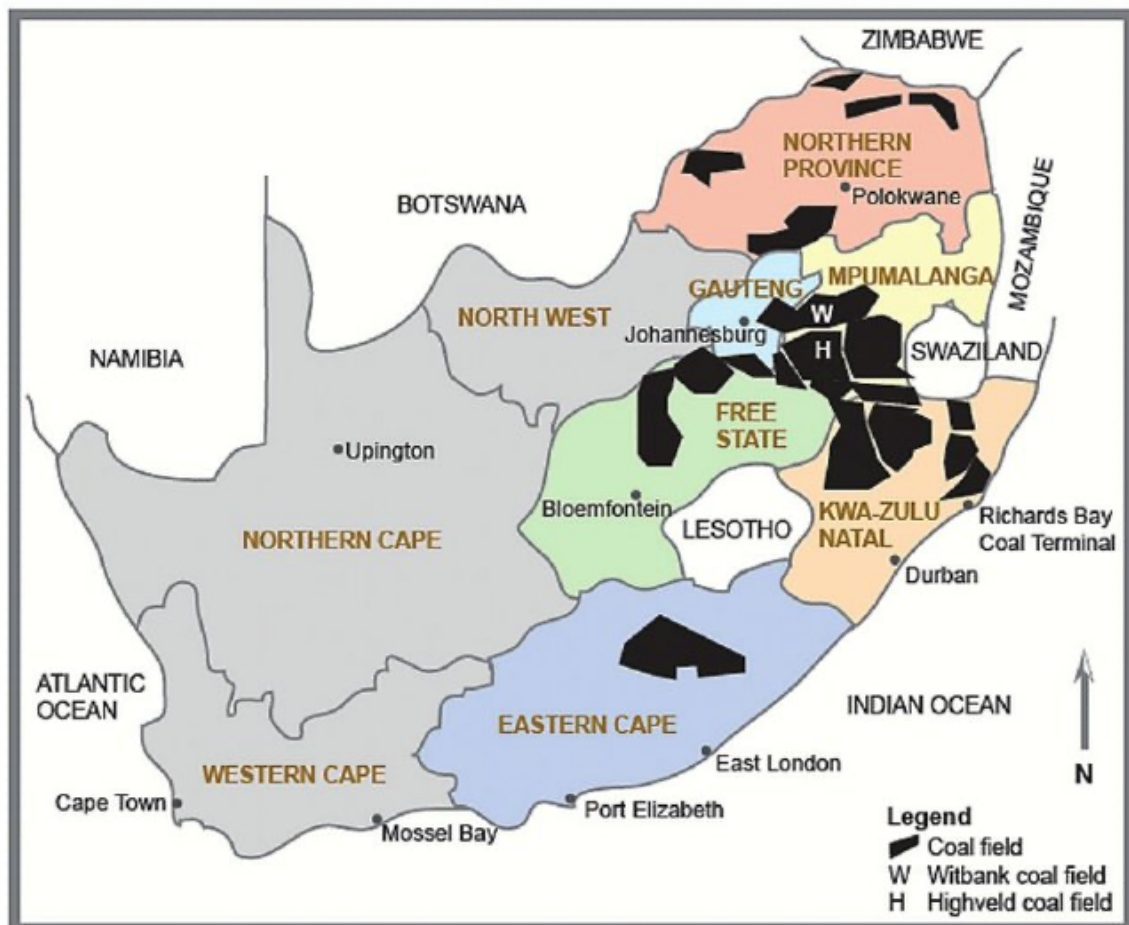
Figure 5.2. Distribution of Eskom power stations. Source: Eskom website.
https://www.eskom.co.za/Whatweredoing/ElectricityGeneration/PowerStations/Pages/Map_Of_Eskom_Power_Stations.aspx
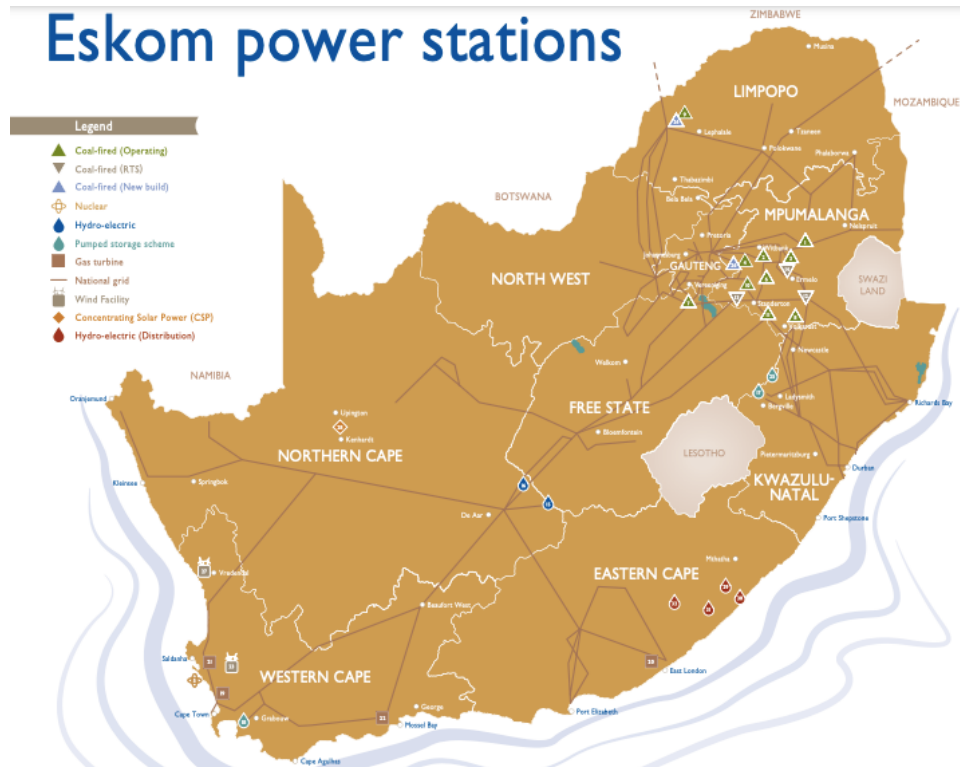
Under-investment and mismanagement at Eskom has reduced generation capacity and sped-up the decommissioning process in some instances (Meyer & Luiz, 2018). Load-shedding – planned power-outages – have been common in daily life for several years[48]. Load-shedding places Eskom and energy at the forefront of people's minds. South Africa's electricity planning is centred on the Integrated Resource Plan, which indicates that the share of renewable energy in the generation mix should rise from 11%-41% by 2030 (Department of Mineral Resources and Energy, 2019). The country is legally committed to least-cost generation so renewable energy will replace coal. Much of this additional renewable electricity will be provided by IPPs via the renewable energy independent power producer procurement programme (REIPPPP).

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[48] https://businesstech.co.za/news/energy/475406/south-africa-spends-10-of-the-year-load-shedding-and-it-could-get-worse/

The Central Government convened a nationwide consultative process to discuss the just transition. This is grounded in the National Development Plan (National Planning Commission, 2013) and centred on dialogues in each of South Africa's nine Provinces in 2018-19 (National Planning Commission, 2019). These sought input from across all social partners to elaborate a common vision. This ambitious project crowded in diverse perspectives without arriving at consensus. It highlighted community grievances around water, agriculture, health and energy. These matched the interests of civil society, business and the Government without clear resolution. The National Planning Commission (NPC) process expanded knowledge about the environmental crisis and associated power asymmetries and reaffirmed the calls for a just transition but highlighted a fractured understanding of justice.

5.4 Methods and data

The research draws on fieldwork between November 2018 and March 2020. The case-study research design (Hammersley & Atkinson, 2010; Ridder, 2012) involved joining interrelated communities focused on the just transition. Initial field construction was based on desk-research of actors working in climate, environment and energy fields. The approach was ethnographic in style; I participated in meetings and events to meet relevant actors who in turn were interviewed, introduced me to other participants and included me in ongoing discourses. I participated in the NPC's consultation process and other forums and carried out several periods of participant observation including time in mining affected communities (MACs) in Mpumalanga and KwaZulu-Natal Provinces.

The power supply issues that afflicted the country during this fieldwork meant that energy, and energy justice, was high on the public agenda and at the forefront of people's thoughts. Energy infrastructure, especially the crumbling coal-fired power stations, was central in day-to-day life, albeit at a distance. The boundaries of this case-study are accordingly broad, encapsulating everything from Presidential *State of the Nation* addresses to the disaffected apologies of landlords, unable to guarantee me electricity. Moreover, this reflects my own biases and positionality as a white, foreign researcher. The resulting dataset consists of interview transcripts from audio-recorded, semi-structured interviews with 80 actors from civil society,

government, the private sector, labour and community members, as well as fieldnotes and documents. These were analysed thematically (Braun & Clarke, 2006) to organise different expressions of desire about the energy infrastructure transition. This process involved both deductive and inductive analysis across multiple periods of fieldwork and thereafter (Lund, 2014). This includes codes such as desire for: *health; participation; order;* and *for the lights to stay on*. These desires are ordered in the just transition assemblage laid out in the previous section. The next section untangles divergence within these post-carbon imaginaries.

5.5 Divergent desires in the just transition assemblage

The just transition is an ordering of diverse desires and expectations about the future after coal. Many of these are utopian: desires that the future will be better than the past or present. These post-carbon utopias differ in terms of the telos, or purpose, of renewable energy, the semiotic appropriation of it, and in terms of their spatial effects. For some life after coal is a dangerous, dystopian proposition.

5.5.1 The telos of renewable energy

Democracy and electricity access are conjoined in a way that is central to citizenship. This has shaped people's desire for participation in South Africa, linked to notions of modernity.

> How important is it for South Africans, to be on the grid?

> *...we take electricity like a basic human right. You probably were around for the first wave of load-shedding and just the sheer anger...when the incumbent came in 1994, and because electricity was only for an elite few. It was a part of democracy, hence the coining of the term of, energy democracy. That if you have energy, you are part of the democracy. If you don't have it, you remain on the outside.* (Trade unionist)

Energy infrastructure – fossil or renewable – is loaded with expectation, an indelible right. The quotation expresses the complex, historical desire for participation in South Africa that is born out via electricity. The participant introduces a sharp division; some are in, others are out.

Electricity provision escalates notions of citizenship today as well, load-shedding conjures memories of exclusion and institutionalised racism. The transition will see new technology, but reliable supply, energy democracy, is the priority. This participant is quite agnostic about this technology but forthright about what it must do for ordinary people. This interpretation of energy justice differs from many rooted in local and community agendas. It speaks to the state-making that followed apartheid. People were eager to participate in the new state, to be more entwined rather than independent. These injustices are being re-visited with supply issues.

There is mistrust of renewables in terms of reliability and concerns about privatisation. Vukani Environmental Movement (VEM) is a community-based organisation in the Highveld region of Mpumalanga. They build knowledge locally about the environmental consequences of coal, offering insight into desires in the Highveld.

Do people want renewable energy?

On our side, we don't want things to be privatised. We want something for the best of the community, not to the best of those in power, like now. We want to be involved in decision making. If we decide we want to go for solar, we want to be involved from day one. Until the end, so that we can understand when something goes wrong. (Environmental justice activist)

Moves to 'un-bundle' Eskom and privatise generation compound concerns of many South Africans for whom grid access is a hard-fought victory. There is a paradoxical fear of losing grid access at the same time as a desire to lose the negative externalities that go with it. People mainly want autonomy. The final sentence highlights the desire to be in control, when for so long people had to passively accept outcomes. It suggests that solar can be part of the solution to these injustices if it is owned by the community.

The transition is an opportunity for reconciliation, but this requires South Africans to meet injustice eye-to-eye. Issues with Eskom combine with growing awareness and experience of climate change in a way that has trained a common focus.

…the environment was seen as servicing the elite so that when you talk about climate change then people think it's an environmental issue, we kind of turn a blind eye … when we start seeing the impacts of climate change, water shortages and everything until Day Zero hit Cape Town. So, the poor have been living Day Zero every day. Communities are saying 'please stop leaving us behind'. For instance, what they were saying in Mpumalanga is 'we are not happy to light up South Africa at their expense'. (Director, Central Government)

The NPC process saw communities, especially MACs, expressing fatigue and dismay at the dissonance amongst South Africans. The just transition is framed as a national endeavour and an opportunity to 'leave no one behind', which is contradictory as it begins from a point of inequality, the poor far behind. Desires for recognition of ongoing inequalities are central to some visions, and a consciousness-raising alluded to in the quotation, around the divisions of darkness and light, 'haves' and 'have-nots'. Not only are the metropolitan elite growing aware of the environmental and social risks, but the perspective of the poor is elevated too. Distinct from claims about energy democracy, specific structural injustice is made visible via social effects across South Africa (Bouzarovski & Simcock, 2017). For many activists, community members and academics, the transition must acknowledge environmental inequalities and offer wider opportunities in the subsequent energy regime. The involuntary sacrifice of people in the MACs is an uncomfortable issue and leads to scepticism about renewable energy that was rife during the NPC sessions, as affluent citizens increasingly go off-grid with embedded solar generation. Renewable energy cannot only meet generation needs nor simply contribute to decarbonisation goals, it must meet the expectations of newly raised consciousness around the injustices of coal.

Technocratic actors voice desires for order, to 'fix and problem solve' (Project developer). This desire to help is tied to climate change policy goals where energy and electricity can support developmental objectives. The expression is quite detached, the benefit, positives and justice connotations of solar panels appear somewhat taken for granted. It is not neutral, but it is un-questionably appropriate – 'a no-brainer' (Commercial banker) for some actors. As one participant extoled, 'we've got fantastic solar resources…we should be leveraging that to produce very cheap electricity, the jobs will come off the back of cheap electricity' (Solar

developer). Solar is portrayed as a solution to unemployment. The infrastructure is, in a semiotic sense, just.

South Africa can be a pilot for Africa. You need places where a loss is not going to break them. And they're not going to be totally peeved and out of control. So, my thing is always, get transactions going, create standardized process, decrease transaction costs, make information free. (Non-profit consultant)

People and places become reframed as parts of the problem and solution, interchangeably manipulated to maximise the efficacy of technology and the political and financial resources. Justice is absent, or implied, in this quotation. Justice remains a central motivation however and a mandate of many technical actors. Detachment and big-picture thinking facilitate progress but smooth over individual and place-based experience. In doing this it also erases race, class and gender. Here, the participant celebrates that a loss in Cape Town will not break it. This fits with their desire of learning and improving continental systems. This is detached, practical and looking to maximise benefit. Barriers are framed as political. Indeed, technical actors routinely express desire to avoid politics, to stay away from government and to unencumber the technology from forces that might slow it down.

The same consultant does identify specific injustice. They voice dismay at the Green Climate Fund's legal processes and especially its intellectual property provisions. This slows down, frustrates and complicates the roll-out of technology, with lawyers 'the only ones making any money out of the projects'. It is a barrier to more justice. It prevents the diffuse social good from being deployed and its benefits enjoyed. Energy is the central focus of desire in the just transition but in very different ways.

5.5.2 The semiotic fit of energy infrastructures

There is a tension around energy infrastructure. It is sometimes assumed that the transition will be welcomed on account of social and environmental benefits, that fossil fuel companies and vested owners of capital alone oppose change. That the challenge is just to roll-out solar and wind. There is a multitude of desire, however, and renewables do not necessarily go together with social justice imaginaries, leading to frustration.

How do I make solar relevant to a community member living outside Witbank or Middleburg, in the same way coal is?' Communities don't like coal, but they know they have no livelihood without it. I need to make a township person think and feel that a solar panel, their solar panel on their roof must be as relevant to me as my cell phone. (Solar developer)

Without this importance, the material will fall into decline and misuse. This quotation describes the project of making solar relevant to the beneficiaries, and of the infrastructure becoming valuable. This attitude is implicit in much climate policy but is premised on expert knowledge and beneficiary ignorance, that people in the MACs must be nudged and led. It is de-politicised and does not acknowledge the injustices and poverty that bind people to coal. One participant in the NPC process even suggested that MACs compete to speed up decommissioning schedules for power stations, which glosses over lived realities. Another participant reflects on embedded generation projects linked to schools:

We must humanise the school, make it the centre of the community, facilities open to the township... show what one school can do, people will ask for the same and there will be a campaign to humanise schools as well as making them climate friendly. (Activist)

Renewable energy is framed as a new social good but racial preconceptions about renewables being a white energy source need to break for it to become emancipatory to people in coal towns. This quote acknowledges the need for demonstration leading to self-determination. This is not to say that the just transition should not be pushing renewable technologies, rather it is a caution against simplification.

...we have conflated the two: the just transition and the energy transition. Because of it, we are... there is an ointment in SA called Zambuk, it is this ointment where it doesn't matter what pain or illness you have, you rub on Zambuk, and it solves the problem. (Renewable energy policymaker)

This quote reflects un-ease with the conflation, and concern at the over-simplification and reliance on a one-size fits all remedy inattentive to specifics. Desires to phase out coal often do go hand-in-hand with social objectives. The energy infrastructure transition is an opportunity to re-wire South Africa, but this conflation is too neat. 'Nothing about us, without us' is a popular slogan amongst communities and activists. People in the coal towns must socialize renewable energy themselves, should they so desire. If it is not a two-way process with communities then the technology will likely not be accepted. Indeed, the State provided small-scale solar installations to townships in the 2010s and these mostly were vandalised and fell into disrepair. The following vignette is a fieldnote written in the Highveld which details why some do not share this vision. This participant observation was facilitated by VEM and was an opportunity to see the Highveld through the eyes of community members who are not engaged in the struggle against coal.

> Louise took me to visit two friends of hers in Vosman, Nkangala District Municipality. It was Klara's home; her friend Celine was visiting. Vosman surrounds the colliery of the same name and is sprawling with coal infrastructure. Mines, power stations, processing plants and rail lines are connected by a slow crawl of coal trucks along otherwise quiet highways. It is the district with the highest economic dependence on coal in South Africa; around 60% (Strambo et al., 2019). Klara is sick with a cough which prevents her from getting work. There are jobs in the area, but without the so-called 'red ticket', a medical certificate stating fitness to work, it is impossible to get employment in a mine or power station. Klara cannot work because her lungs are too weak. Many jobs go to people from outside the district or the province who can get red tickets. Klara's home is cool, and the curtains are closed, a relief from the heat outside. She has a large television and stereo in the reception room where we meet. There is a fridge-freezer and other white goods in the kitchen. These all sit idle, she explains, as her house is currently disconnected from the grid as her family cannot pay the Municipality. The State's free electricity provision lasts her family a few days each month, never as many as five. 'It is not possible to get enough money for food and electricity each month. Or airtime … why can't the government open another mine? So that more money can come into the area'.

These hopes order a dependence on coal infrastructure as both necessary and appropriate. Renewable energy is not. It is perceived as white-owned and impractical. There is a sad irony and grave injustice in the limited local access to the grid and to coal-fired power given the exposure to the environmental harms in places like Vosman.

> *'Here is white monopoly capitalism telling me how I can use my (coal) endowment'*

> Fieldnote, NPC Provincial Meeting, Mpumalanga, February 2019.

Coal is lauded as a gift to the country and this note demonstrates the rejection of outside interference, echoing the emphasis on autonomy in the previous section. There is a missing link between a renewable energy future and the injustices people articulate. Organisations like VEM work to un-block this. They cite education as a barrier, but also poverty. 'People are more concerned about food tomorrow than their health in a year' (Community member). Presently, there is little desire for renewable energy in the MACs. Many activists and academics desire this on behalf of the township populations but the lack of buy-in confounds justice claims.

5.5.3   Space: a tool and a trap

The just transition is a national endeavour but mainly plays out at the regional level. Much of the conversation is centred on how to minimize the impact in Mpumalanga and the Highveld in particular: a desire to protect the coal towns through economic decline. There is also desire to maximise social and other benefits, and limit losses, by incorporating social metrics into decisions about the location of infrastructure. South Africa has a centralised infrastructure and industrial planning structure, centred on 18 strategic infrastructure projects (SIPs). SIP eight is concerned with green energy; how and where to deploy it in South Africa.

> *… renewable energy development zones … we were looking for places that had good solar insolation levels, and I was saying 'what are the other variables?', areas that would have some very specific socio-economic requirements. To be fair, you can stick a pin in a map of South Africa and there will be socio-economic requirements, but we had targeted municipalities in great distress. I focused on the declining mining areas.* (Energy policymaker)

This describes a shift in energy planning, away from cost-optimal approaches to a model that reflects social variables. There is a degree of resigned humour here. The idea of sticking a pin in a map to select a beneficiary community demonstrates emotional detachment. This actor can joke, but it is the exasperated joke of a pragmatist charged with implementing policy that will produce winners and losers across space. This process, and actor, have the power to territorialise renewable energy and its associated positive impacts – more justice – wherever they can justify it. REDZs are proactive, just spatial configurations that can smooth the negative impacts of the transition. This re-making of space is the agency of the just transition. This might correlate to pollution sinks and where the economic impacts of the coal phase-out are greatest but will not cancel these injustices out. Decisions based on renewable potential, economic returns and dispatchability of electricity are off-set in search of balance in project outcomes.

> *…what are we going to try to achieve with mitigation in this region, negative social effects, negative environmental effect, economic effects? Or technical effects? We are trying to find balance between the four, address as much as we can.* (Researcher, Think Tank)

Balance is conceptually important in trading-off different outcomes in search of a public-interest. The participant is justifying the position of renewable energy infrastructure in generation locations with sub-optimal irradiation and wind. Renewable energy was not initially sanctioned in Mpumalanga by the REIPPPP, which does not target co-benefits this way. These desires – 'to wrap a social transition around the energy transition', as one technocrat described it – results in the territorialisation of new material arrangements (Bouzarovski et al., 2015), like solar farms outside of the Northern Cape deserts. A distributive version of justice drives this territorialisation, but their policy choices will produce winners and losers. This is particularly hard in a middle-income country, where policymakers lament that 'it can be very painful, we are not like Germany who can pay off the losers' (Director, Central Government). This is irreconcilable with the desire to de-territorialise specific spatial injustice, even in the same locations. The violence of the coal value chain and its legacy focuses the discourse on some of the gravest injustices with little scope for resolution. The coal infrastructure that punctuates Mpumalanga results in clusters of people who depend, largely informally, on the sector for

their livelihoods. The following is a vignette written over the course of a day travelling in the province:

> The area is called Masakhane. 'Let's build each other', in isiZulu. Spaza shops, informal canteens and convenience stores, stand at the intersection where woman sell soup and fruit. We stop and walk around the area not far from Duvha power station. Exposed, cracked breeze block houses, lacking windows and roofs in many cases, are interspersed with more inhabited looking spaces. Most of these do not have electricity, though some have illegally tapped into the mains. There is an audible crackle as the high-voltage lines travel to a nearby transformer, like the deep hum of an insect or distant rumble of thunder overhead. This area is criss-crossed with power lines. There is a mine nearby called South 32 and a spent waste silo dump mound in between the community and the power station. The power station donates a little low-grade coal to the people in Masakhane, unfit for the power stations, which is burned inside their homes. People want to live here, though, because in the long run being this close to the power station will lead to opportunities.

The injustices of coal are palpable in Masakhane, where people suffer from pollution but live off-grid. It is hard to see how the justice project of the REDZs or similar territorialisations could counter this poverty, given the informal and indirect links to Eskom. Moreover, the example serves to stress the entrenched place-based injustices which will be compounded by the coal phase-out.

The opening-up of sectors and places for non-white people was central to the democratic transition. Coal towns offered opportunities. Today they are in decline. This is a common picture globally, but the South African context differs in terms of the severity of historical injustice carried over into the present, despite the democratic transition. There is desire to break the spatial injustice that is entrenched in the coal towns.

> *In Hendrina … you see the power station and you go into this small little town and there are nice little suburban houses. That if you think back 30 years ago, all those houses*

would have been white houses. (now)...you have these pockets of complete poverty, or future poverty. It's not poverty yet, they still got a house, but the hard times are coming.

Yeah, I can visualize exactly what you're talking about. I've been through Hendrina … the suburban families with the beautiful power station in the background.

Yeah, and their sons playing rugby on this beautiful rugby field, where the poles are painted white and they're not rusted, as they are now. (Environmental justice activist)

Coal decline robs people in MACs of agency. People are unable to work, support their families or simply leave. The house described in this quotation was symbolic of the transition to democracy and now symbolises this locked-in decline. The democratic transition transformed space and places, where white houses, assets and land *became* black. These places were co-opted and re-appropriated but now trap people, who are unable to leave or improve their lives. The fate of these communities is tied to the infrastructure, both in terms of the negative externalities of coal and the economic decline of the sector. South Africa was supposed to become fairer after 1994 but the opportunities in and around the coal value chain have been reduced by the moves to decommission the power stations. Just transitions are attentive to stranded asset risk, where overvalued coal reserves will fail to deliver expected returns, for example. The Highveld is home to 'stranded communities', which become deeply impoverished and 'start owing Eskom and the Government, costing them billions of Rand' (Central Government employee). There is outrage about the settler-colonial dynamics of extraction that ravaged the land and then returned it to the community in an insufficient state that perpetuates injustice. MACs are bound to degraded spaces, and in this sense 'stranded'. This is not to essentialise the community as inherently linked to land, rather that should these people leave, move to cities, it would involve starting again with nothing. Desires for a better life are blocked by space-based injustices. This is a recurrent theme in the MACs. An environmental activist in Emalahleni discussed their application to work in a coal mine, defending their decision and demanding 'why should I have to leave, for a better life?' Coal retains a central place in hopes for the future, people want a better future for their communities, not to have to leave.

5.6 Discussion – the limit of the just transition

The wider implications of this study are two-fold. First, emphasising desire teases out specific semantic differences in the seemingly unified discourse of the just transition. It unpacks how embedded historical and material factors intersect with values and ideas that shape post-carbon imaginaries. Second, the empirical contribution to climate justice scholarship, made visible by assemblage theory, is the clarification of plural justice interpretations. Mindful of the choice Jafry et al. offer, between anti-establishment and praxis (2018, p. 4), this contribution demonstrates how climate justice is being done and the productive tensions *within* South African praxis. I advance 'net justice' as a concept to describe the diffuse policy-ontology that pursues justice in general across politically defined space. This is shown to be incoherent with desires to acknowledge, address and reconcile injustice.

Divergent justice orientations are shown to shape the desires that actors have for post-carbon utopias. By combining the desire-led assemblage approach with climate justice scholarship, I distinguish two distinct clusters of, perhaps irreconcilable, future imaginaries that are ordered in the same assemblage (Table. 5.1). This insight would be under-specified without this focus on desire, which distinguishes claims about seemingly similar materiality.

Table 5.1. Divergent justices in the just transition assemblage

Divergence in the assemblage	Desires	Effects (Expression/Content)
Pursuit of net justice	Order; Expansion; Efficiency; Economic stability.	- Renewable energy is un-critically appropriate technology, self-evidently 'just'; - Social and energy transitions are conflated but renewable energy is not relevant to people, yet; - Spatial project to territorialise more just outcomes.

Struggle against injustice	Participation; Health; Services; Employment; Modernity.	- Equation of electricity access and citizenship. Weary of further exclusion but renewable energy has emancipatory potential; - Suspicious of renewable energy/difficulty in imagining a separation from coal; - Stranded communities lack agency and injustice must first de-territorialise.

The assemblage orders increasingly diverse and divergent desires and is showing signs of strain accordingly. But assemblages are always in flux, changing over time. This is also how political and social movements evolve. The groundswell of momentum and enthusiasm for the just transition comes at the expense of the radical potential of the movement. But tensions between different perspectives have caused the shift in praxis that moved justice forward and up agendas and normalised the notion that the transition ought in some way to be just. These tensions in South Africa are broadly relevant as actors around the world engaged in thinking about the urgent social and economic transformations that are underway in response to climate change. This case-study supports several wider observations, first about the value of desire-led assemblage analysis and then regarding climate justice in general.

5.6.1 Desire-led assemblage

Desire enrols and enlivens material, giving it properties in assemblage. This approach distinguishes the variable telos of renewable energy infrastructures, showing how desires surrounding these lead to contrary post-carbon imaginaries. The broader significance of this is that the expressive dimension of an assemblage can alter the meaning of renewable energy (Deleuze & Guattari, 1988). Renewable energy is central to global efforts to decarbonise. There is an emancipatory potential to the technology, but this is not a given and would need to be pursued explicitly with more work to include a wider range of South African society (Baker &

Phillips, 2019). The energy revolution is ontologically multiple. Renewable energy allows people to imagine a future where they can maintain existing lifestyles without making sacrifices. It can replace fossil fuels and maintain the status quo. It is also an opportunity to disrupt and decentralise energy. Solar and wind could offer independence from state and corporate energy provision: challenging the status quo. Energy infrastructures offer widely divergent expressive pathways and emphasising desire clarifies the different expectations placed on material that seems the same (Lea, 2020). This would apply in other contexts as well, the politics of how and why materials are enrolled in assemblages is methodologically and theoretically important to any policy discourse.

Emphasising desire sheds light on a thorny issue at the heart of policy, the issue of semiotic appropriation, or 'fit'. I demonstrated the tension between frustrated policymakers and would-be beneficiaries, exasperation that people in MACs are not demanding renewable energy. But for them, the transition threatens further pain where life is already hard for so many. The supposition that people need to be shown the value of renewables, to learn to desire what is good for them, is morally problematic and practically questionable. Emphasising desire highlights how and why renewable energy might be accepted as appropriate.

The data presented suggests that it might be straightforward to achieve policy objectives linked to renewable energy. Renewable energy could become appropriate in a material-semiotic sense if it where to do what people want it to do. It must address specific space-based understandings of injustices of the mineral-energy complex (Bouzarovski & Simcock, 2017), building hope from within marginalised groups and their understanding of a just future. The risk is that climate justice as normative inquiry gets out of sync with social movements instead (Boran, 2018). In the South African case, some people in MACs do not see how renewable energy can help them. In fact, the material is expressly dangerous. The explicitly geographical perspective on the just transition points to the need for the co-existence of multiple, spatially constituted pathways for different actors (Bridge et al., 2013). ANT and other discursive approaches might not capture how and why expression and content interact, where they do not interact, and how this leads to different values and fit. Proponents of ANT take this expressive fit for granted, or at face value in accounts. But policy is messy and multiple, and

energy justice advocates should work to understand and join up different desires, not seek to change them.

5.6.2   Climate justice

Climate justice is increasingly synonymous with policy outcomes. Interventions might look to maximise justice or to pursues a course of action that is more just than another (Climate Investment Funds, 2020). This pursuit of justice can be conceived of in terms of a scale, as presented by the CIF report. Whilst the climate change policy zeitgeist has centred on net zero emissions planning, where flexibility, agility and efficiency are celebrated – there should be caution about similar epistemology creeping into justice agendas and crowding out divergent interpretations. Just transition narratives – globally and in South Africa – have a tendency towards conceptualizing what I term 'net justice'. This is where policy outcomes are just in a distributional sense, overall, for enough people without specifying whom or significantly, for whom they are not. This fits with the conception of justice on a scale ranging from more to less just. It frames justice as a diffuse generality, closing space for different interpretations of a just future and removes injustice from the equation. This justice orientation recurs in the assemblage, premised on renewable energy being a tool or lever that social ends can be attached to or wrapped around. The second broad grouping of desires in the assemblage are oriented around injustice. This is increasingly at odds with the net just project, more of a *struggle against injustice*. It produces post-carbon imaginaries that demand energy infrastructure recognise, reconcile and, where possible, address injustices. People can desire both, this assemblage analysis is not a binary delineation of two groups: of activists versus policymakers. This contribution distinguishes desires oriented around injustice from those in the net justice project, it demonstrates their incoherence within the praxis of the just transition.

Space can be a policy lever, where regional economic and social effects can be smoothed and reduced (Strambo, et al., 2019; Wright, et al., 2019). Equally, space binds people to degraded places. Technocrats can tweak models and re-draw lines (or insert pins) on maps such that the materiality of the transition maps onto South Africa in subtly different ways. This is a form of internal territorialisation (Dongol & Neumann, 2021; Rasmussen & Lund, 2018). It produces justice in different places, to achieve more aggregate justice, net justice overall. It describes a

better world than we now have, a fairer one. But what does this miss? Desires that articulate a struggle against injustice are granular and situated. People in MACs are stranded in degraded space with locked-in decline. Hopes were attached to the incumbent, state-level energy infrastructure, but this offers increasingly little whilst making people sick and unable to work (Munnik, 2019). Net justice glosses over and smooths such spatial injustice. Desires that articulate a struggle against injustice instead call for the specific injustices in these places to be de-territorialised. This means rehabilitating land, returning land previously held by extractive interests to communities and building new economies whilst acknowledging loss of life and injustices that cannot be undone. These divergent clusters of desire appear irreconcilable, in the sense that more justice does not counteract or cancel out these specific injustices. Policy makers can territorialise justice across space but this does not attend to the multiple experiences of injustice, reaffirming the value of clarifying the specific semantics people use to express the plurality of justice (Heinze, 2013).

5.7 Conclusion

Emphasising desire has clarified a paradox in the seemingly unified calls for a just transition where people have vested different hopes in the same infrastructure. I advance the concept of net justice to distinguish popular uses of the terms justice and injustice and show how these are qualitatively different: more justice does not cancel out injustice. This conception is predominant in global climate change discourses, but also amongst banks, governments and oil companies that now call for just transitions and climate justice. This could be cause both for celebration and for concern. This paper conceptually demonstrated how stretched the just transition, and climate justice in general, has become, and the plural varieties of justice and injustice that it accommodates. It is beholden on activists and academics to engage with and interrogate the effects of this net justice project, to hold it to account and to drive ambition in it. Equally, to champion the causes and groups that are marginalised by this. Cock offers two just transition pathways; green growth or social transformation (2019). Is the second, transformative approach possible without reconciling injustices? Transitional justice frames this as an opposition between reckoning and distance (Joshi, 2021). Emphasising injustice demands a reckoning whilst net justice looks forward and works towards distance. This tension

can be productive and facilitate more radical ideas entering mainstream policy discourse. A general notion of justice is now entrenched in the climate vernacular and a policy objective thanks to the tireless work of activists and academics who championed it. Such actors – those who have not already – may jettison the just transition in favour of a more radical project that accommodates their desires. That a more ambitious ordering of desires around injustices should emerge as a critique to *net justice* is to be expected - this is how activists raise and maintain ambition in the face of calls for pragmatism.

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Chapter 6. Discussion

6.1 Research orientation

6.1.1 Introduction and research questions

This final chapter returns to the initial, foundational question that prompted this research and foregrounds the relevance of my findings for climate policy. I began by questioning if the GCF can support just and equitable climate action. This question was driven by my professional experience and the progressive policy of the GCF combined with a groundswell of enthusiasm for climate justice. This was shaped by my optimism, and a belief that the GCF had great potential and ought to be held to account for its own progressive and ambitious policy proclamations (GCF, 2012, 2017). Previous literature has offered assessment of the GCF's progress in terms of country ownership (Bertilsson & Thörn, 2021; Kalinowski, 2020) and explored the potential of the direct access modality (Afful-Koomson, 2015; Omukuti, Marchant, & White, 2021). These are central concepts and design features that shape the potential of the Fund to finance just climate action. The scholarly engagement with the GCF has thus far not critically engaged with this potential. Partly, this reflects that most scholarship looks at the Fund-level dynamics. My thesis has complemented this by employing assemblage theory to explore the relational work of including justice considerations in climate finance in a beneficiary country. The current critical literature tends to generalise about this, invoking financialization and anti-politics (Bracking, 2015a, 2015b, 2019) without accounting for the unique complexity of each country programme. The Fund routinely states its commitment to country-owned transformation. The scant reference to justice and equity in any of their materials reflects the political risk of historically high-emitting states potentially being liable for compensation. But the Fund has the potential – in the right country context – to support just process and outcomes. The assemblage has been used to challenge reified generalities (McGregor & Knox, 2017) that lack explanatory value. My work makes visible the plurality of justice. This combines with a thorough engagement with power in assemblage (Allen, 2011; Müller, 2015) to make a contribution to scholarship of governance and social transitions (Bouzarovski, Bradshaw, & Wochnik, 2015; Wilshusen, 2019). I offer a novel framing of *justice*

in motion which advances previous work by making visible the contingent potential in the assemblage of climate finance as a means to contest and advance social justice.

6.1.2   Case and research questions

The empirical grounding of my PhD and my experience of working with developing countries in the GCF process drove the overall research project and provided early problematisations that led to specific avenues of enquiry. These sub-questions that are now the individual paper contributions of this thesis (summarised in table 6.1) evolved iteratively throughout research design, data collection analysis and writing. In each instance I used a different theoretical approach to develop my engagement with the assembly of climate finance in South Africa.

Table 6.1. Paper contributions

Paper 1	The expert epistemology of climate finance: re-visiting the depoliticization critique
Paper 2	What can we learn about the 'country ownership' of international climate finance by employing a relational conception of scale?
Paper 3	Policy assemblage and legitimacy: Insights from the Green Climate Fund (GCF) in South Africa
Paper 4	Divergent desires for the just transition in South Africa: An assemblage analysis

My initial line of enquiry explored the potential of direct access to the GCF to support just climate action, just transitions and transformations to low-carbon and climate resilient futures. This thesis evolved to broaden the initial scope it set out to do.

Paper one establishes the landscape of climate finance in South Africa. It demonstrates how the limitations and rules of the GCF and development finance restrict the scope for political contestation, but also create a bounded assemblage which is re-politicised during project development. Jasanoff's civic epistemology was adapted to formulate an expert epistemology, which orchestrates and contests these processes. This paper went some way to answering my original question as to whether the GCF can support just and equitable climate action. I nuanced the critique that international organisations depoliticize climate finance (Bracking,

2015b; Louis & Maertens, 2021; Swyngedouw, 2011). This did not resonate with my encounters with practitioners in South Africa. This is a foundational question for my assemblage analysis – are South African human and non-human actors determining what happens? Or do external forces shape project development? I looked to the ways that knowledge is constructed, tested, contested and accepted (Jasanoff, 2011b, 2011a) in order to interrogate the claims to depoliticization. This contribution emphasises the importance of contestation (Barry, 2001, 2002) rather than calling for macro-level political change (Swyngedouw, 2010). It demonstrates the limits of the GCF in the pursuit of radical change and transformation. It paints a picture of project development that is neither procedurally just, nor has the potential for more than modest distributional effects for South Africa. Beyond that, the greenhouse gas emissions avoided through GCF projects have a quantifiable benefit to current and future generations, though this benefit is tiny in the grand scheme of things. The potential for the GCF to finance adaptation in country is clear but projects remain elusive.

Papers two and three deploy an analytical assemblage - the South Africa Climate Finance Assemblage (SACFA) - to explore direct access to the GCF. This is an analytical device that I conceptualise to explore the desire to access the GCF in South Africa. Desire is central to Deleuze and Guattari's assemblage and championed by Ian Buchannan. He argues that 'desire is primary, it is desire that selects materials and gives them their properties … because desire itself is productive' (Buchanan, 2020, p. 56). Desire is an 'active and positive force' (Ericson & Haggerty, 2000, p. 609). This desire shapes what an assemblage does, it clarifies 'how and why these relations function, or behave, as they do, and for what purpose' (Thompson, Sellar, & Buchanan, 2021, p. 5). Assemblage theory literature has tended to take this desire for granted. The SACFA's purpose, shaped by desire, is to produce 'bankable' climate finance projects via the GCF. These novel contributions go a step further than most assemblage accounts by foregrounding desire to clarify how the assembly of climate finance is sustained and progresses.

These papers interrogate two foundational concepts in climate finance: country ownership and legitimacy. Actors involved in climate finance are usually able to talk to both concepts in detail. These are both are ideals, objectives, and processes (GCF, 2019; Lövbrand, Rindefjäll, & Nordqvist, 2009; Najam, 2005; Omukuti, 2020; Suchman, 2005; Winkler & Dubash, 2016). My

approach benefited from the complex, varied and lively justice discourse in South Africa, which is always at the surface in the post-apartheid democracy. By framing these enquiries around the desire to access the GCF, I have contributed to justice scholarship that attends to justice trade-offs (Sovacool, Burke, Baker, Kotikalapudi, & Wlokas, 2017). I interrogated how, and the extent to which, a pluralistic notion of justice manifests and shapes project development. This approach did not seek out justice so much as explore justice in motion. The theoretical potential of assemblage theory facilitated insight and engagement through a relational ontology which emphasises diffuse and dispersed power and agency across people and things.

Assemblage scholars regularly ask 'why, how and by whom' questions about phenomena (Nail, 2017, p. 24) and the nascent policy assemblage approach attends to socio-spatial governance arrangements (Fox & Alldred, 2020; Savage, 2020). However, there has been minimal theorization about the role of legitimacy in the productivity of assemblages. My insights about country ownership and legitimacy rely less on reified generalities and instead explored concrete assemblages, within the limits of the strata that shape the SACFA. These contributions explain how climate finance is assembled and the roles of justice and injustice stabilising this assemblage. Justice is not merely an after effect, but neither is it foregrounded in these contributions. Justice is just another idea that intersects with the competing desires in climate finance. It mixes with other priorities and manifests in project development which can hinder progress. This re-centres social justice in people's construction of their own, and South Africa's, future.

Paper four scrutinizes the plurality of justice in South Africa. The just transition discourse was a gateway into this, centred on the national government consultation process but with strong roots and a long history in various other communities. This contribution strayed somewhat from the original line of enquiry of my PhD. This diversion was necessary for two reasons. First, it would have been unthinkable to carry out research into justice without accessing communities and movements that were at the centre of social justice conversations in South Africa. The just energy transition is how many South Africans engage with climate change and it makes visible desire, including that which has nothing to do with the environment. Secondly, these discourses are a window into the plural and contradictory expressions of justice in South Africa. There is a clear and reasonable justice argument to maintain coal-fired power

generation, for example. This argument does not stand much scrutiny, but this line of enquiry made visible how and why such arguments are defensible from certain actors.

The material and spatial effects of life with coal intersect with the fractured desires for a just transition across South Africa. I develop and deploy 'net justice' as a heuristic device that cautions against a diffuse and general notion of justice (Cock, 2019; Winkler, Keen, & Marquard, 2020) that is detached from people's lived experience and historical injustices. I add to scholarship of justice in South Africa by clarifying semantic differences in justice accounts to destabilise the vague but unifying calls for a just transition. This paper foregrounds justice analytically and complements the other contributions by clarifying the plurality of justice and differences between justice and injustice. This can support the operationalisation of justice in the assembly of the climate finance in South Africa. The net justice heuristic is a cautionary rejoinder to the South African GCF project developers, who intend to produce just transition focused projects. This contribution brings justice back in centrally to the thesis and allows me to add value regarding the potential of the GCF to further social justice agendas in South Africa.

6.2 Contributions

This thesis has sought to explore the transformative potential of climate finance. Justice scholars have long resorted to procedural (Suiseeya & Caplow, 2013; Wood, Dougill, Quinn, & Stringer, 2016) and distributive conceptions of justice to assess change (Newell & Mulvaney, 2013). I have sought to build on this orthodoxy. ANT has been utilised to critique this recourse to procedural and distributive labels (Holifield, 2009) and calls for a more radical politics of environmental justice that emphasizes environmental inequalities. This work, and that of Forsyth (2014) help to complicate the Rawlsian notion of fair allocation but both stop short of formulating alternative means of assessing justice. Forsyth invokes Sen's theory of justice that emphasizes capacities (Schlosberg, 2012; Sen, 2009), which is an important entry point for the over-arching contribution of this thesis. Other notable scholarship that go beyond procedure and distributive effects include Fraser's focus on recognition (Fraser, 2009), Young's work on difference and structural injustice (Young, 2002) and Schlosberg's broad work on

environmental justice including an emphasis on recognition (Schlosberg, 2009; Schlosberg & Collins, 2014).

The assemblages discussed in this thesis provide theoretical tools to combine different dimensions of justice by elaborating how varied articulations about justice combine and hold together during the assembly of climate finance. I first outline the central tenets of the assemblage as I use it before outlining two foundational contributions of this thesis relating to power and concrete assemblages (Table 6.2.) First, I contribute to understanding of power in assemblage. I clarify how they import constraints from the strata that frame them and shape their purpose and how assemblages are strategically manipulated by diffuse and dispersed agency across people and things. The second, linked contribution is to go beyond the limitations of reified generalities and demonstrate the concrete assemblage of climate finance. Specifically, this offers novel conceptions of nation states, or processes of ownership and of justice. These serve as stepping-stones for the overall contribution. I discuss these contributions, and then draw on Wilshusen's (2019) 'governance in motion' to offer an explanation of how justice is assembled in climate finance in Section 6.5.

6.2.1   Assembling climate finance according to desire rather than need

This PhD theorized and deployed two analytical assemblages. I framed the South African attempt to programme climate finance as an assemblage, as well as the national discourse around the just transition. Each of these assemblages are orderings of human desire. The first to access the GCF and the second to specify and pursue a more socially just South Africa through the energy transition. I have picked up on a debate between assemblage thinkers about the importance of desire. Ian Buchanan's (2020) close interpretation of Deleuze and Guattari's assemblage (1988) foregrounds desire, which contrasts with the so-called 'vibrant materialists' (Bennett, 2009; DeLanda, 2006). This thesis has drawn most on Buchanan, who surmises that 'the assemblage is desire in machinic modality' (Buchanan, 2020, p. 62).

Table 6.2. Summary of contributions

Contribution	
Power	• Theorisation of the concept of strata to understand why the GCF imports inequality in how it operates; • Examining the role of legitimacy in territorialisation; • Socio-materiality of climate change inequality in South Africa; • Imagining how to maximise justice within the emancipatory potential of an assemblage.
Concrete Assemblages	• Explore the plurality of justice; • Expose the limits of country ownership.

Each of my assemblages foreground desire and explores how these 'play out' within the constraints and limitations of the strata. Assemblage theorists of the materialist tradition focus on the assembly and agency of things that come together in assemblage (Bennett, 2009; DeLanda, 2006). These can portray assemblages as random, or worse, they can portray everything as just another assemblage offering neither explanation nor insight. Buchanan dismisses these 'collection(s) of things' claiming that 'physical things assemblages draw into themselves are incidental, props needed to actualize a particular arrangement of desire' (2020, p. 65). This is core methodological and analytical principle and has guided the theorization in this thesis. It is worth reflecting more on desire, and I discuss this limitation in Section 6.6.

Paper one of this thesis mapped the landscape of climate finance in South Africa and explored how an urgency frame carries forwards into the country, conditioning possibility and establishing a financial and technical rationale of work. This urgency frame is a shared desire across developing and developed countries alike for expedient climate action. I have previously discussed how all assemblages are shaped by strata which determines the purpose of an assemblage. Using theory that is attentive to knowledge production (Jasanoff, 2011b, 2011a) and how this is contested and accepted is a useful way to understand the formation and function of desire. This approach clarifies how people understand climate finance and how

they contest and express their views around it. This is especially useful in the context of climate and development finance, where my research explored desire rather than need. This partly reflects the operational architecture of this type of finance, where expressions of need often exceed available finance by orders of magnitude (Olhoff, 2020; Winkler & Dubash, 2016). Desire is a useful orientation for this research as it opens-up the varied and complex, contingent possibility of climate finance and brings people – and their desires – into the story. It brings human desire centre stage: this is important because it avoids the swirling ambiguity and disembodied dynamics of self-organisation. It also allowed me to explore my research questions without foregrounding justice, which permitted a broader exploration of the plurality of justice.

6.2.2   Abstract machines and concrete assemblages

Transformation is full of potential and contingency. It lends itself to assemblage analysis, where assemblages are purposeful and deliberate. All assemblages exist to do something, and the benefit of the approach is to explore this rather than resort to essentialism. This underlies the central argument of this thesis. That justice can be made visible by examining what GCF project development seeks to do, how it goes about doing it, and some of the effects this has. The framing of this analysis draws on Deleuze and Guattari's abstract machine concept (Deleuze & Guattari, 1988, p. 322) which structures the relations between the parts of an assemblage. The abstract machine is a conception of the South African project development processes' desire for transformative change, via GCF investments. As a researcher, I conceptualized the assemblage as potentially including ideas about justice in its objectives. I posit that there is a desire to achieve justice co-benefits, and sought to explore how people's desire for justice and climate finance intersect. This is a simple reflection of the claims of the Fund, the international community and the people involved. What the assemblage offers is the conceptual tool to take these claims seriously and scrutinize how people go about their work. Justice as an idea, or ideas, is just another component of the assemblages I used, or the concrete elements that are defined by their external relations, i.e., what they are concretely capable of at any given point. If we want to understand how an assemblage works, we do not ask what its essence is, but rather what it can do. This is an empirical question. We do not know in advance what a concrete body can do (Nail, 2017, p. 26). This plan, or purpose, is the abstract machine, 'the assemblage is not simply a happenstance collocation of people, materials and actions, but the deliberate

realisation of a distinctive plan' (Buchanan, 2015, p. 385). If the South African GCF programme supports or targets justice in any way, then it should be visible to assemblage analysis.

6.3 Power

Assemblage theory is attentive to different registers of power which are neither held nor wielded over others. My analysis of GCF direct access draws on a flat ontology where power is dispersed, and governance formations hold together despite the enduring heterogeneity of their component parts. John Allen's challenge to assemblage theorists to 'open up new questions, as well as new forms of engagement, not merely tell us what we have known more or less all along' (Allen, 2011, p. 156) has guided my interrogation of the assemblage. My paper contributions explore different aspects of how climate finance is programmed in South Africa. I explored the value of several concepts: strata, territorialisation, the material-semiotic participation and diffuse agency and finally the emancipatory potential of assemblages. This addresses a gap identified by Muller with respect to a lack of clarity about how power result from assemblages and what effects it has and 'how the emergence and the shape of 'matters of concern' are an uneven process, in which not all can partake in the same way' (Müller, 2015, p. 36). My conceptual expositions combine to contribute novel understandings about how GCF project development is inflected by power, under what conditions, and the possible effects it can have.

6.3.1   Strata

I begin by revisiting strata and stratification. Strata are foregrounded as a central concept in assemblage theory. They ground and frame assemblages and specify their purpose. They clarify the desire that is ordered in assemblages. They 'are the established forms that give shape to daily life that are embedded at such a deep level we tend to take them for granted' (Thompson et al., 2021, p. 9). Strata are poorly theorized in the existing assemblage literature (Buchanan, 2020, p. 27) despite being central for Deleuze and Guattari. I have engaged with the concept and argue that it holds the key to power dynamics in assemblage. Papers one and three explore strata and stratification[49]. In paper three the SACFA exposes the inner workings of social life

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[49] Paper one did not use the language of assemblage theory in the interests of presenting a stand-alone paper contribution. However, the 'urgency frame' that carries forward into South Africa determines the rules and

within the limits and restrictions of the South African and the GCF strata. I had some concern about ontological incoherence in this approach, as a flat ontology 'sits awkwardly' (Allen, 2011, p. 155) with pre-figured and established forms of power. I have shown instead how assemblages import power and inequality from strata and then these play out as actors and actants pursue these desires. This is a point of difference between assemblage theory and ANT and one that makes the assemblage well-suited to study policy contexts. There would be less value in studying GCF project development with a lens of ontological equivalence and radically immanent and emergent potential (Hartwick, 2000). There are entrenched sources of power than endure and shape relational power in this context. Without this emphasis on strata, the legitimacy machine concept would lack a specific purpose and it would not be possible to specify why some of the potential connections in the SACFA are made productive.

6.3.2   Territorialisation

Territorialisation is a central process in assemblage theory. It orders the stratified components along expressive and material domains (Buchanan, 2020, p. 95). The interplay between expression and content and the dynamic process of territorialisation are central descriptors of the way assemblages work and have effect. Allen's caution against 'a simple joining-up exercise (that) can best be described as 'thin description''(2011, p. 156) is especially prescient with respect to territorialisation. I deployed the SACFA as an analytical assemblage to address this shortcoming, specifically to offer explanations as to how and why assemblages territorialise in some instances and do not in others. Papers two and three of this thesis apply a relational conception of scale and invoke the legitimacy machine concept, respectively. These combine to demonstrate how the SACFA works towards producing, or territorialising, bankable GCF projects. The different experience of each accredited entity with GCF direct access tells a story about power in assemblage. Actors and actants use their agency to move assemblages forward, to deal with issues, to avoid challenges and ultimately to present coherent effects. Paper three introduces the legitimacy machine as a heuristic device to further theorize how and why the DAEs were sometimes able to move project development forward, and other times it would stall. The concept of incorporeal transformation helps explain this production

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limitations of the GCF project development. This can be understood as emanating from the GCF strata in the same way that is described in paper three.

of legitimacy. This refers to how, through the act of language, it is possible to alter a body's (non-physical) status and its relations to other bodies. I argue that it is a vital, and oft-overlooked, explanation of territorialisation.

The assemblage approach demonstrates that it is easier to orchestrate power in concert between fewer actors and actants, and where the opportunities for disagreement and conflict are reduced. Li's seminal work on forestry assemblage (Li, 2007) describes a diffuse and uncoordinated process but my contribution pinpoints how some actors are precise and deliberate, including only the necessary actors and actants to progress an assemblage. Equally, other processes are less adept at narrowing and excluding and are less productive as a result, echoing Wilshusen's assessment of economistic environmental governance as exclusive and efficient (Wilshusen, 2019, p. 3). This thesis builds on Wilshusen's 'governance in motion' which conceptualizes how logics, hybrid practices, and diffuse networks incrementally re-shape power dynamics, and the institutional domains that enable and constrain them (2019, p. 1). My assemblage insights indicate that inclusivity and diverse participation can be a hindrance, in terms both of territorialising projects and securing legitimacy for these. This builds on previous literature that establishes the importance of 'socio-ecological fit' of components in ecosystem management assemblages to respond and maintain assemblages (Briassoulis, 2017). I compliment this by demonstrating how narrowing a more exclusive set of components leads to efficient and effective outputs. There has been little engagement with this strategic manipulation of assemblages, which is a benefit of foregrounding human desire. Agency is dispersed, diffuse and strategic but given the pressure to rapidly secure funds, this does not suggest a favourable context to pursue socially just procedure. For example, the DAEs go to great lengths to avoid the political economy of corruption in South Africa (Von Holdt, 2019). This insight is possible due to the emphasis I place on relationships, on the vast connectedness of the ruling African National Congress Party (ANC) and the enduring links forged during the apartheid regime. A little like the legitimacy machine, the corruption surrounding the ANC is deterministic of why connections are sometimes productive or not.

6.3.3   Material-semiotic participation and diffuse agency

I picked-up on calls to interrogate socio-materiality in political geography (Müller, 2015, p. 27) as a means to access power and politics. Assemblages are relational, and eschew a nature-

culture binary (Bennett, 2009), but there remains a need to clarify what this material focus adds to analysis. The dispersed agency across people and things in assemblage had helped me to explore how spatial power effects are uneven. I have shown how inequality manifests in material-semiotic relationships, more in some instances and geographies than in others, where there is more contestation in some cases than in others (Müller, 2015, p. 32). It has highlighted how some actors and things are able to and encouraged to participate actively whilst others have minimal agency to participate in transformation. This extends to the GCF programming. The nascent links between the just transition and the GCF provide an empirical and theoretical avenue to explore the material-semiotics of justice, in terms of spatial injustice, the pernicious dependence on incumbent energy technologies, and different actors' variable ability to participate in change. Materiality demonstrates how inequality is manifest, entrenched, and perpetuated. These connections highlight how policies and activities implicate different outcomes for actors, highlighting for whom these can be considered just. The assemblage offers a window into the mechanics of this inequality and explains why 'South Africans have such good policy but are less good on implementation' (South African Policy maker). These observations are necessary to move beyond the ineffective measures of participation and inclusion that resort to counting people at consultation events. These have been widely critiqued without offering much alternative (Cooke & Kothari, 2001; Špirić, Ramírez, & Skutsch, 2019).

The relationships people have with renewable and conventional energy infrastructure has provided a key insight into the assembly of climate finance and the role of justice in this. Middle class consumers or businesses align their interests with the GCF in pursuit of embedded generation whilst mining affected communities (MAC) are unable to separate their hopes for the future from coal infrastructure. The only energy infrastructure that many people in the coal towns can semiotically appropriate is the coal that endangers them. Policy makers and activists alike lament that these people cannot see past this. In a Provincial consultation in Mpumalanga during 2019, a solar developer from Johannesburg decried that he wanted to see MACs competing to have their power stations decommissioned fastest. This reflects the agency of the privileged, where the material-semiotic interplay between hope and various energy infrastructures is dynamic and opportunistic, not a question of survival.

This insight around the varied relationship with the material highlights a complementary conception of participation and ownership. I have demonstrated across the papers of this PhD how emergent categories of actors form and drive assemblage processes, such as those unified in a desire to hedge Eskom supply issues. Equally, people in MACs articulate a sense of having little agency attached to the material of the coal value chain. This builds on growing scholarship around the materiality of climate change responses (Barry, 2013; Nel, 2017; O'Reilly, 2018), by making visible human-material hybrid agency (Bouzarovski & Haarstad, 2019).

6.3.4 Emancipatory assemblages

This enquiry has explored the assemblage as a conception of struggle and as a heuristic for transformation. The abiding and enduring power that is imported from the strata into an assemblage sets the rules, conditions interests and alliances and entrenches norms that dictate assembly and territorialisation. This means that the emancipatory potential of the assemblages in this thesis are twofold. It can take the form of contestation within an assemblage or a challenge to the strata. First, the assemblages contain desire which 'play out'. The assemblage makes visible the contingency and possibility within this, even should a routine outcome emerge and territorialise. This, as I develop in the next section, has important implications for how to study and think about justice. It also portrays a realistic scope for the justice potential in GCF direct access. The radical opportunity of the assemblage has been explored, especially with respect to urban formation (Anderson & McFarlane, 2011; McFarlane, 2011) wherein the assemblage is more than a critical theory - it also promotes change and helps organise (Russell, Pusey, & Chatterton, 2011, p. 577). Assemblage theorists have long demanded greater political engagement and a cross-cutting contribution of my thesis has been to centrally foreground agency and strategy. McFarlane notes that:

> 'While assemblage thinking has become increasingly put to work and in a wider variety of ways, it can only be useful in relation to specific questions and projects, and through existing traditions of critical urban thought—in other words, in so far as it enables us to do something.'
>
> (McFarlane, 2011, p. 738)

There remains surprisingly little literature that attempts to make use of the radical and emancipatory potential of the assemblage. I have questioned and interrogated the stability of historical and spatial formations that constitute climate finance and the just transition in South Africa. Kinkaid has more recently encouraged assessment of the ethos of assemblage (2020) and my contribution answers this call to avoid 'the regressive political potentials' (ibid. p. 485). I have added an ethical dimension to assemblage geography by clarifying structural biases and inequality in each of SACFA and the just transition assemblages. Human geographers have tended to overlook human desire in assemblage, which can result in missed opportunities to elaborate the emancipatory potential of the method. I have shone a light on the logics of assembly driven by desire. Echoing Simone, this clarifies that assemblages are not inherently political, rather it is the desire that puts these in motion that is political (Simone, 2011, p. 580).

Policy assemblages benefit from this grounding in historical formations that mean that the insights of analysis have empirical value (Fox & Alldred, 2020; Savage, 2020). The SACFA is doing its job in South Africa. It navigates and manipulates a channel of finance that is shaped by external rules. The question becomes about maximising justice within this (to which I turn next) or to challenging the strata. This second option, challenging the strata, is beyond the scope of this thesis but is increasingly the recourse of choice for many. This might include railing against the multilateral structures that shape international cooperation, direct action like Extinction Rebellion, calling out hollow leadership like Greta Thunberg, or 'conscientious objection'. We may see 'tipping points', beyond which exasperated technocrats and activists lose interest in the politics. Feedback loops like this are how assemblages might influence strata. Paradigm shifts, including those targeted by GCF projects, can have material and expressive consequences in other assemblages. Indeed, the potential for the GCF to impact on social justice might rely more on this latter lever, where projects and programmes might shift conversations and perspectives beyond the SACFA.

6.4 Concrete assemblage not reified generalities

6.4.1 The issue with reified generalities

Part of the appeal of using assemblage theory is that it offers an alternative conception of social reality to that resorted to by the majority working in climate change policy. The GCF's Independent Evaluation Unit's insightful and reflective report into country ownership (2019) called for a new interpretation of the concept. It called for a definition less reliant on national governments as proxies for a country and invoked a more normative sense of ownership. The assemblage provides the tools to look beyond labels and categories, to add explanatory value. DeLanda cautions against using such 'reified generalities'. These are generalised, abstract concepts, which are reified, which means that they are known through systems of classification that describe essential characteristics (DeLanda, 2006). My thesis has shown how these labels, such as county ownership and justice, obfuscate and distract analytical efforts to understand complex social phenomena. They also make policy harder to implement whilst concrete assemblages can furnish novel insights into country ownership and justice instead.

6.4.2 The case of country ownership

Country ownership was explored in-depth with a relational conception of scale. This builds upon a sustained academic critique of hierarchical scale (Allen, 2011, p. 156). Scale is foundational to human geography but has suffered a crisis of purpose and application (Cohen & McCarthy, 2015; Marston, Jones, & Woodward, 2005). I connected this with a similar, parallel dissatisfaction with country ownership amongst policy (GCF, 2019; OECD, 2011b) and academic actors (Buiter, 2007; Omukuti, 2020; Winkler & Dubash, 2016). I combine these literatures to scrutinize how the GCF is enacted in a beneficiary country and expose the distracting effect of the conceptual reification and generality of country ownership. Initial design of the GCF has stressed the importance of country ownership, from all sides (CAN International, 2011; GCF, 2011). The continued lack of a definition and the irony of all parties agreeing so easily on the need to incorporate country ownership in the design of the GCF highlights the issue reified generalities pose to development cooperation. Rather than contestation, we see agreement that is difficult to action. Reified generalities 'tend to maintain categorisations in which transcendent models serve as the measure and limit of what one is

considering … then the scope for action is significantly constrained' (McGregor & Knox, 2017, p. 516). I have demonstrated that both parts – the 'country' and the 'ownership' – fall into this same trap.

Development cooperation has entrenched country ownership as a guiding principle. Practitioners would do well to appraise it from a relational point of view to look beyond reified the generalities that drive un-implementable development finance (Mosse, 2004). It is a common trope in South Africa that 'we are good on policy, not so much on implementation' (Civil Society actor). This, I argue, echoes Savage's observation that 'While such categories might serve useful heuristic purposes, they ultimately fail to capture the complexity of the very relations they seek to represent' (Savage, 2020, p. 330). I demonstrated the value of identifying what shapes a category of actors, what makes that grouping endure in an immanent ontology in paper two of this thesis. The South African example shows how concerns about Eskom led to a concerted effort to use climate finance to hedge against supply issues. This corresponds to broad goals around de-carbonising electricity provision and reducing national emissions, but for many involved these are mere co-benefits. This is a different conception of ownership to that described in GCF policy (GCF, 2017, 2019); ownership in an emergent sense. This conception of country ownership is a concrete assemblage of actors, things and ideas that formed in response to the strata of the SACFA.

Bouzarovkski and Haarstad's application of a relational ontology to explore re-scaling in an urban context (2019) provided a foundational input to my own treatment of country ownership. I build on this theorization by extending the analysis from cities as nodes in socio-technical networks to look at a country. The flat ontology of the assemblage and its perspective on magnitude – where the number and quality of connections is more important than pre-figured categorisation – goes beyond the un-helpful notion of a country. I also invoke multiplicity as a relational process, to further demonstrate the varied processes of assemblage and new formations of governance (Bulkeley, 2005). Bulkeley's insistence on not taking space and scale for granted prompted my conception of the differing scalar formations produced by each of the South African DAEs. I have clarified alternate modes of climate finance governance in the same national context. This is a key contribution of this assemblage analysis. Rather than

listing attributes and invoking scalar levels, the assemblage demonstrates the links and alignments that advance or frustrate project development.

6.4.3   The reification of justice

It is equally difficult to pursue justice in practice. I argue that this is again due to conceptual reification. Jacki Cock spells out two visions of the South African just transition, building on a scepticism of the 'green economy' (Cock, 2014). It is a choice between a defensive approach that looks at re-skilling and economic transformation on the one hand, and a radical alternative that pursues different modes of producing and consuming to create a more just and equitable society on the other (Cock, 2019, p. 862).

Justice is shown to be plural in the assembly of climate finance. Whilst some in South Africa are calling for climate reparations to developing countries, and others lambast the United Nations-centric political apparatus, most are diligently working to develop projects. I have developed the heuristic 'net justice' as a cautionary rejoinder to the policy orientation around how to operationalise justice in transition. Net justice draws on the ontological basis of net zero, which is the current climate policy zeitgeist. In paper four of this thesis, I explain the risks involved in applying these attributes to questions of justice. Net justice reifies justice and renders it implementable in a certain, diffuse, way but is inattentive to specific injustice (Munnik, 2019; Skosana, 2019), situated lived reality (Bullard, 2008; Lennon, 2020) and to the concrete assemblage of people's experience and hope around the energy transition. I argue that there is little value in pursuing justice where justice is itself a reified generality as it marginalises people.

The GCF exists as a re-distributive instrument (McCauley & Heffron, 2018; Page, 2008; Vanderheiden, 2015), transferring resources from global North to South. The Fund, and the climate regime it serves, could never frame it as a compensatory mechanism, channelling reparations or serving as a form of financial remedy for harms caused by high polluting states and corporations, despite growing critical calls for this (Burkett, 2009; Chapman & Ahmed, 2021). However, the Fund inherently has a re-distributive effect along these lines. The GCF looks likely to support net justice in a distributive sense – justice that is beneficial overall, to a diffuse and loosely-defined population, neither in space nor in time. Flexibility and efficiency

are critical to the prospects of net zero, which this concept borrows from, but must not be applied to the pursuit of justice. It is a contradiction, as demonstrated in South Africa, to do so. This can amount to just effects in a distributive sense, but this approach reproduces, rather than challenges, the drivers of injustice and inequality by not asking the question: 'just for whom?'. My results established that alternative conceptions of justice cluster around situated, specific and place-based injustice. These are incompatible with net justice. Restorative and reconciliatory processes must attend to grief and exclusion. If not, then policy processes and climate funds risk erasing struggle and injustice and propagating a fiction of justice for no one in particular. Cock highlights the varied resistance of rural communities, the environmental movement and the labour movement (Cock, 2019, p. 872). Net justice is a threat to each of these as it de-centres justice from people and places.

6.5 Justice in motion

6.5.1   Theorizing justice in motion

The combined contributions of this thesis (Table 6.3) offer a novel conception of the work of climate finance and how justice is part of this assembly. The power dynamics of an assemblage are determined to an extent by the strata that frame it, which forecloses the option of the type of radical political contestation that some scholars demand (Ciplet & Roberts, 2017; Marino & Ribot, 2012; Swyngedouw, 2010, 2011). The assemblage focuses on the limited and restricted possibility for justice given the foundational power dynamics of the strata. My thesis has drawn attention to the contested nature of the assemblage of climate finance in South Africa, with its diffuse and dispersed agency. I draw on Wilshusen's 'governance in motion' (Wilshusen, 2019) to develop a similar framing of 'justice in motion'. This focuses on the assembly of climate finance, which allows exploration of the plurality of justices that manifest in practice or are virtualised in assemblage.

Table 6.3. Justice in motion

Heuristic device	Justice in Motion
Paper One Political contestation of climate finance in the urgency frame	Actors involved in climate finance willingly and knowingly 'carry forwards' a technical and financial rationale which precludes systematic political challenges and restricts the scope for targeting social justice.
Paper Two Relational-scalar conception of Country Ownership	Power is diffuse, distributed and enacted in concert across people and things, shaped by emergent category of like-minded interests. Attempts to expand the inclusivity of climate finance can impede progress.
Paper Three Legitimacy Machine	Strategy and power enacted via documents through ongoing processes of becoming that can render some connections productive in climate finance assemblage. Exposes the bias in climate finance that places greater legitimation demands on adaptation and grant financing than loans for mitigation.
Paper Four Net Justice	Eschewing reified generality and emphasising plurality of justices, demonstrates how justice is not the inverse of injustice, and cautions against policy-processes pursuing justice that smooth over lived-experience.

Justice scholars have explored the trade-offs between different justice claims and orientations (Patel, 2009; Sovacool & Dworkin, 2015). I contribute to debate on trade-offs in the context of the assemblage, where the contingent possibility makes visible the plurality and trade-offs in project development. I have been more interested in desire than in outcomes as this better represents hopes for the future in discourses of transformation. Desire, rather than need, makes climate finance about possibility, and the future people want rather than the challenges that they face. This approach highlights the dynamism of change, including with respect to outcomes that do not come to pass but are vital to the transition. This enlivens a focus on the capacities and capabilities approach to justice (Sen, 2009) by not taking justice for granted and instead looking for its role in each of the assemblages used in this thesis. I now look at these in turn.

6.5.2 The South Africa Climate Finance Assemblage

The SACFA involves power dynamics in the assembly of climate finance, with inferences for social justice. There is structural bias in GCF programming. It is widely held that adaptation is hard, difficult to quantify and monetize (Colenbrander, Dodman, & Mitlin, 2018; Omari-Motsumi, Barnett, & Schalatek, 2019). This thesis has shown the differing context facing the two DAEs. My scalar conception of country ownership elaborates on who and what shapes project development and how this has led to an impasse for SANBI whilst the DBSA has secured two projects. SANBI's inclusive approach raises more potential for different types of justice and is procedurally more just. It is a good articulation of intelligibility for the GCF, but also struggles to forge productive connections. The legitimacy machine heuristic elaborates on why this is the case, showing how the DBSA readily fixes the South African economy as a vast opportunity, lauded for offering investment potential that exceeds resource availability. SANBI must work hard to refine projects that satisfy an engaged domestic stakeholder set characterized by extraordinary vulnerability and need that vastly outstrips demand for concessional finance. I have argued that this is partly on account of their going above and beyond what is required of them. The desire to programme GCF projects conflicts with a stronger desire to protect their social licence to operate in South Africa. The SACFA exposes the bias in the GCF. The DBSA is celebrated for quantifying the vast opportunity in the private sector whilst SANBI struggles to narrow the vast need for adaptation finance. The DBSA offer lessons around effective and expedient access to the GCF whilst SANBI offers insight regarding the wider potential of the Fund with respect to justice. SANBI's commitment to procedure and equitable distribution exceeds the requirements of the GCF. This is especially important given that the target beneficiaries of their work are mainly the rural poor: people living in acute poverty and extreme vulnerability.

6.5.3 The just transition assemblage

Paper four contributed to climate justice scholarship by using the assemblage to demonstrate the plurality of justice conceptions associated with the South African energy transition. There is a risk amongst scholars and practitioners that debates centre on reified interpretations of justice making it hard to operationalise the concept. Dawson et al. demonstrate this effect with

respect to forestry finance where local equity norms conflict with certain justice interpretations in Uganda and Nepal (2018). This work highlights how universal constructs around procedural justice and values linked to recognition frustrate an operationalisation of justice. Equally, a range of outcomes can be communicated as just in some way or another. The net justice heuristic is invoked to caution against this, and specifically against the policy orientation that distils a vague and diffuse version of justice that glosses over situated, lived experience. Justice in motion explores how people live with and experience energy infrastructure, how this shapes and sometimes stifles hope for the future, and how spatial effects can liberate or entrench injustices. I elaborated contrary visions for the future that are not coherent with one another, where net justice does not correlate to specific injustices nor cancel these out. The presentation of justice as a scale, with justice at one end and injustice at the other (Climate Investment Funds, 2020) is challenged and I argue that this propagates a fiction of justice. This is predominant in policy interpretations of the just transition. This version of justice relies on injustice for motivation but then offers a vision of the future that erases injustices. The South African just transition begins from a position of grave injustice. Some accounts ignore this, but how can justice be the goal when South Africa is the most un-equal country on earth?[50] Justice in motion can explore claims about justice and injustice based in situated and lived experience and highlight the power dynamics shaping how people and things express and pursue justice claims, and how injustice is entrenched. It can highlight the work actors do to make progress, or to limit further injustice, rather than relying on a reified binary of justice.

6.6 Policy relevance, limitations, and future work

6.6.1   Policy relevance

This thesis has conceived of policy as 'wild' (Lea, 2020) and messy (Law, 2004), both of which apply a post-structuralist lens to look beyond reified generalities. Lea pays particular attention to the interplay of expression and content and how these shape policy in accordance with desire in assemblage. This has clear political value, in Lea's case highlighting racist housing policy in Australia. But it also has potential for policy implementation should actors have the

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[50] https://worldpopulationreview.com/country-rankings/gini-coefficient-by-country

option of long-term planning. Climate finance is typified by urgency but there is growing awareness of the opportunity to address justice via instruments like the GCF. This ontological shift might be ambitious, but the climate change response must go beyond 'business as usual' approaches. The combined insights of this thesis should be of relevance to policymakers concerned with development cooperation. It is clear that donors face a range of pressures and operate in uncertain contexts, but it is their own rhetoric of ambition and transformation that shapes policy (Kato, 2014; OECD, 2011a). This in-depth exploration of South African climate finance captures two contrasting efforts to programme funds, each of which is ambitious and seeks transformation. Each has also been frustrated by 'double-speak' from the Fund and the climate regime. The GCF board in particular can be inflexible when it comes to conceptions of risk, value for money and the income categorisation of South Africa which precludes certain finance. South Africa poses a challenge to the GCF: should the GCF do more of what it is good at (funding mitigation via development finance institutions (DFIs)), or try harder at what it is struggling at (financing transformative adaptation, de-centralizing funds, and decision-making)? The Fund will shift its attention to 'harder to reach fruit' in time, but I would urge the Fund and its donors to raise their own ambition and transform the Fund. It could be more responsive and take more risk in South Africa, where the DAEs are shown to be effective partners.

The DAEs could reflect on their approaches to climate finance. The DBSA might be best served continuing to seek growth, experience and access to new credit lines. This, in turn, must facilitate a greater engagement with Southern Africa's greatest challenge: water. The DBSA is well-placed to support the GCF and other Funds to scale-up adaptation finance, perhaps also in a transboundary sense. It is possible to conclude that SANBI ought meanwhile to learn lessons and to narrow their process to expedite project approval. I would argue that this would likely not lead to transformational projects and that, currently, their approach is the right one. The Fund's business model could easily be more responsive to smaller accredited entities, particularly those that are not DFIs. The simplified approval process[51] was an effort to help countries access resources more easily, but I would argue that the Fund should offer more bespoke engagement, rather than simplifying the process that works for DFIs. SANBI needs

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[51] https://www.greenclimate.fund/projects/sap

investment in human capacity and long-term programmatic partnership with the Fund. Finally, the two DAEs ought to collaborate more. Staff from each entity would remark to me about how they met more often at events outside of South Africa than in-country. The future of the national GCF programme would benefit if expertise were combined in pursuit of transformative adaptation.

CSOs remains a vital part of the climate finance architecture and their participation should be preserved and enhanced. They offer vital inputs and have a unique role in terms of accountability. CSOs in South Africa and elsewhere might benefit from two insights of this research in particular. Many representatives would recognise the urgency framing that I deploy in this thesis, indeed many in South Africa articulated its effects to me. Clarity in terms of the re-politicization and the over-flows of contestation outside of the frame could help CSOs target their efforts. Linked to this, I suggest that it would be especially beneficial for this constituency to move beyond reified generalities in their work and communications. This can support constructive critique or contestation based on concrete assemblage. By articulating actor-sets and specifying their dispersed agency, CSOs can conserve scarce resources and better intervene in project development. The assemblage is a useful lens through which to conceptualise GCF project development and country ownership whilst it is happening. Assemblage thinking scrutinizes social reality and is alive to the contingent possibility and variability, making it able to identify and qualify opportunities for change to a greater extent. This way of thinking could usefully complement political economy analysis which tries to understand the drivers and barriers of change (DFID, 2009; Newell et al., 2014) and might benefit from re-appraising the categories that is employs.

6.6.2   Future work

This thesis offers in-depth analysis of the GCF's direct access modality. Future work could look to explore the experience of international access along similar theoretical and methodological lines. This alternative mode of project development will have strengths and weaknesses compared to direct access, including in terms of how it can promote and support social justice. It would be interesting to explore the eventual projects of both direct and international access processes and to carry out comparative analysis of the projects in terms of justice.

Future scholarship could engage more with desire as such a foundational concept in assemblage theory. This thesis touched on the limits of the assemblages. Paper three explored how the DBSA and SANBI are both approaching or exceeding the SACFA. Meanwhile the just transition assemblage deployed in paper four appears incoherent and on verge of de-territorialising. The limits of these assemblages are a fascinating concept which I had little access to on account of the timings and the project cycle and would be an interesting focus of future work, especially regarding possible overflows. Limits of assemblages might well be tipping points where more radical change is possible, where the limits and restrictions of the strata are challenged.

Further work could explore differentiation within justice discourses, for example where certain subsistence emissions are exempt from de-carbonisation planning (McLaughlin, 2020), as an avenue to explore the limits of current justice approaches. I suggest that assemblage thinking might provide the conceptual tools to make greater sense of plural justices. Eschewing the reification of justice this way, scholars could ask how different notions, dimensions, or articulations of justice cohere in social movements. The assemblage, especially as an emancipatory political device, could offer great potential for justice scholars willing to foreground desire. This could clarify certain trade-offs actors make (Sovacool et al., 2017) by offering a novel lens on how different justice dimensions interact.

There is much theoretical potential within the assemblage and one core aspect that this thesis has not explicitly engaged with due to lack of space is coding. Assemblages order matter by a process of coding (Deleuze & Guattari, 1988), where desires shape the selection of and composition of social forms. There is scope to elaborate many of the findings of this thesis by more explicitly engaging with coding, and in particular to further theorize legitimacy. Coding would offer a more granular and narrower lens to appraise the assembly of climate finance, and perhaps is closer to ANT in its analytical potential. For example, future research could explore how effects such as the urgency frame enter into policy contexts. This could be an exploration of the coding of an assemblage or of how this effect is translated, drawing on ANT.

6.6.3 Reflections and limitations

I was only able to access a narrow time period of project development. The DBSA's projects are at a fledgling stage of implementation and SANBI still has no project approved. As such, my focus inevitably trained on the contingent and varied possibility of projects in the making. I have been unable to look much at the effects of the GCF and instead looked at how projects are produced. This has furnished insights beyond an appraisal of whether the GCF is supporting more or less justice in South Africa; it allowed me to explore the potential for transformation. This takes me full circle to an extent. Transformation is demanded and promised by the GCF in equal measure. I have provided a novel insight into what transformation means in South Africa, and the range of desires that order the pursuit of this. Justice is just one part of many.

The assemblage offers scholars the theoretical tools to account for complex social forms and phenomena, but there are some theoretical and methodological limitations. My thesis has engaged with agency, but this vital concept is difficult to clarify and specify. Who or what has agency is often a methodological choice, or outcome, that can reflect luck, bias and existing explanatory frameworks. This thesis sought to reflect the variety and diversity of agency, but cannot account for it all. There are methodological decisions in terms of hierarchies and which agency to include and foreground. This lack of clarity reflects an over-generalised ontological commitment to dispersed and diffuse agency (Wachsmuth, Madden, & Brenner, 2011). I attempted to overcome this ontological open-endedness by bringing strata into my work, to account for historical formation and enduring subjugation and privilege. This can sit uncomfortably with assemblage thinking and post-structuralism in general. Assemblage theory suffers from definitional issues, and the lack of clarity on how to measure and differentiate (Tonkiss, 2011) agency is a shortcoming that renders any account partial and biased. My thesis has sought to represent non-human agency and to demonstrate how this works in concert with that of humans, but there is a theoretical and methodological shortcoming with respect to the extent of this. This is compounded when the agency of actants is measured in terms of its impacts on a humans. There is also a visibility issue with respect to limitations in agency and uneven distribution of agency. Put simply, it is hard to reflect agency when it is lacking.

It is worth reflecting more on desire, however. Desire can seem self-evident, for example it is clear that in South Africa there is a desire to programme GCF resources and conflicting desires

for a just transition. I acknowledge that I encouraged a particular agenda in my research interviews and in my participant observation. The desires that I ordered in the assemblages in this thesis are real, and important to the research participants, but they are partial and variable in time. Assemblage theory, as preached by Ian Buchanan, offers rich analytical potential to explore the power of human desire but I would urge caution on two counts. First, this desire is often under-specified and taken for granted. There should be an exposition of what this desire is, from where it emanates and what alternative desires are evident. Secondly, individual bias renders any assemblage analysis partial and a reflection of the researcher's construction of the field and the question.

The way that I have used assemblage theory, emphasising human desire, can reproduce certain bias on the part of the researcher. Moreover, when these desires are taken for granted, they can limit the complexity of an assemblage. Getting the balance right is a methodological challenge. I have tried to simplify the analytical objects such that they are manageable whilst also retaining the diverse and contradictory range of desire. Another research design might have explored GCF project development through a different lens. I tended, for example, to frame the work in terms of transformation, justice, and climate change. Others might have looked at this with a fiscal perspective, where augmenting government budgets was the primary desire. Equally, a different approach could have looked at the professional work and bureaucratic function of the various actors involved. Project development is demanding work, but it is just work. For some actors involved the desire to access GCF resources could be quite secondary to other things in their roles and lives.

6.7 Conclusion

This thesis has contributed to the theorization and application of politics, scale, and justice in assemblage. There is minimal scholarly engagement around this and little secondary literature by assemblage theorists that explore strata and stratification. The first three papers address this gap. They explain the scope of potential contestation, the dispersed and diffuse agency and ownership in assemblage and of how legitimacy can determine which connections are productive and which are not. The just transition in South Africa is starting from a position of

great injustice. It is unrealistic to think that the end point of this will be a 'utopian justice'. Rather, the best-case scenario might amount to damage limitation and to reducing further losses such as deeper regional economic decline, worsening health inequities and less equal access to reliable electricity. Justice in motion made visible what the GCF project development can do and the agency of actors and actants within this. I have provided insights into the way this dispersed agency works, and where to apply pressure and to look for leverage. Justice in motion helps to see how to go about this work and manage competing priorities.

This scholarship challenged the reification of justice and the social contexts in which it is discussed, whether at the community or planetary level. I have provided insights into how transformation might be possible. Policy makers and activists struggle with un-implementable plans and grapple with impossible goals. Reified generalities contribute to this impasse. The benefit of the assemblage is to make clear the potential, and indeed lack of potential, in a given situation. Sometimes the best intentions further entrench and reify such generalities, leading to more abstract concepts becoming more important. If the international community, national governments and community activists are going to persist in pursuing social justice then it is worth understanding better why things do and do not work. Net justice exposes the fictitious pursuit of justice. The language of justice is creative and contingent, it has a 'world-making' dimension. What unites all the research participants in this thesis is the desire, and hope, for a better future. Net justice de-centres the lived experiences and histories of people. Scholars and activists alike ought to be mindful of this when weighing up the trade-offs inherent in thinking about justice.

The assembly of climate finance highlights the practices and work of developing projects rather than the effects they have. The assemblage offers the tools to explore the potential of climate finance, and the role of justice in this, without full recourse to Euro-American labels and constructs. It is not possible to escape these labels and constructs completely. That this thesis is in English serves to reproduce this. The insights of this study highlight the structural bias and inequality in the GCF. It is harder for SANBI to develop projects, there is less money available to them. The DBSA has made excellent progress and is a laudable partner for the GCF, but the Fund should raise its ambition and target harder to reach outcomes. The DBSA has outgrown the GCF to an extent and is actively seeking different lines of credit. There is great potential for

the GCF to carry on partnering with the DBSA in South Africa, but to turn their attention to adaptation and the water sector. The relationship with SANBI is equally important in different ways. The GCF, and similar financial instruments, would do well to revise their business models for actors like SANBI. It is frustrating that small grant-seeking organisations working on adaptation and trying to de-centralise their resources and decision-making are required to jump through similar hoops to larger organisations programming loans for mitigation. The Fund has introduced a simplified approval process but could go further in re-appraising how it treats risk and value across its portfolio. That would amount to ambition on the part of the GCF and would help realise the somewhat vague notions of transformation.

The four papers of this PhD have demonstrated the value of an assemblage approach in scrutinizing procedure. Assemblages offer an analytical opportunity to scholars to ask about what holds a situation together, what is the purpose and strategy, what are the limits? What function does an assemblage fulfil? Why is it there? That is the benefit of this theoretical approach. GCF country programming exists to design bankable projects and to get money into South Africa. The assemblage takes us a step further and explains what holds this together despite the heterogeneous desires involved. It should be stressed that the GCF will likely have a very positive impact in South Africa and will make a telling contribution towards the nationally determined contribution to the UNFCCC. The GCF offers the hope of positive results and enhanced national capacity to address climate change. It will also deliver social justice, for some. The assemblage exposes the potential of climate finance to realise this justice and, crucially, for whom.

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Appendices

Appendix A: Consent form for participants

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PARTICIPANT INFORMATION SHEET & CONSENT FORM

Section A: The Research Project

<u>Title of project:</u> The Green Climate Fund Project Development Process

<u>Abstract:</u> This study seeks to explore the role of the Green Climate Fund (GCF) in low carbon and climate resilient transformation. Taking South Africa as a case study, it seeks to explore (a) how different actors – the Government, accredited entities, private and civil society actors etc. – constitute the 'climate finance community'; (b) how national actors practice 'country ownership' of GCF activities; and (c) what principles guide actors and networks in the country and beyond.

The study is being conducted by Jonathan Barnes (PhD student) at the Department of Geography and Environment at the London School of Economics and Political Science (LSE). The research is funded by the Leverhulme Trust. If you have any questions or concerns about the study, please feel free to email Jonathan Barnes: J.M.Barnes@lse.ac.uk. If you have any concerns or complaints regarding the conduct of this research, please contact the LSE Research Governance Manager via research.ethics@lse.ac.uk. To request a copy of the data held about you please contact: glpd.info.rights@lse.ac.uk.

Section B: Your Participation in the Research Project

As an individual with institutional knowledge relevant to this research, I would like to invite you to take part in this study. *It is your choice whether to participate.*

If you do decide to take part, I will ask you a series of semi-structured questions. These questions will focus on the role of your organisation and its plans moving forwards. *Note, even if you do decide to take part, you are free to withdraw at any point of the study without giving a reason by emailing:* J.M.Barnes@lse.ac.uk.

Section C: Use of data

Short quotes from your interview may be used in resulting outputs. However, names and identities of associated actors will not be associated in any way with your answers. The information that is discussed during interviews may in time contribute to policy outputs for your own organisation or another in addition to academic work. For further options regarding anonymisation please see "Section D: Consent" below. The results of the study will be published in academic journals and presented at academic conferences.

I am very happy to provide you with copies of these outputs if requested. Indeed, I would hope that you might find the results interesting and useful.

Section D: Consent

I agree to **taking part** in the study	YES / NO
I understand that I am **free to decline to participate** in this research study, or I may withdraw my participation at any point without penalty. My decision whether or not to participate in this research study will have no negative impacts on me either personally or professionally.	YES / NO
I confirm that I have **read and understood the information sheet** provided for the above study. I have had the opportunity to consider the information and ask any questions I have.	YES / NO
I understand that my interview data will be **securely stored for an indefinite amount of time** for the purpose described above.	YES / NO
I agree to the interview being **audio recorded**.	YES / NO
I was assured that **my name** will not be associated in any way with any information disclosed during the interview.	YES / NO

Please retain a copy of this consent form.

Participant name:

Signature: _____   *Date* _____

Interviewer name: Jonathan Barnes

Signature: _____   *Date*

Appendix B: Simplified coding frame

Nodes, sub-nodes	Description
1. Civic epistemologies	
Accepted basis of expertise	Who produces and what is considered legitimate knowledge? Linked to what actors want to achieve and can further their claims.
Methods of ensuring accountability	There is an emphasis on process, representation, technical soundness, and accordance to climate rationale. How does in project development demonstrate this?
Practices of public demonstration	Distinct from results, this refers to how project development processes justify decisions, direction and content. Emphasis on who and what the demonstration is oriented towards?
Registers of Objectivity	What types of knowledge, power and ideas are drawn on to make a claim objective, or sound? E.g. financial, scientific, moral basis for claims. GCF - projects need to be 'bankable'. Crucial financial rationale that trumps other considerations
Styles of public knowledge making	How are knowledge claims are constructed, produced and extended, how shared understanding is generated and disputed?
Control	Who and what is exerting influence over the project development, or other relevant processes? Locate agency, and attempted agency
Justice	'Bucket code' for anything where a subject makes a justice-related claim.
2. Legitimacy	
Contestation and agreement	Key points of discussion and debate around project development. Where do participants see challenges to action, claims, process?
Deep or Long-term legitimacy	'De-facto' legitimacy. Where does an actor invoke that an actor, thing, process is legitimate.
Documents used and invoked	Different ways that documents have agency and actors use documents.
Documents - Effect of practice	Documents are used to move processes forwards, to distil outcomes, to manage contestation, to stabilize debate and facts.
Documents - Effects in practice	Documents shape subsequent GCF project development. Where do documents and documental processes trigger events/objects?

Hobbled by legitimacy	Instances where actors go 'above and beyond', to build/produce extra legitimacy which can be counter-productive.
SANBI CFP	Specific instances where the SANBI CFP is un-wieldy and slow due to efforts to secure legitimacy.
Promissory Legitimacy	Actors or processes seeking support and credibility from implicit or explicit promise of benefit when justifying and making decisions. This regularly manifests in terms of the climate rationale, other results focus or key metrics such as leverage etc.
Additionality	Projects must promise additionally. Whatever this means in each instance. For renewable energy projects in South Africa this additionality is complicated because it does not refer to GHGs, instead the temporal aspect and long-term change is invoked, if never adequately spelled out.
Throughput Legitimacy	The governance processes and structural effects that happen in between input and output (legitimacy). What is the role of documents in this?
Trade-off 'good vs quick'	Where is project development motivated by either speed or efficacy as most important factor? 'Perfect is the enemy of the good' argument versus more thorough approach.
NDA leadership	What is the role of the NDA in this?
3. Power	
Challenges with the Community	How do actors include the community and do benefit sharing? If community plans are poorly planned or executed, they can be damaging. Clarify the barriers to the community participation. Definitional issues with the community as a category/reified generality.
Constitutive power	Where is power less-conscious? Power that is embedded in the day-to-day unreflective actions and activities of life. How does it reinforce and reproduce social structure? Especially interested in how the GCF fits into power dynamics in this way.
Green bank expansion	Green banking model developing in the DBSA and beyond that may supersede the GCF, flipping the narrative and dynamic around donor-beneficiary relationship. Does the GCF need the DBSA more than the DBSA needs the GCF?
Modalities and instruments	How do the different GCF financing modalities and instruments manifest in different power dynamics and affect different groups?

	(Especially grants and adaptation vs. Loans and mitigation).
Narratives of just transition	How is the just transition is used, invoked, steers and constrains GCF PDPs?
	How do other assemblages operate with reference to this, and the kind of co-dependencies involved?
Contradiction in GCF access	Where are there challenges to how the GCF is being used in South Africa?
	Challenges to SANBI, to DBSA, to international entities?
Material components enrolled in the transition	What material-human relations are important in the just transition?
	How do people enrol material?
	When does material shape processes?
Material thing mobilizing desire	When do phenomenon occur/exist that actualizes desires?
	How do people feel about energy/infrastructure?
Motivation to frame 'socio-renewables'	How do people enrol renewable energy in their work?
Privatization of electricity	Key dispute in the transition narrative: polarizing for many whilst others can see how there is a bridging approach.
Renewable energy for the community	Do community members want renewable energy?
	How do different debates about energy manifest in the community?
	How is renewable energy understood?
Telos of renewable energy	What different telos/purpose do people ascribe to energy?
Using the law	Legal challenge, law invoked.
Participation and representation	How are people included in the project development and associated processes?
	How do people understand and criticize consultation?
Race and the legacy of apartheid	How are different groups are represented and treated in the project development?
	How does racial politics shape South African energy, climate and development policy?
	Where are space and race combined?
State capture and coal interests	Claims relating to the process of state capture, especially relating to energy.
Trade-offs: optimal social outcomes vs optimal renewable energy	This is the climate vs. Development issue.
	When and where do actors motivate those social benefits should be factored in, when are co-benefits prioritized? Or become primary?
Winners and losers of the shift	Who benefits, who loses something?

to RE infrastructure	
4. Relational scale	
Endurance	Project development is evolving, not fixed. Things and formations are temporary and becoming and can and will change. Things are emergent and immanent, so what is lasting, how and why? What forms hold?
Change and paradigm shift	The change/transition requires gradual building of a reflexive alternatives Momentum. References to paradigm shift and transformation etc.
Ownership	People (groups and individuals) shape, lead, drive, enrol, follow etc. Coalitions are key to understanding how project development advances and why, and why not something else?
Partiality	The projects goals and outcomes are not discreet and final, they are part of a bigger picture. Are they supposed to be final, they are supposed to catalyse bigger end goals outside of project scope?
What shapes categories of actors	Push/pull? Is there a gap or need? A common or unifying purpose? Why this and not something else? Re-assembling of governance technologies such that they crowd-in the private sector and steer/guide the field in general. The GCF is a new input and resources that does this?
Flat ontology	Ontological equivalence between things (human and non-human). These objects have agency and interact in productive ways.
Alignment	The different human objectives in play get re-oriented around climate rationales (which may already be very close to the pre-existing) in such a way that the assemblage facilitates the achievement of what necessarily must be a shared desire/s or at least over-lapping.
green go-between	Not a GCF official, but a key part of the process. A 'green' consultant, providing inputs that steer, align, advance project development.
Connecting 'up or out' of South Africa	Project development actors making active links to actors/processes/phenomenon outside of South Africa
Links to external capital	Inter-connections between South Africa and external debt/capital etc. Also, external actors (bankers, shareholders etc.)
Lack of control	There are too many connections, too much complexity. Hard for DAEs, or anybody/thing to retain control. Consensus is unlikely.

Materiality	Non-human actants shaping/influencing.
Parts of the country	References to how the traditional scalar components (cities, towns, etc.) manifest in accounts. This includes sectors, which don't necessarily fit in this way of looking at the country.
Magnitude	Size is a product of the number and strength of connections rather than a priori size linked to pre-figured labels and categories.
ANC supersedes government	ANC is more instrumental as a party than as a government and this is restrictive/formative in the transition.
Eskom overshadows and shapes the transition	Eskom, its debt, and its infrastructure dictate what is not possible and shapes solutions.
Fragmentation	South Africa very fragmented. Some axes of connection are more productive and agential. Who gets what they want?
GCF leverage	Idea that GCF wants to see something much bigger than its inputs, and it needs national (and sub-national) partnership and inputs to get these ratios. This is a 'traditional' scalar question in terms of how you get something to multiply in size, which must be grounded in place.
Notion of a country	How do participants talk about and invoke ideas about a 'country'?
Sub-national divisions - levels of government, sub-sectors etc.	Challenge in making sense across levels, especially going 'down' to the local level. Lack of knowledge and information and lack of trust in local capacity.
Time	The length of time involved and/or the amount of time expended can frame the magnitude of something. Where do actors invoke temporal aspects of scale?
Multiplicity	How project development processes are fluid, dynamic and variable. Open to interpretation and meaning different things to different people. Not fixed, becoming, so scope to accommodate difference.
Competing processes	Do multiple parallel activities/processes/approaches lead to confusion or distract people?
Conflict	Disagreement and disparity between actors, organizations and things. Competing versions of ideas, interests and objectives that can be concurrent. Things not adding up.
	Benefit of projects can be spread, poorly understood, difficult or impossible to quantify.

Differential benefit - diffuse and disparate	For a project to territorialize it must frame, qualify and promise this benefit. Additionally comes in here as well. The question around whether the project activities are necessary and deliver something significant climatically.
Partiality	Multiple sets of possibility and that there is always becoming. I.e. we see a set of components in a configuration, doing things, but there is always the renewal and or change of these. In a policy sense, this is useful to think about how this can be manipulated to shape what comes next, how you can get more of what you want.