TRADE & INDUSTRIAL POLICY STRATEGIES

WORKING PAPER

TOWARD A CONTRIBUTION TO A JUST TRANSITION FINANCE ROADMAP IN SOUTH AFRICA

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Trade & Industrial Policy Strategies (TIPS) is a research organisation that facilitates policy development and dialogue across three focus areas: trade and industrial policy, inequality and economic inclusion, and sustainable growth

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ABBREVIATIONS

BBBEE	Broad-Based Black Economic Employment
CSIR	Centre for Scientific and Industrial Research
DFI	Development Finance Institution
ESG	Environmental, Social and Governance
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IFC	International Finance Corporation
IRP	Integrated Resource Plan
NBI	National Business Initiative
NDC	Nationally Determined Contribution
PSA	Power Station Area
SPVs	Special Purpose Vehicles

1. INTRODUCTION

The 2017 United Nations-World Bank *Roadmap for a Sustainable Financial System* report begins with the statement that historically the financial system has responded to the needs of the time, citing examples such as the industrial revolution, international trade and the rise of the Asian Tigers. In all these cases the financial system was fundamental to facilitating the structural transformation of economies while maintaining its core functions to intermediate resources, enable payments and facilitate risk management (UN Environment-World Bank, 2017). In meeting the 21st century's most pressing call to simultaneously meet the challenges of climate change, Agenda 2030 for Sustainable Development, and the desire that the transition to net zero is just – the global financial sector may be facing its most complex historic response yet.

Looking at South Africa, the required response will not only have to be at a substantial scale in the quantity of finance mobilised and invested (R8.9 trillion to meet South Africa's Nationally Determined Contribution (NDC) between 2015 to 2030)[1], but crucially the qualitative role of financing will also need to change. While the current financial system can (and to a limited degree does) fund some climate change and social inclusion programming, a more ambitious transformative just transition agenda will require a financial sector system-level change. In a transformed just economy and society, a new financial system will be characterised by deeply rooted changes in how finance works, its relationship with the real economy, and its relationship with broader national policy ambitions. To set the bar even higher, all of these required system changes need to take place against a background of orthodox financial theory which assumes that markets are efficient, investors rational, and environmental and social factors simply externalities. As Naidoo (2019) argues, the quantitative, algebraic, mathematical and econometric approaches of orthodox finance are fundamentally incompatible with the qualitative focus of sustainability transitions' focus on environmental, social and justice goals.

Against these challenges it is crucial that a collective South African approach is adopted to develop a long-term system-level plan to enhance the ability of the financial sector to mainstream sustainability and just transition factors into decision-making, and to mobilise the necessary resources (public and private, local and global) to ensure a transformed net zero, thriving South African economy in which poverty, unemployment and inequality have been meaningfully reduced or eradicated. Government, the private sector and the international community all have important roles to play in ensuring that sufficient and appropriate finance is mobilised to achieve this aim.

In making sense of these challenges, and how to address them, the use of national sustainable finance or just transition finance roadmaps have been widely adopted (China, Indonesia, Morocco, Nigeria and Singapore). Crucial to the success of any roadmap is knowing where you are going. In the context of a South African just transition this requires understanding what a just transition is and what it looks like, and then articulating the demands the financial system needs to respond to. Only once these needs and demands are articulated, at as granular a level as possible, can work begin on how to achieve them. The roadmap thus articulates the short- and medium-term activities necessary to arrive at an end state of a system-level change in the financial sector which mainstreams just transition transactions in a manner which transforms society in terms of reduced poverty, unemployment and inequality. Elements of a typical sustainable finance roadmap include inter alia: the necessary flows required, the potential barriers to such flows, alignment with international standards, suitable measures and indicators, new mechanisms, product innovations, sequencing,

[1] IFC, 2016.

prioritisation, capacity building and progress measurement, regulatory and policy changes. These elements and design features will be considered and applied as appropriate in a local context.

This paper begins the process of framing a just transition narrative in the context of the South African financial system. Section 2 provides a very brief overview of the current financial system in South Africa focusing on the structural fit of the finance system to the real economy, specifically in relation to small start-up companies, new entrepreneurial activities and new (often untested) technology roll-outs which characterise climate action and social inclusion transition activity. The section also considers actual climate finance flows for the period 2017 to 2018 and illustrates how previously identified structural barriers remain stubbornly intact while actual flows account for just over 10% of the calculated requirement.

Section 3 provides a short overview of current local thinking about the system-level demands of a sustainable transition of the financial sector at a high and conceptual level. This high-level examination of the demands the South African financial sector faces in addressing the multifaceted challenges of supporting climate change action, Agenda 2030 and a just transition provides perspective on the scale and depth of the challenge faced by the sector. The section emphasises that what is ultimately required to support a just transition is a systems level change and not merely incremental and quick fix solutions.

The focus of the paper is Section 4, which presents a framework and approach to understanding the financing needs of a just transition in South Africa. The section moves from identifying the general sustainable transition demands facing the local financial system, as detailed in section 3, to identifying the more granular and specific just transition financial system demands. These more specific demands have been identified using a place-based sample of a range of just transition projects being proposed and implemented in a location experiencing the impact of a movement away from coal. Although the focus of the current work is limited to a just energy transition in a single location and within a single value chain, it should provide learnings and experimentation opportunities which will be applicable across other sectors of the economy and other locations. The approach has been informed by systems theoretical work which identifies the need for on the ground experimentation (Section 3) and interviews with stakeholders in the design phase of the project. Section 4 provides the understanding, rationale and parameters for the crafting of an initial contribution to a Just Transition Finance Road Map for South Africa.

The paper concludes with an explanation of next research step.

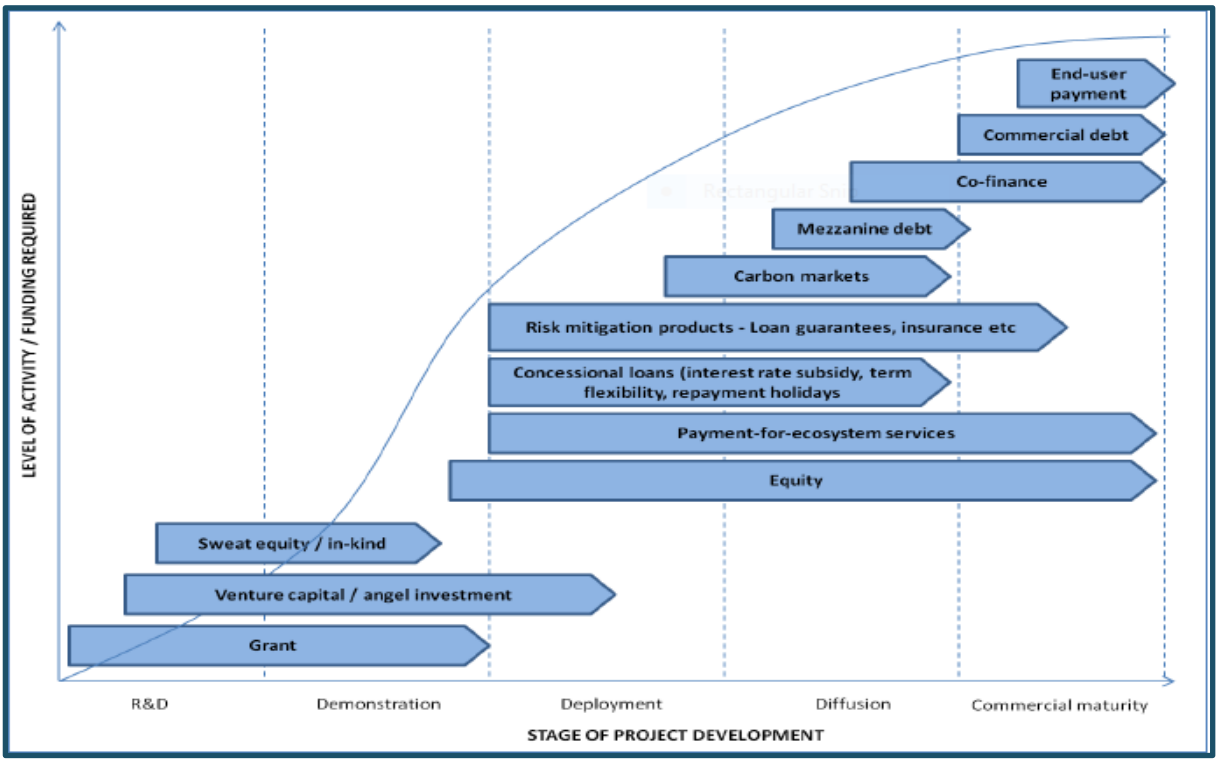
2. OVERVIEW OF THE SOUTH AFRICAN FINANCIAL SYSTEM

Substantial research has been conducted on the South African financial system and sustainable finance (National Treasury 2020; NBI, 2013; 2015; South Africa Sustainable Finance Handbook, 2021; Climate Policy Initiative, GreenCape and Bertha Centre, 2021). Back in 2013, the National Business Initiative (NBI) published a report identifying the key barriers to climate finance in the country. It identified four categories of barriers: policy related, structural, skills and capacity barriers, and fund design barriers. Unfortunately none of these barrier categories have been meaningfully addressed since the publication of the report and as such the report continues to provide a relevant lens through which to understand the context within which the just transition financing narrative in South Africa will be framed.

It is well-known that financing requirements change over the lifecycle of a project and that different types of funding instruments are utilised in different phases, as depicted in Diagram 1. Although this generic depiction applies to all economic projects and is not limited to low-carbon or just transition

projects, the research findings detailed in this report show that the characteristics of low-carbon, just transition projects currently being formulated in South Africa make particular stages of financing and particular instruments more important than others on the pathway to a just net zero.

Diagram 1: Project lifecycle/Funding requirements



Source: NBI, 2013

Essentially the NBI report finds that the majority of funding in South Africa is made available at the commercial maturity end-of-project development cycles through mezzanine debt, co-finance and commercial debt. Predominantely large-ticket price projects, using established technology with low risk profiles and predictable financial returns are funded. The financial system is thus well designed to fund and replicate the existing dominant mineral energy complex which has characterised the South African economy since 1948.

Given this bias, there is a market gap related to early stage, small-scale, higher risk, novel technology-based projects. Unfortunately it is precisely these project characteristics which define the majority of low-carbon, economic diversification, just transition initiatives identified in Section 4. The NBI report suggests that the lack of grant, venture capital and angel investment necessary to support demonstration and early deployment activities is due to a small and nascent venture capital industry; a reluctance of private equity firms to assume technological and developmental risks associated with early stage projects (and a fear of being unable to exit within five to seven years); and the limited availibility of grant funding globally since 2008, and domestically due to limited fiscal space in terms of the government budget and local Development Finance Institutions (DFIs), which operate for profit as the government is unable to underwrite their losses. This amounts to a structural barrier of the financial sector to support the space in which the majority of breakthrough green technology and new business models and inclusive approaches are likely to appear.

A second category of climate finance barriers identified in the NBI report relates to capacity constraints. The research shows that the majority of low-carbon projects (and this is especially true of just transition projects) are based on expanded partnerships because of the novel and multifaceted nature of most climate action projects and those which seek to address social inclusion.

During interviews, NBI discovered that often one project partner demonstrates high capacity credentials in areas such as technology roll-out, financial strength (a substantial balance sheet) and a good implementation record, while other partners (most often the communities or local authorities) have less capacity and no credible track record. In these instances the totality of the project fails to reach the necessary capacity requirements for bankability and funding. This phenomenon was identified in project interviews conducted as part of this research effort, suggesting that if anything the problem has not only failed to be addressed, but may have become more serious as community structures are hollowed out and dysfunctionality in local authorities increases.

An additional area of capacity constraint relates to a lack of project developers in South Africa, and also a lack of skills within the existing project development community. Research shows that low-carbon project developers (as well as just transition project developers) often have limited ability to compose and present effective business plans, which are a minimum requirement for funders looking for bankable projects within the current financial ecosystem. These two examples of capacity limitation underpin the recurrent complaint of financial institutions that South Africa lacks a strong, reliable and good-quality project pipeline. Developmental project pipelines have (among other reasons) long been a limiting factor in South Africa's fight against unemployment, poverty and inequality and this poor pipeline track record is being replicated, (if not deepened[2]) in the fields of climate action and just transition.

While the project pipeline is a well understood challenge in South Africa, it must also be noted that potentially viable projects are also often not funded through the pipeline due to capacity limitations within the finance ecosystem. South African financial institutions often lack internal capacity to source and evaluate low-carbon and just transition projects. The NBI study suggests that many local institutions lack the internal skills to technically assess projects, especially when the projects are based on innovative and novel technology that is not in the mainstream. Due to this limited ability to undertake technical assessments, NBI concludes that financial institutions often misprice risk and make inappropriate funding decisions. In more recent research, and interviews conducted for this project, financial institutions dealing with demands to include Environmental, Social and Governance (ESG) factors in both their risk and investment decision-making have highlighted their internal capacity limitations, exacerbated by limits and uncertainty of definitional clarity and typologies, measurable indicators and benchmarks. Addressing these capacity limitation issues will be an essential element of any South African just transition finance roadmap.

The third category of barriers that inhibit climate finance flows in South Africa relate to fund design. The point raised in the research is that there is a financing bias in South Africa towards energy efficiency and renewable energy projects and that little, if any, climate funding flows towards agriculture, water, transport and other non-energy projects. This is largely due to the high level of certainty and transparency in the energy sector due to clear government policymaking and enabling legislation. Guaranteed offtakes at prearranged prices have also been fundamental to attracting financing into the sector. Equivalent conditions do not yet exist for other low-carbon sectors in South Africa, including important mitigation sectors such as waste and water.

Many of these identified barriers can be seen in actual climate finance flows in South Africa in the recent past. In 2021, Climate Policy Initiative, GreenCape and the Bertha Centre published a study on the South African Climate Finance Landscape. In the report researchers traced climate action-tagged financial flows in South Africa between 2017 and 2018. The results are highly informative in view of

[2] The research shows a trend for social inclusion and just transition projects to be run by scientific and technical people (such as those from CSIR) many of whom have limited business and financial skills.

the NBI barriers research and the points raised in the introduction about the need for shifts in both the quantity and quality of climate action and social inclusion financial flows in South Africa.

Based on South Africa's 2015 NDC (which is presently being updated ahead of COP26), the country committed to reduce greenhouse gas emissions to keep them within a range from 389 to 440 Mt CO2 Eq for 2025 to 2050. It was calculated by the International Finance Corporation (IFC) in 2016 that to achieve such a reduction initial investments of R8.9 trillion[3] would be required between 2015 and 2030, which amounted to an annual investment target of R596 billion per annum for 15 years. In the Climate Finance Landscape report a mere R62.2 billion of climate finance was tracked between 2017 and 2018. This investment represents just more than 10% of the required calculated funding and suggests that some of the key barriers identified in the NBI research continue to exist in 2021.

One of the key findings of the Landscape Report was that the public sector accounted for only 35% (R22 billion) of climate finance flows between 2017 and 2018. Of this R22 billion or 60% comprised South African national government spending, predominantly focused on seeding adaptation projects which were viewed by the private financial sector as more public goods than profitable investments. Key projects financed included water infrastructure, flood protection, social safety nets and disaster management. Besides the focus of government spending it is also important to note the very limited scale of such spending. This reinforces the view that the South African government has created limited new fiscal space to support pathways to net zero and that increased climate finance flows from the public sector will come from the reprioritisation of existing budgetary allocations rather than new (increased) allocations from National Treasury.

Collectively South Africa's DFIs, dominated by the Industrial Development Corporation and the Development Bank of Southern Africa, accounted for only 25% of total public sector investment, amounting to about R6 billion. In the year under consideration most of these funds flowed to mitigation projects in energy efficiency and renewables. This supports the finding that local DFIs continue to support projects that are not developmentally driven and fund projects that commercial banks would happily fund on similar terms. It also demonstrates the points raised concerning fund design and an inability to properly assess and price risk related to new technologies. The lack of investments in water, agriculture, transport and waste also indicate the limitations of government in failing to ensure that an enabling environment is in place for new low-carbon activities.

The final contributors to public sector climate finance in South Africa from 2017 to 2018 were international donors and governments (20%). Flows of R4.4 billion were captured, of which the majority (65%) flowed from the European Union (EU).

Most of climate finance flows tracked in 2017/2018 arose from the private sector, whose R35 billion worth of funding accounted for 57% of all climate finance flows tracked. The R35 billion invested by the private sector was relatively evenly split between non-state controlled financial players (banks, institutional investors, fund managers, private equity and venture capital) which invested R19 billion, and non-financial sector corporates (corporates, philanthropic foundations, donors and NGOs) which invested R16 billion.

While the report did not track private sector funding across stages of project development, it found that of the R35 billion invested by the private sector only R4.8 billion was from institutional investors, private equity and venture capital. This suggests that the structural barriers that

[3] Some academics and practioners are worried about the size of the price tag attached to meeting South Africa's NDC. They believe that inflated budget estimates force Global South countries to approach multilateral lenders which in turn are using such opportunities to impose increased market liberalisation policies. This is an agenda item that requires additional research in the South African context.

perpetuate a market gap for early stage development projects while supporting a preference for later development stage projects which are already commercially viable remain in place, fundamentally unchanged since the NBI report of 2013. In addition, the report's disaggregation of climate finance by instrument suggests that the majority of climate funding in South Africa between 2017 and 2018 was non-concessionary debt (46%) and non-concessionary equity (23%). Only R7 billion funding was concessional debt but unsurprisingly 62% of this concessional debt was raised from blended finance sources, of which 100% was accounted for by international governments and international DFIs. This supports the view that the local South African financial ecosystem does not readily support concessional funding even though such funding is crucial to explore innovative new products, processes, technologies, business models and the implementation schemes that characterise climate action and social inclusion.

In terms of the use of funds, the landscape report found that 100% of private sector climate finance flowed to the clean energy sector, supporting the view that private sector funding in South Africa continues to support climate finance initiatives that are low risk and which (by now) have essentially become mainstream technologies with predictable cash flows and risk-return profiles.

The only real support of early stage projects and non-energy projects was sourced from blended finance sources, which accounted for 8% (R5 billion) of total climate financial flows between 2017 and 2018.[4] Although blended finance projects included R2.2 billion in clean energy projects, the projects were at a smaller scale than those funded by the private sector financial sector players or South African DFIs. In addition to these clean energy projects, 10% of blended financing flowed to demand side management projects in energy, 32% flowed to low-carbon transport projects, and a further 5% to water projects. More importantly 62% of blended financial flows were concessional debt although none of these flows were funded by the South African financial ecosystem.

As such, the context in which a just transition finance roadmap in South Africa is being conceptualised and articulated is a financial system that is not well aligned structurally to key characteristics of climate action and social inclusion projects (examined in detail in section 4). Further, the lack of progress to resolve structural, capacity and fund design barriers to increased climate funding since the 2013 NBI study shows that behaviours of the existing financial system remain stubbornly entrenched and that the quality of investment in South Africa remains essentially unchanged over the past eight years. The Landscape study shows that only just more than 10% of the required climate finance flows necessary to meet the country's NDC are being invested suggesting that not only does the quality of investment need to change but the quantity of climate finance invested also needs to increase substantially.

When thinking about changing the quantity and quality of financial flows necessary to support climate change in a manner which is just, it is crucial to understand that the financing challenge is not just about mobilising more funds but is about understanding finance as a system in the same way as a health or education system. A net zero transition which is just will require an ecosystem-level change. The problem and the task ahead is to advance deeply rooted changes in how finance works and its relationship with the real economy and the country's broader policy ambitions (Zadek, 2018). Thinking about system-level change is difficult.[5] Understanding what will be demanded of the new ecosystem is an essential first step.

[4] This assertion is supported by evidence from the 2015 Impact Investing in South Africa report and a high-level examination of the projects funded by the retail banking sector. Additional research is needed in this area and will be forthcoming.

[5] Lazarus in 2008 called it a "super wicked problem".

3. SYSTEM-LEVEL DEMANDS OF A SUSTAINABLE TRANSITION ON THE FINANCIAL SECTOR

A substantial body of research on system-level change and transitional processes exists (Swilling and Annecke 2006; Spratt 2015; Loorbach et al, 2017; Zadek 2018; Naidoo 2019). There is general consensus that there are core characteristics of any transition process. These characteristics include that i) transition processes are non-linear and disruptive; ii) they involve multi-level and contested interactions; iii) they aim to achieve a new sustainable economic state; iv) they result in co-evolution and the emergence of new systems; and v) that new resultant systems display variation and selection in achieving a new state. In 2019, Naidoo took these generic characteristics and specifically applied them to the context of sustainability transitions[6] and the financial sector. The application allows for a description of specific demands a financial ecosystem needs to meet if the outcomes of the Paris Agreement and Agenda 2030 are to be attained in a manner which is viewed as just.

These demands (or challenges depending on perspective) provide the high-level context against which the research on a just transition finance roadmap for South Africa has been designed. The last of the challenges covered below – the need for experimentation at scale – was a key determinant in the choice of methodology applied for the roadmap project and the work presented in Section 4.

The first core challenge the financial sector will need to meet is that of directional change (Seilviera 2015, Swilling and Annecke 2006, Loorbach et al 2017). Sustainability transitions are not evolutionary in the way that Schumpeter described. Sustainable transitions represent a normative goal which has a pre-determined outcome which is low emission, climate resilient development that is socially just and inclusive (Naidoo, 2019). The predetermined outcome signals the required directional shift required and is articulated in documents such as the Paris Agreement, The Agenda 2030 and the Addis Action Agenda. Each country will apply different levels of ambition to meeting these goals based on competing and contested national processes.

To achieve these ambitions (such as South Africa's NDC for example) two directional shifts are required. The first is directing resources towards new sustainable goals such as lower greenhouse gas (GHG) growth pathways. The second is redirecting resources away from unsustainable practices by divesting from high emission industries and not financing new high-emission projects (such as new coal-fired power plants). As such the financial ecosystem, in response to the challenges of sustainability transitions, must implement directional shifts in their investment patterns and do so in a manner which is consistent and integrated.

Redirecting resources towards low-carbon activities in a just manner and away from carbon-intensive investments that are often inequitable essentially leads to a situation where the financial ecosystem experiences a co-existent system impact (Swilling and Annecke 2006, Naidoo 2019). The system is required to support a new socially inclusive, environmentally sustainable economic system, while simultaneously destabilising an old, environmentally unsustainable, socially unequal economic system. The simultaneous creation and destruction of portfolios is difficult to achieve due to lock in, existing inertia of incumbents, and vested interests.

This is a challenge which many South African financial sector players are currently struggling with as they have existing high exposure to heavy GHG emitting industries, and are being approached to fund new fossil fuel-based projects which offer high-risk adjusted returns and predictable cash flows. At the same time, as shown above, the pipeline of sustainable projects remains challenging for the

[6] Sustainability transitions in this context include specifically the transitions necessary to meet the requirements of the Paris Climate Agreement, the Sustainable Development Goals and the Addis Action Agenda.

sector to get behind. On the issue of inertia, these financial sector challenges will not be addressed at a systems level until (at a minimum) incentive structures change and capability constraints (to assess new technology projects and correctly price related risk) are addressed.

The third demand on the financial sector is that the time dimension of the required transition (goals for 2030) is inherently urgent. Historically transitions and technological revolutions typically unfold over an extended period of time. In the case of the climate change and broader sustainability transitions time is a dominant factor and the need for an accelerated transition process creates substantial temporal dynamic pressures (Naidoo, 2019). These temporal dynamics raise tensions between what is required to support the necessary transitioning, and ensuring the stability of the financial system (National Treasury 2020). Naidoo (2019) argues that against this background the financial sector needs to programme investment priorities across different time scales, providing access to resources when they are needed. By way of example, she suggests that in the short run investment to rebuild and repurpose critical infrastructure damaged by climate change (without locking in high carbon practices) needs to be funded. In the medium term the system needs to allocate resources towards sustainable production, consumption and other system-level changes; while in the long run the financial system needs to maintain a new net zero sustainable economic state through the quantity and quality of its investments and funding practices.

The ability of the South African financial system (as with most developing countries) to undertake such mobilisation is limited both at a quantity and a quality level. Access to international sustainable development finance flows will be central to supporting the increased flows necessary in the short to medium term, while international support will also be essential in supporting capacity building and the de-risking necessary to fast track institutional and product innovation to support short-run resource deployment.

One of the greatest challenges the financial ecosystem faces in meeting the demands of a sustainable transition which is just relates to conducting business in a highly contested social context. The policy context in a transitional process (and especially in relation to such a transition being just) is highly contested and involves considering new policy voices. Mistra (2018), Montmasson-Clair (2021) and the NPC (2020) argue that the sustainability transition (and particularly the drive to ensure that the transition is just) will bring about new standard bearers of change most prominently in South Africa: communities, the youth and civil society. These new pioneers (Naidoo 2019) in this new system will show that government is no longer the sole architect of sustainable transition processes. Policymaking will become more difficult and more complex and will require a more inclusive and participatory approach involving broad coalitions and flexible iterative feedback loops (Montmasson-Clair and Patel 2020; NPC 2020; GIIN 2016). This will require the financial system to engage at a level where it has previously not participated and to become more dynamic and robust in designing new projects which prioritise environmental and social outcomes, innovate new financing arrangements, adopt non-traditional business models and accommodate different social partners' project, development and implementation needs (Naidoo 2019). This idea was succinctly articulated by a CEO in the impact investing space who suggested that in future financial institutions would need to "make deals" rather than "buy them". Essentially the financial ecosystem will need to participate in novel and untested economic initiatives – a challenge to which the structure of the current system is particularly ill-suited.

The final challenge raised in all the transition literature (and articulated in interviews across all stakeholders groups) is that the financial ecosystem will need to embrace contextual experimentation and learning to enable it to transform into a new system which is compatible with, and supportive of, desired just transition outcomes.

The crux of the argument is that the current approach to investment decision-making and deal preparation is based on proven approaches and methodologies, and a given range of certainty regarding expected returns (essentially a business as usual scenario). If a new financial ecosystem is to emerge it is likely that neither a proven approach, nor certainty regarding returns, may be present. To address this absence, the players in the financial ecosystem will need to experiment at scale, test new and novel approaches in different contexts, and consider different parties to transact with and alternative forms of co-operation. This experimentation and learning forms part of the roadmap journey over time which ultimately results in an ecosystems-level change.

Naidoo (2019) argues that the intensity of the demands placed on the finance ecosystem (and hence the level of experimentation and learning that will be required to support deep-level system change) will be determined by the intensity of the sustainability transition process adopted at a country level. So a country with lower environmental and social ambitions will require less intensive adaptation of the financial ecosystem and hence require less experimentation. A country with high environmental and social ambitions will require more intense and fundamental change and hence need more experimentation and learning. Experimental and adaptive approaches will require long gestation periods and substantial time in which to be assessed as effective and efficient or not. Given the ambitious goals of South Africa's NDC, the short-time horizon to 2030, the high levels of poverty, unemployment and inequality in South Africa (exacerbated by the COVID-19 pandemic), and the fast tracking of the transition away from coal in Mpumalanga there is no time to be lost in urging, supporting and facilitating the South African financial system to start experimenting at scale in order for the ecosystem to achieve the desired just transition to net zero goals.

The remainder of this document focuses on the interim findings of an action-based research approach which aims to understand the characteristics and challenges of just transition financing in a South African context. The research suggests: i) a possible approach to the identification of what will be deemed a just transition project in the South African context; ii) a possible categorisation of different groupings of just transition projects in terms of their just transition ambitions and ticket size; and iii) a description of the characteristics of such projects which will require system-level changes to the broad financial ecosystem.

4. PROJECT DEVELOPMENT AND THINKING

4.1 Approach to framework development

At its core the project seeks to develop a framework to think about what quantity and quality of financing will need to be mobilised and invested in South Africa to support a just transition. Understanding the quantity and quality of required financing will provide a destination for which a just transition finance roadmap can be structured. The overall approach adopted is one of using a place-based analysis and identifying planned just transition projects so as to understand the characteristics of the financing needs of such projects. Once these characteristics and any special requirements are understood, pathways to change the financial ecosystem in a manner which responds to these needs can be plotted. Although the framework is devised based on the energy transition in a single location it is believed that the thinking could be applied to different sectors and locations. The first step is to construct a framework in which to consider what is a just transition project.

The systems level approach described above highlights that transitions take place in a socially contested context. In South Africa this contestation is intense and differences between stakeholders as to the parameters of who and what should be included in an understanding of a just transition threatens to paralyse any forward momentum on the topic (be it at a discourse, research, policy, implementation or funding level). Indeed many stakeholders are purposefully utilising the contested

nature of the concept as a weapon to ensure the maintenance of the status quo and business as usual (Montmasson-Clair and Patel 2020).

In interviews with a broad range of stakeholders, a frustration that was consistently raised is that South Africa is trapped in a high-level, abstract, conceptual vortex of definitional debate on the meaning of a just transition while on the ground the first impacts of transitional pathways to net zero were being felt in the very real form of job losses and downstream business closures. Consensus emerged that the approach should attempt to crack the high-level definitional debate by taking a first step towards establishing traction for the just transition concept through experimentation with identifying, categorising and describing just transition projects and the financing challenges to ensure their implementation.

The idea of generating traction, learning by doing, experimentation at scale and action research was endorsed across the board by stakeholders; not because it promises concord and agreement about what a just transition is in a South African context, but because it will move the just transition debate and on the ground activity forward. The climate change community has taken 40 years to agree a definition and typology of green activity. The just transition debate has been mainstreamed in South Africa for only two years,[7] thus moving to have a first stab at a practical, working framework of just transition projects is a first step along what will be a similar substantial, multi-year, contested and iterative journey.

To move thinking about a just transition in a South African context forward, the idea of developing a unifying framework of a just transition to which all stakeholders need to buy into has been rejected. Instead a spectrum of just transition ambitions ranging from low just transition ambitions to high just transition ambitions is posited. Just as the current Broad-Based Black Economic Employment (BBBEE) system in South Africa has four levels, which indicate different levels of black economic empowerment ambition and attainment as measured by agreed quantitative metrics, so the framework approach is to establish a spectrum of just transition ambitions measured by appropriate quantitative social and justice indicators. The idea behind adopting a spectrum approach is threefold. First it negates definitional disagreement as a source of inertia and inaction and moves understanding away from a binary conceptualisation that a project either is or is not a just transition project. Second the spectrum approach includes the broadest array of projects and undertakings thereby maximising sample size and the scale of learning and experimentation possible at this nascent stage of creating traction. Finally a spectrum approach lays the groundwork to incentivise parties to increase their levels of ambition over time.

A team of anthropologists, sociologists, economists and community practioners have been tasked with developing a set of initial indicators.[8] The work will build on social indicators that are currently utilised in mining company corporate social responsibility investments which seek to meaningfully improve the quality of life of communities in a sustainable manner. Current indicators used include: jobs created, new livelihoods created, increased access to services and utilities, skills upgrading, new skills creation, increased income levels at a household level, and increased community asset ownership.

Existing work suggests that a certain threshold of indicator achievement is necessary for community-based changes to be sustainable and provide improved community resilience. Interviews with Synergy Global and various mining houses also show that certain social indicators have a greater impact on economic competitiveness than others.

[7] COSATU, South Africa's largest trade union federation, raised the issue in 2011.

[8] This work is expected to be completed by mid-September and will be incorporated if future drafts of this paper and model.

Over and above working on appropriate social indicators for a spectrum of just transition ambitions, there will be an attempt to see if possible justice indicators could also be included in the analysis. The idea of potential justice indicators derives from work originally contemplated by McCauley and Heffron 2018; Just Transition Research Collaborative 2018; Cahill and Allen 2020; and Montmasson-Clair 2021. The idea is that a just transition can be considered at a disaggregated level based on three dimensions of justice: procedural, distributive and restorative justice.

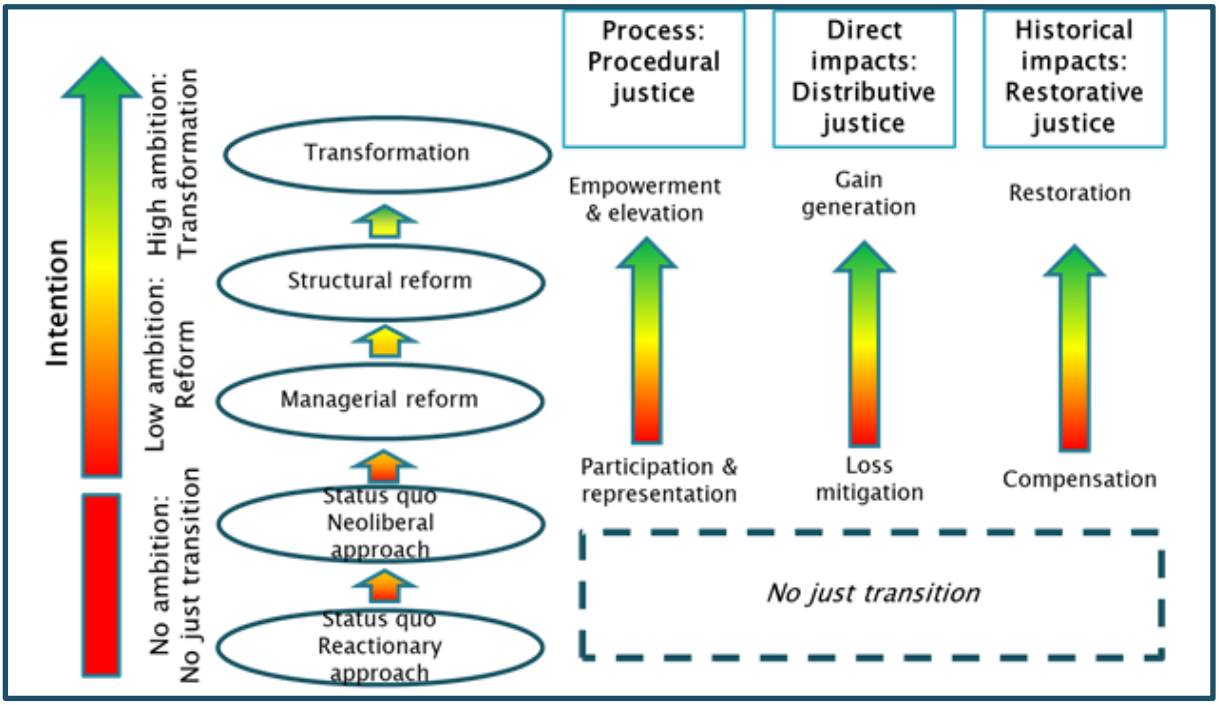
4.2. Disaggregating a just transition and the spectrum of ambition in South Africa

Procedural justice focuses on the form of the process undertaken and aims to facilitate an inclusive process. Essentially it suggests that procedural justice is attained when a bottom-up process is followed, which gives vulnerable and marginalised groups a voice in the decision-making process. In South Africa it is often insufficient to simply create a space for vulnerable and marginalised groups to have a voice, often enabling and empowering activities are also necessary to capacitate communities to play a meaningful role in bottom-up decision-making.

Distributive justice is what most people think about when they think about a just transition. Distributive justice deals with the distribution of risks and responsibilities. It basically focuses on addressing the direct impacts of a transition process which are most commonly understood as the loss of employment and loss of income. Distributive justice aims to address the double inequality around responsibilities (who should pay?) and impacts (who should benefit and how?) (Montmasson-Clair 2021). At its most basic, distributive justice is often understood as reskilling a worker and finding such a worker alternate employment.

Restorative justice considers past, present and future damages that have occurred against individuals, communities and the environment and provides a framework to rectify or lessen the damage of harmed communities.

Diagram 2: Dimensions of justice and a spectrum of just transition ambition



Source: Montmasson-Clair, 2021

For each of these three dimensions of a just transition there can be a range of level of ambition. For example, in relation to distributive justice, which is what is most often considered as the central pillar of a just transition, the ambition level may be to mitigate losses arising from the transition either by way of new employment opportunities or new livelihoods for the community. In this way affected stakeholders are no worse off than they were before the transition. A more ambitious distributive justice goal may be to make affected parties actually better off than they were before the transition. In this way distributive justice could be meaningfully transformative. A low ambitious procedural goal could be to hold community workshops where communities are either represented directly or through representation. A more ambitious procedural justice goal could be to ensure that communities have access to financial, human and informational means to empower them to meaningfully exercise their agency (Montmasson-Clair 2021). Similarly, a low ambition restorative justice approach would be restoring and redressing waterways and lands negatively impacted by environmentally unfriendly practices in line with minimum legally required standards. A more ambitious restorative agenda would seek to provide compensation for the ill effects of such activity such as health impacts from water and air pollution.

Montmasson-Clair (2021) articulates five levels of just transition ambition: the status quo reactionary view; the neoliberal status quo view; the managerial reform approach; structural reform; and the transformative approach. These are shown on the left-hand side of Diagram 2 as different levels of just transition ambition.

In the reactionary status quo approach, proponents of the view reject both the “just” and the “transition” aspects of the just transition agenda. Proponents of this view actively punt the continuation of the exploitation of existing opportunities within current socio-economic structures (including the use of fossil fuels) and bank on solutions such as carbon storage to deal with climate change issues. If such a view were to dominate and a transition to net zero did occur, vulnerable and marginalised communities and workers would be left totally unsupported (Montmasson-Clair, 2021).

In its neoliberal form, Montmasson-Clair describes a view of the just transition driven by market dynamics. In this view, proponents focus on new economic opportunities in existing and next generation industries suggesting a soft transition away from high carbon pathways to low-carbon pathways with the parallel development of green jobs. Vulnerabilities of workers and communities are largely ignored. Montmasson-Clair argues that neither of these status quo views are compatible with the just transition agenda.

The three remaining views: managerial, structural and transformative reform, are all compatible with the agenda of a just transition and reflect an increasing level of ambition.

The managerial reform level of just transition ambition does not see changes to the economic model of South Africa or a fundamental shift in the balance of power, but it does embrace the idea of acting to improve equity and justice within the existing socio-economic landscape. It is predominantly focused on aspects of distributive justice. Its core activities are based at a firm level and seek to improve worker conditions (occupational health and safety and environmental standards) and to look after workers negatively affected by transitions through enterprise level actions such as job retraining, pension schemes and other forms of worker compensation. The approach does not extend beyond directly affected workers at a firm level.

More ambitiously, proponents of structural reform levels of ambition seek to address both procedural and distributive justice (Montmasson-Clair 2021). This approach aims to address the roots of the problem and not merely its symptoms. Proponents of structural reform support the development and implementation of modified governance structures, democratic participation, decision making and ownership expansion. The approach is driven by the agency of affected groups

and includes workers and broader communities. Montmasson-Clair considers measures such proponents would apply, including citizen-owned energy co-operatives, strong social safety nets, and new forms of participatory governance.

The highest level of just transition ambition is described as transformative. It implies the overhauling of the existing economic, social and political system, which is considered responsible for the current social, economic and environmental crisis. The approach is consistent with heterodox thinking. Montmasson-Clair argues that no transformative blueprint exists but that this just transition approach would be rooted in bottom-up, grassroots democracy, social/public ownership, strong social protection and industrial policy, and inter and intra-generational solidarity.

A crucial point to emphasise is that in the framework presented below, all levels of just transition ambition are accepted as valid with the exception of the reactionary status quo which ignores both the transitional aspects and the justice aspect of a just transition. Transformative ambition is able to be included because the framework operates at a project level and thus transformative outcomes at a micro-level are possible even in the context of existing economic, social and environmental structures. The ability to include ambitions that are transformative in nature (even in a non-transformed socio-economic environment) is viewed as an important benefit of the project-based approach and what it can teach us moving forward.

4.3 Place-based analysis

The project focuses on a place-based analysis. The sub-national province of Mpumalanga is the chosen location. Mpumalanga accounts for 80% of South Africa's coal mining and electricity generation (TIPS, 2020). Mpumalanga is viewed as a national "transitional hotspot" as the province is highly economically undiversified with substantial dependence on Eskom and its fleet of coal-powered electricity generating stations and the coal mines which provide the fleet with its inputs. Eskom has announced the decommissioning of several of its coal-powered plants in Mpumalanga and this will have knock-on effects on the coal mining industry.

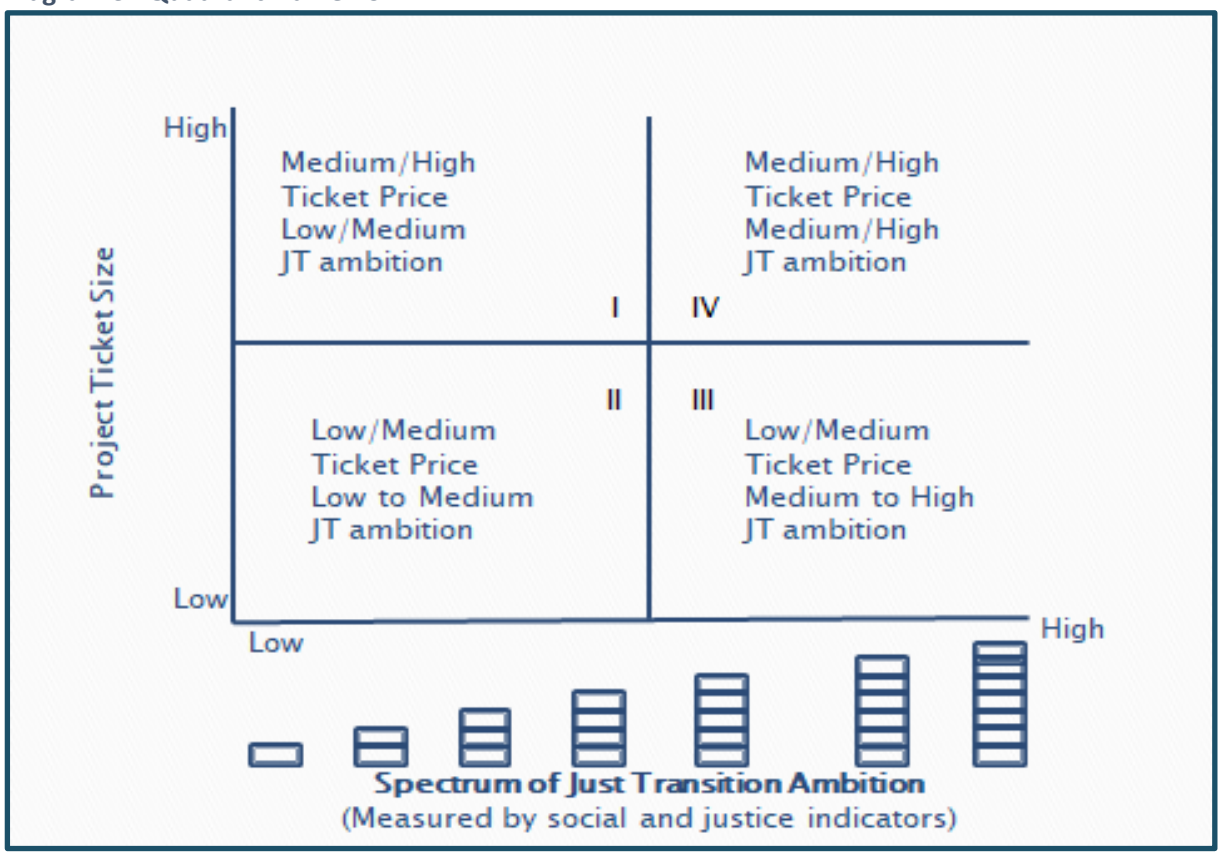
Mpumalanga accounts for 8% of South Africa's population at just over 4.3 million people. It produces 7% of the country's gross domestic product (GDP) with mining being the largest contributor at 22% of provincial GDP. In 2015 Mpumalanga had a 57% unemployment rate across all age cohorts, but this figure rises to 65% when considering the youth. Only 32% of the population live in urban areas. The true exposure of Mpumalanga to the phase-out of coal and the decommissioning of coal fired power plants and the knock-on effect of decreased demand for coal is best described at a local authority level.

Four municipalities in Mpumalanga are particularly vulnerable to the movement out of coal. eMalahleni derives 44% of its gross value added (GVA) and 26% of its employment from coal-related activities. In Steve Tshwete, coal-associated GVA is 34% and coal-related employment 17%. In Govan Mbeki, 22% of GVA and 11% of employment is derived from coal, while in Msukialigwa 34% of GVA and 14% of employment are at risk in the movement out of coal. In absolute numbers Eskom employs 12 000 workers while the key mines in Mpumalanga employ 87 000 miners (which accounts for 86% of all coal miners in South Africa.) The province also faces future job loss pressures from Sasol, a chemical producer based in the province which employs 26 000 workers and which will also need to reduce its carbon footprint and usage of coal in the near future (TIPS, 2019). In addition to direct and indirect job losses in the move away from coal, Mpumalanga's broader economy will also suffer as many small businesses and most mono-economy town businesses rely on selling goods and services either directly to Eskom, coal mines and/or Sasol, or rely on selling such goods and services to the population who earn their incomes from coal-based activities (TIPS 2019; 2020; 2021).

4.4 The framework

The framework has been devised to capture projects which will contribute to the diversification of the Mpumalanga economy and offer alternative employment and livelihood opportunities for workers and communities negatively impacted by the movement out of coal by Eskom and its knock-on impacts in coal mining.[9] As the purpose of the framework is to inform the necessary changes which will be required by the financial ecosystem to ensure the mobilisation and flow of funds necessary to finance a just transition, the framework seeks to capture both a project's just transition ambitions and its financing requirements.

Diagram 3: Quadrant framework



Source: Author

Project ticket size is chosen as the vertical axis variable as it is the most basic measure by which to indicate whether a project is likely to attract the interest of financiers in South Africa or not (given the context explained in Section 2). Interviews with stakeholders in the financial sector supported the view that low to medium ticket size projects in South Africa will fail to attract mainstream financial sector interest (or funding) because of the lack of venture capital, limited private equity interest in smaller projects, no angel funding and the fact that due diligence costs will be greater than the value of the transaction in small ticket-sized projects, making transaction costs too high to be profitable for the banking sector. Moreover the continued existence of medium- to large-scale investment opportunities available in the South African market means that mainstream funders are not actively seeking new investment spaces in which to participate. As such, projects in the bottom half of quadrant's II and III will find it difficult to attract funding from the current financial ecosystem (which includes overseas development finance).

[9] For this iteration of the project the risks associated with Sasol's movement away from coal at its Secunda plant are not included. Also not included are the biodiversity and agriculture risks due to climate change in the province.

Projects in the top half of the quadrants may attract funding (especially if de-risking activities are present for novel technology-based projects). Projects in quadrants I and IV have ticket sizes that will be of interest to profit-maximising and development financiers. The dividing line of the quadrants on the vertical axis has been specifically chosen at the ticket size at which the majority of interviewed financial sector stakeholders said they would in principle be interested in looking at the transaction.

The horizontal axis seeks to measure just transition ambitions and will be measured in terms of quantifiable social (and hopefully) justice indicators. Work on these indicators is forthcoming. At this stage, for illustrative purposes a low just transition ambition project may seek simply to provide alternative employment for workers directly impacted by the transition away from coal. This alternative employment opportunity would be shown in the single box on the left hand side of the horizontal axis. The job would need to meet minimum standards of decent work as defined by the International Labour Organization (ILO, 2015). On the right-hand side of the horizontal axis multiple social indicators and justice measurements would be attained in a high ambition project, as shown by the cumulative stack of indicator boxes on the right of the axis. Illustratively such indicators could include: decent alternative employment opportunities at improved salaries to those earned in the coal sector, new and sustainable livelihoods for the impacted community, new asset ownership by communities and workers, job retraining and reskilling and the up-skilling of communities, restoration of land and waterways to ameliorate environmental abuse of the past, empowered community participation in programme development, and increased access to services, especially energy, water, sanitation, health and education.

Movement from the left to the right of the horizontal axis will indicate not only the cumulative addition of extra social indicators but will hopefully also capture incremental quality improvements in given indicators. For example, an alternative job opportunity at the same salary as a coal-based job would be reflected to the left of an alternative job opportunity at a higher salary in an alternate industry. These nuances in measurement may only become clear over multiple iterations of the framework and expanded experimentation and dialogue.

Projects in quadrants I and II are categorised as having lower just transition ambitions than projects in quadrants III and IV as measured by social and justice indicators. As will be explained below, however, this does not necessarily translate into projects in quadrants III and IV being less desirable than those in quadrants I and II. This is because the model can only capture projects at a moment in time. Some projects, which in themselves have low just transition characteristics, may lead to future downstream activities that meaningfully impact the socio-economic and environmental horizons of workers and communities in the area. For example, re-powering an Eskom power plant to a battery storage facility or a green hydrogen plant may only create a limited number of direct employment opportunities for the proximate worker and community population when the conversion occurs. Over time, however, such an investment will catalyse entire new downstream industries and countless commercial and livelihood opportunities which may meaningfully impact workers and communities as measured by social and justice indicators.

Low just transition ambition projects are also included in the model and not assigned lower preference than higher ambition projects, because in the face of 53% general unemployment in Mpumalanga and 65% youth unemployment it would be unconscionable to argue that mere job creation of decent work opportunities is not a desirable project outcome and does not make a contribution to socio-economic justice. Indeed the argument has been raised of where along the horizontal axis a just transition practitioner or a financier looking for just transition projects should “start to care”. In these early days of thinking of a just transition in South Africa, all projects in all

quadrants are important and have a contributory role to play.[10] What is of interest initially is how the financing needs of projects in quadrants III and IV differ from those in I and II, and hence what eco-system changes and short-term experimentation with financing mechanisms, instruments, approaches and facilities will be required to see such initiatives come to fruition.

4.5 Project sample

Requests to participate in the sample were extended to the national Department of Trade, Industry and Competition and Department of Fisheries, Forestry and the Environment. In Mpumalanga requests were extended to the Department of Economic Development and Tourism as well as the Local Economic Development Units of the four most impacted local authorities: Gert Sibande, eMalahleni, Steve Tshwete and Govan Mbeki. Private sector firms operating in various sectors in Mpumalanga were approached. These included operators in the agricultural, mining and forestry sectors. In addition a rich source of projects were project development special purpose vehicles (SPVs) set up by industrial players in Mpumalanga mandated specifically to generate just transition programming. Projects were also sourced from Mpumalanga's three Chambers of Commerce. From the public sector, projects from Eskom and Centre for Scientific and Industrial Research (CSIR) were also requested. In total, a sample of 26 eligible projects were identified and project surveys sent out following face-to-face interviews.[11] The survey comprised two parts: an investment section which identified the key project characteristics from a commercial, economic and financing perspective; and a social section which covered issues related to participative, distributive and restorative justice.

In an attempt to maximise the sample size and breadth of projects, eligibility requirements were kept to a minimum. Fossil fuel-based and brown projects were excluded. Economic diversification projects which were not necessarily green (but were not brown) were included, as were all green projects. Projects at all stages of development were considered as long as they met the basic requirements of having a dedicated project developer or champion who was resourced to develop the project further and had access to at least some preliminary funding to undertake initial development. Projects which were only conceptual and had no allocated resources (human or financial) were excluded. Projects have been anonymised and referred to by sector to meet current non-disclosure arrangements.[12]

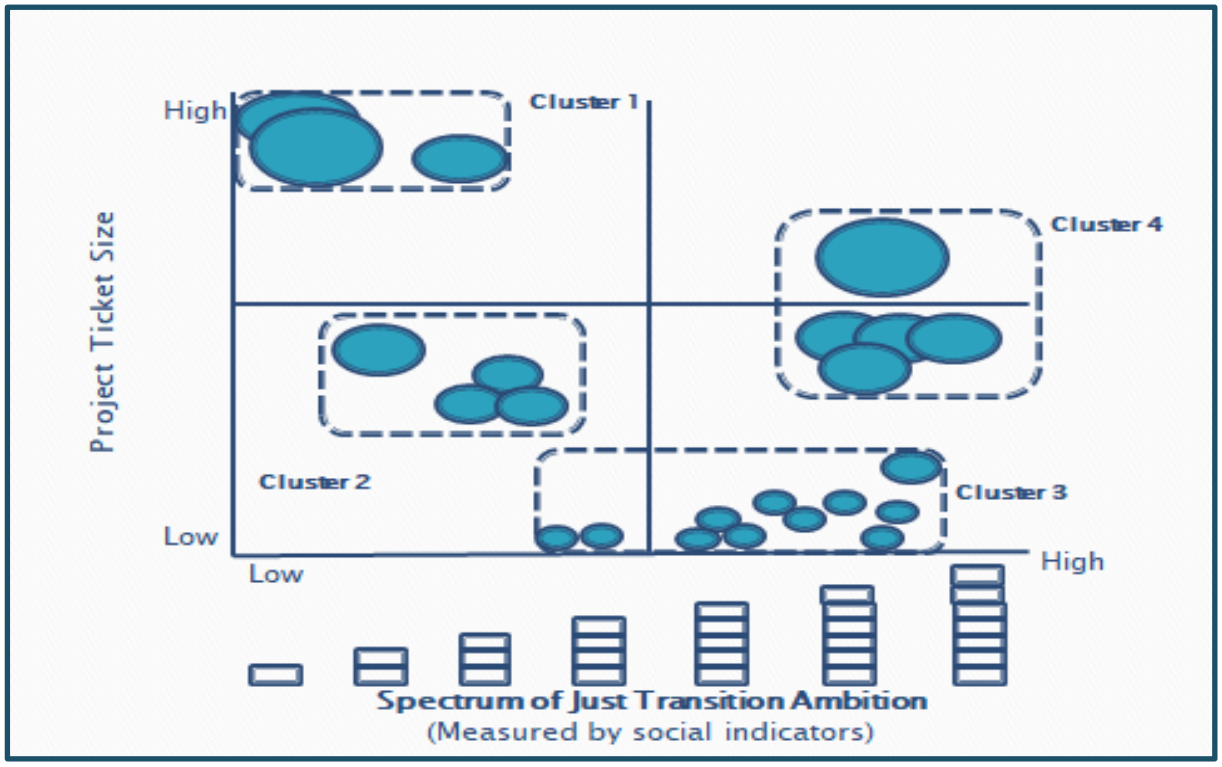
Plotting the projects within the framework resulted in four clear clusters or categories of projects. Each cluster has specific characteristics and financing challenges. As will be shown, if these clusters are representative of the types of just transition activity which will need to be funded along South Africa's pathway to net zero to ensure that the transition to net zero is just, then current analysis shows that some categories of projects will be funded within the current financial ecosystem; some categories of projects will require adaptation and innovation within the existing ecosystem; and for the most transformative and high-ambition projects system-level changes will be required.

[10] It is accepted that future iterations of the model will in all likelihood have to introduce a more specific line (perpendicular to the horizontal axis) that distinguished a just transition project from a non-just transition project.

[11] Survey results are still incoming and once all surveys have been completed and analysed a more detailed and quantitative analysis of projects will be forthcoming.

[12] Eskom projects are referred to by name as the company has made a public call for proposals.

Diagram 4: Populated project framework and key clusters



Source: Author

4.6 Project clusters

Using the Mpumalanga sample, projects fall roughly into four distinct clusters (three outlying projects are excluded from the graph for ease of representation).

4.6.1 Cluster 1

Cluster 1 represents a portion of Eskom's planned project portfolio. The company plans internally around two tiers of projects. The first are "on-site" projects which relate to repowering and repurposing decommissioned coal fired power plants. These projects have as their primary driver the provision of electricity using renewables and clean energy technologies. Power Station Area (PSA) projects focus primarily on local economic development programming in the municipalities in which power stations are located. PSA projects are key to the company's social inclusion and community upliftment goals in line with its commitment to ensure that the transition out of coal is just. The company's on-site projects are captured in Cluster 1; its PSA projects are captured in Cluster 3.

Cluster 1 projects come with a ticket size ranging from R2 billion to R35 billion. Currently five projects are being considered and in April 2021 Eskom issued an expression of interest for three decommissioned stations: Camden, Komati and Grootvlei. According to the call, projects need to be tech-ready and innovative, offering a win-win situation. A conceptual business plan is all that is required at this stage. If focused on repurposing rather than repowering, business plans must talk directly to the national legislation requirements that decommissioned power plants together with their surrounding brown field sites need to be rehabilitated.

In a press release in July 2021, Eskom announced that it was approaching global lenders to raise US$10 billion to fund renewable energy generation projects in line with the Integrated Resource Plan (IRP) pathway.[13]

The timing of the pitch in the lead up to COP26 is based on the reality that "South Africa can offer [funders] the biggest point source of carbon emissions reduction in the world" (GM, Eskom's Just Energy Transition Office Interview). Sourcing funding at this scale will be relatively easy and the World Bank, African Development Bank and several DFIs have all indicated interest. There is consensus that Cluster 1 projects can be funded within the current financial ecosystem using traditional instruments and mechanisms (albeit possibly through innovative transaction structuring). In terms of innovative transaction thinking several local and international organisations (public and private) have put forward options for a "South African Energy Transaction" some of which suggest the creation of a Just Transition Fund (equivalent to the EU's 100 billion Euro Fund) as part of the Eskom transition funding transaction[14] (Meridian, 2020).

Cluster 1 projects have relatively low just transition ambitions, which will mainly be realised through modest direct job creation (estimated to be in the hundreds rather than the thousands per project) and community consultation. It is, however, crucial to take into account that certain repowering options (such as solar and battery storage and green hydrogen) will create the potential for substantial job creation, enterprise development and small business opportunities as downstream activities emerge to support the repowered fleet and national grid. One of the limitations of the proposed framework is that the snapshot approach excludes induced and crowded in opportunities which will emerge over time as a result of an initial project. Failing to capture these knock-on effects results in underestimating an initial project's final impact as measured by social and justice indicators.[15]

4.6.2 Cluster 2

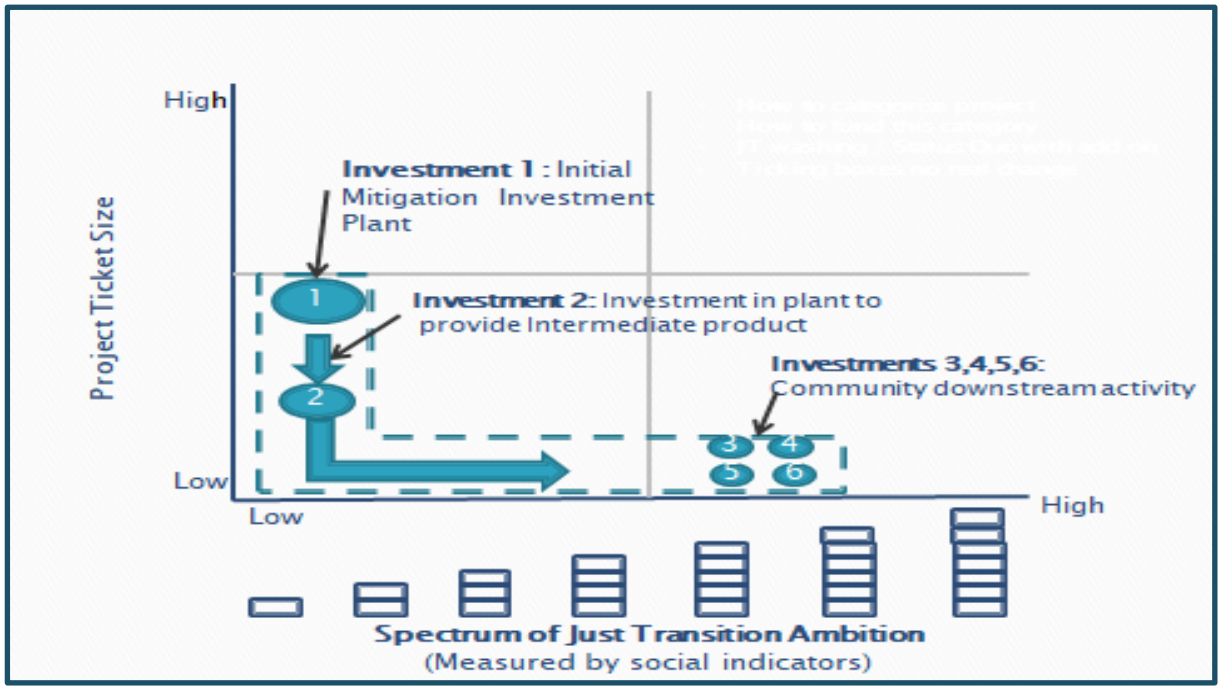
Cluster 2 projects are characterised by moderate to medium just transition ambitions but high enough ticket prices to make them attractive (in principle) to the current financial ecosystem. Projects in this cluster range from R500 million to R1.5 billion. All the projects in this cluster have been developed by large listed South African companies operating in either the mining or agricultural sector in Mpumalanga. All four projects have strong green credentials and support the diversification of the Mpumalanga economic base. Three are mitigation projects while one is focused on increased resilience in the agricultural sector. All four have modest to medium just transition ambitions, mainly in terms of new job creation and importantly in the agricultural project job retention and livelihood security (in the face of fluctuating agricultural produce commodity prices and decreased and more expensive access to energy and water). All the projects in the cluster have also undertaken substantial steps to include procedural justice elements in the projects and have empowered communities and workers to be able to meaningfully engage in conversations about their futures.

[13] The 2019 IRP suggests that Eskom decrease its 41 000MW of coal generated power by 35 000MW by 2050.
[14] This thinking will be explored in depth in the drafting of the roadmap and offers an exciting possibility to leverage the core energy transaction as a means to creating a fund focused on the justice aspect of a just transition. To date, versions of such a possible fund do not explicitly include a justice element but are focused on climate change funding.
[15] In interviews with Eskom's Just Transition team they suggested that Cluster 1 be given a moderately higher just transition rating than currently depicted. As Eskom has not yet selected projects to move forward with they were unable to complete on-site project surveys, although they did complete some surveys for their PSA projects. As such the position on the horizontal axis is based on interview findings and a comparison with other projects to determine a relative position.

While the ticket price and pedigree[16] of the project originators make these projects attractive to the existing financial ecosystem in South Africa, the projects all share two characteristics which are challenging. The first is that they are based on novel technology which has not previously been implemented in South Africa (although the technology has a track record abroad). The second is that the just transition benefits which arise for workers and communities only materialise if downstream and complimentary activities are funded and curated. This example differs from the Cluster 1 example in that the downstream activities related to the core (capital intensive) investments are part of the upfront project plan and are included in the developer's mandate and funding requirement.

Diagram 5 illustrates one project in Cluster 2 at a more disaggregated level, using the framework to illustrate the funding challenges of the project and its three distinct financing requirements and the just transition characteristics of each investment.

Diagram 5: Complimentary investments in single project



Source: Author

In the illustrative example, the core investment, which is the initial mitigating investment in Diagram 5 (Investment 1), is the only portion of the overall project that has a sufficient ticket price to be attractive to the current funding sector. Given the risk profile of the investment (using technology untested in South Africa and untested offtake usage) it is likely that such an investment could attract private sector funding only if some de-risking capital was also available (possibly by a DFI) to provide a better risk return profile. An alternative to de-risking activities could be the issuing of subsidies or government incentives. Investment 2 (R100 million) and investments 3, 4, 5 and 6 (R1 million to R5 million) would not be attractive in terms of ticket price with or without additive de-risking funding or subsidies. However, investment 2 is crucial to provide the inputs to investments 3, 4, 5 and 6. Investments 3, 4, 5 and 6, which range from R1.2 million to R5 million have the highest just transition ambitions and include community asset ownership in facilities that can provide livelihood opportunities and reliable revenue streams in a sustainable manner. The complete suite of investments will at an aggregate level be unattractive to the financial community even though

[16] Some projects in this cluster are developed with the support of large listed companies operating in the area. These companies provide status to the project and in some cases also offer guarantees for project loans.

investment 1 as a standalone investment would be attractive. In this situation, it would be crucial to ensure upfront that the suite of projects is funded as a single unit. If not, the very real risk is that investment 1 is funded on attractive terms because it positions itself as a just transition investment (i.e. the suite of projects) while only delivering on investment 1 and not seeing the subsequent investments getting funded and implemented. This would de facto be "just transition washing" investment 1.[17]

It is likely that Cluster 2 type projects with a suite of complimentary investments with lower ticket prices and higher ambitions could be a focus area for offshore DFIs to operate. A mechanism to mobilise developmental funding for small scale, high ambition projects (3, 4, 5 and 6) and to balance this mechanism within the suite of larger-scale investments, could be crucial in ensuring that Cluster 2 type projects are indeed funded in the current ecosystem. In the medium to long term more system-level changes regarding new and novel decision-making and the adoption of new approaches to investing would be sought in line with the creation of a more supportive financial ecosystem.

4.6.3 Cluster 3

The majority of the project sample is found in Cluster 3. These are small-scale projects with ticket prices ranging from R1.5 million to R20 million but with high just transition ambitions. Most are sourced from mining houses' SPVs specifically mandated to develop projects which positively impact communities proximate to coal mines, the Mine Water Co-ordinating Body, local municipalities, Mpumalanga chambers of commerce and the CSIR. The majority of projects have been developed around land and water rehabilitation and the opportunity such restorative investments create for expanded (and sometimes new) community-based agricultural opportunities. Waste reuse and repurposing projects are also prominent in the cluster.

Cluster 3 projects have been purposefully designed to achieve high just transition ambitions. All are strongly grounded in community participatory approaches and score highly on procedural justice dimensions. In terms of distributive justice, most projects offer a small number of direct jobs and increased and expanded livelihood opportunities for mine and power plant-adjacent communities. Because of the scale of the interventions most projects only create employment opportunities in the 10s to 100s and not in the 1000s. Further research on issues of scale and replicability is ongoing and will be included in future work. Where most Cluster 3 project score highly in terms of distributive justice is in relation to community ownership of assets, and hence opportunities for communities to enjoy capital appreciation, sustainable revenue streams and access to an asset which can be used to leverage additional funding. This creates a potentially transformative opportunity for the communities involved. All the Cluster 3 projects also score highly in terms of just transition ambition in relation to restorative justice. The vast majority of projects focus on ameliorating environmental harm, especially harm to arable land and the pollution of water ways. The circular economy and use of waste also feature in many of the sample projects.

From a just transition perspective, this cluster of projects offers high just transition ambitions and experts believe that such scaled projects are likely to dominate the just transition project pipeline in the future. As the current financial ecosystem in South Africa is not well structured or positioned to support such a trajectory, the need for new mechanisms, instruments and methods of engagement will be required. From a financing perspective the projects are unattractive for two reasons.

[17] This example of just transition washing is not the same as the example in Cluster 1. In Cluster 1 the project developer does not plan for, accept responsibility for, or market the idea that it will deliver just transition outcomes and impacts attributable to downstream investments. In Cluster 2 the project developer explicitly claims just transition credentials and delivery of just transition impacts even though it has not put in place a bankable project for the higher ambition parts of the overall project suite.

First, almost all the projects are based on new and novel technologies to restore either land to pre-mining levels, clean polluted waterways or valorise waste materials from coal-burning activities. These technologies and approaches have neither a proven technical, nor a commercial track record; and most only exist at a pilot phase of development. As shown, the current South African financial ecosystem is not structured in a manner which supports the adoption of new and novel technologies in the pre-commercial phase of project development. When such funding can be sourced it is usually on non-concessionary terms and little (if any) grant funding is available outside of that provided by the donor community. It is foreseen that the pre-commercial nature of such projects will be a system-level characteristic of such projects in all sectors and locations for some time to come.

Second, most of the projects in Cluster 3 have a low ticket price, and a business model which the existing financial ecosystem does not easily support. The low ticket price of R1.5 million to R20 million means that using the existing cost structure and operations of the extant financial ecosystem and the due diligence costs related to these investments tend to be greater than the ticket price. These high transaction costs are the reason most financial stakeholders interviewed gave for not funding these types of projects. In addition, most of these projects are based on new business models which are designed specifically to achieve improved just transition outcomes. Models typically involve multiple partnerships involving parties with no or limited commercial track records; ownership models which seek to transfer assets to communities; democratic governance systems with bottom-up grassroots participation and limited ability by owners to negotiate offtake agreements and expansion opportunities.

Cluster 3 finance mobilisation and investment is unlikely to be supported by the existing South African financial ecosystem (although some interesting case studies of successful funding has been done and case studies are forthcoming). Although a small minority of Cluster 3 projects can be funded by changes and improvements to the existing finance ecosystem, supporting a transformative shift which is just will require the mainstreaming of funding such projects in the usual course of business. Such a transformation would require a system-level change, and this will probably be the single largest challenge that a just transition finance roadmap will need to address. Focus is also required from the project supply perspective to better understand the issues of community project scalability and replicability.[18]

A final point to note is that most of these projects have been designed and are being driven by project developers with greater technology capacity and capability than financial capacity and capability. Less than 5% of the sample projects would rate as bankable at present and project developers in the sample generally require substantial technical assistance to get their projects from a technical opportunity to a bankable opportunity. This has always been a problem in small-scale projects in South Africa and a just transition finance roadmap will need to speak directly to the requirement to address technical assistance at scale, and the development of the capacity and capability of the local project development community at a systems level.

4.6.4 Cluster 4

Cluster 4 has been termed a “unicorn cluster” due to its high ticket price (a cumulative total of R6 billion) and very high just transition ambitions (bottom-up planning and buy-in, new assets transferred to communities, new livelihoods at scale, and restoration of the natural environment). Although projects with these magnitudes are unlikely to be easily duplicated in the short run, the cluster importantly illustrates what is possible if transformative, out-of-the-box thinking is embraced at scale. Through the demonstration effect it is hoped that other projects of this scope and ambition

[18] Work on this is forthcoming.

will be developed. As the CEO of the company originating the project commented "this is a project based on what we *should* do, not what we *can* do".

The cluster represents a single intervention with a suite of interrelated and inter-dependant projects. The project needs to be implemented as a whole, although substantial staggering of timing and ownership is proposed. It originates from a large mining house with substantial interests in Mpumalanga. The originators started to develop the cluster of projects based on four principles: i) to see their environmental liability (mine rehabilitation) as a potential asset; ii) to reassess their requirement to continue owning mine land when they were closing down mining operations, iii) to see the mine as part of the community and not outside of the community; and iv) to view the mine (and all mine land) as part of the broader natural ecosystem of Mpumalanga. As a result, the project sees the transfer of ownership of substantial landholdings to the community, and the creation of project opportunity scales in terms of the natural ecosystem (5 000 square kilometres). The project aims to sustainably improve the livelihoods of 1.2 million community members. The responsible project development team is well-funded and appropriately capacitated and feasibility studies have been completed for all elements of the project suite. Offtake agreements are in place when required and commercial viability has been determined. The projects are at a bankable stage.

The suite of projects is based on new and novel technology which has no local track record (and a limited international track record), and an ownership and governance model which is non-traditional in terms of the current operations of the financial ecosystem. The project also includes: non-traditional parties in the development; implementation and on-going operations of the proposed sub-projects; phasing which will require less high return projects to be funded in advance of higher return projects; different funding requirements in terms of impact investing versus risk-return transaction investing; longer tenors and an increased need for patient capital; some smart subsidies to moderate real versus perceived risk; early onboarding of the financial sector; expanded expectation of financial parties in skills and capacity development; utilisation of new technology implementation including block chain; and non-traditional players approaching the financial sector and talking to capital.

The project's out-of-the-box thinking and funding requirements will not be easily met by the existing financial ecosystem. The challenges encountered by the project team in securing funding will provide crucial inputs to thinking about the novel transactions, facilities, mechanisms and institutional changes which will be required to support transformative projects of this nature on a systems-level basis.[19] Such input will be crucial in moulding the challenges a just transition finance roadmap for South Africa will need to address.

5. NEXT STEPS

The research provides an initial evidence base on which to articulate the likely quantitative and qualitative funding requirements of a range of just transition ambition projects in South Africa. Understanding these requirements will be deepened through forthcoming work.[20] At this stage, the four clusters provide a more granular understanding of the demands that will be placed on the existing finance ecosystem, some of which the system will find easier to respond to than others. Although the evidence base is project focused, it is crucial that while project-level challenges are identified and possible solutions sought to address them, what a just transition finance roadmap is working towards is not an incremental approach of new products and new mechanisms to meet short-term project demands. Rather what the roadmap seeks to deliver is a pathway to a

[19] The Just Transition Finance Roadmap research team has been invited to sit in on financing meetings, which will support the drafting of an important case study and learning experience.

[20] Expert reports have been commissioned on: social and justice indicators, financial innovations, communications and outreach and scalability and replicability.

transformative system-level change which fundamentally supports a just transition financial ecosystem change at the level of how the financial system relates to the economy, society and the environment.

Future research will translate these project level characteristics into system-level challenges which a just transition financial ecosystem will need to address over time. Initial thinking to date suggests that key system-level changes which will characterise an ultimately reconfigured just transition financial ecosystem will include, inter alia:

- The need for a future just transition financial ecosystem to become involved in project development processes earlier than in the current system. Some suggest that a just transition ecosystem will need to make deals as well as buy deals.
- A future just transition financial ecosystem will also in all likelihood be required to facilitate (or directly provide) increased financial sector education and capacity building to parties to transactions as a normal course of business.
- A new just transition financial ecosystem will need the capacity and structures to deal with non-traditional parties approaching them with deals and multiple and new voices talking to capital.
- A future just transition financial ecosystem will need to develop approaches to projects being inclusive of multiple partners, many of which will have limited (or no) commercial track record.
- A future just transition financial ecosystem will need to, at a systems level, provide increased technical assistance support as project pipeline drivers are increasingly likely to lack the skills necessary to bring a project to a point where a financing decision can be made.
- A just transition financial ecosystem will need to adopt and experiment with new and different approaches to where in an organisation funding decision-making occurs. This could include structural and hierarchical changes to the traditional role of the credit committee; and decision-making matrixes that expand beyond only monetary returns and narrow ESG interpretations.
- A future just transition financial ecosystem will need to be innovative and creative in terms of instruments, mechanisms, facilities and processes. Innovation to deal with a range of challenges will include seeking solutions to, inter alia: increasing tenors and extending the role of patient capital; increased deal complexity, which includes both impact investing and return-driven investing simultaneously; increased use of blended finance; and de-risking activities. In addition, solutions would be required to allocate appropriate funding instruments to pre-commercial and SMME-scale activities; improved methods of assessing and pricing technology risk and environmental risk; working with the public sector to create smart subsidies; approaches to deal with funding suites of projects with mixed ticket prices; new avenues and methods of collaborating with foreign investors and DFIs; utilising novel technologies including block chain; accommodating different and novel business and ownership models; and increased use of funding of funds.
- Finally, none of the above will occur unless the new just transition financial ecosystem has in place a new set of Key Performance Indicators and an Incentive Structure. Unless transacting bankers and fund managers are incentivised to increase the mobilisation and investment of funds into just transition activities, and until institutions are reporting on achievements regarding such investments in their normal course of business, there will be no meaningful change.

After further interrogating the system-level demands that a new just transition financial ecosystem will need to respond to, the research will focus on the different pathways, and dimensions and elements of such pathways, to achieve a newly articulated just transition financial ecosystem in South Africa.

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