It’s the economy, stupid
Framing a conversation on the green economy

Literature review report as part of the outputs of a research project funded by the Green Fund of the Development Bank of Southern Africa

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This project builds on work undertaken by the NBI in 2012-2013, again with technical support from KPMG, and with financial support from the Prosperity Fund of the British High Commission in South Africa, focusing on barriers to low-carbon finance. The earlier project identified a number of barriers in a range of categories. The surprising factor was, however, a number of structural barriers within the financial services economy in South Africa – it is these structural barriers that are a key focus of this Green Fund supported project. The original reports are available at www.nbi.org.za or www.nbigreeneconomy.wordpress.com.

This is the kind of document that is never complete. The rate of innovation and change in the space of finance and development is impressive and new examples are being continually unearthed. This document is intended as a discussion document and we are very happy to receive your comments and further contributions. Some of the comments in the reports are hypotheses developed during our many, many enjoyable conversations and we welcome challenge. Finally we would welcome the testing of our ideas through more robust academic research. Should you wish to contribute to this project please review the companion website (www.nbigreeneconomy.wordpress.com) or email comments to Steve Nicholls on SteveN@nbi.org.za.
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1. Introduction

It’s the economy, stupid

South Africa, like many countries (both developed and developing), faces a challenge of economic transition. Our historical management of social and environmental issues and our global economic context necessitate us having a conversation about how these issues impact our growth prospects and the current and future structure of our economy. During the last 12 months the project team has had many, many conversations about this transition and were faced with a great variety of views about this transition, with each person talking about a different kind of economy. We spoke to advocates of the green economy, the inclusive economy, the circular economy, the transformed economy, the shared economy, the brown economy and even the red economy.

To a large degree the prefix we put before the word economy reflects our bias. Environmentalists might talk about the green economy. Human rights specialists might talk about the inclusive economy. Engineers might talk about the circular economy. We are all in effect trying to communicate the same simple idea - the economy we have is not necessarily the one we want.

In reality there is only one economy and we cannot have a meaningful conversation about the economy if we divide it into narrow chunks. Furthermore, any attempt to discuss the needed economic transition is derailed when trying to define which aspects of the economy are included in a specific definition. A big part of this project’s goals is to establish some frameworks that enable us to meaningfully engage in a conversation about economic transition and effectively establish positive and negative impacts across the whole economy.

We therefore decided to call this report “It’s the economy, stupid”. The origin of the phrase is Bill Clinton’s campaign to unseat George Bush Senior one of his internal campaign slogans was "The economy, stupid". The intention of which was to focus his campaign team on the core issues of the economy that would see him into the presidency. Since then, in the form of "It’s the economy, stupid", it has become somewhat of a US political catch phrase, even appearing in TV shows like "The West Wing" and "Weeds". We think, given that one objective of this project is to unite stakeholders around progressing our economy and the futility of the debate around varying definitions, this is a most appropriate title.

Our project objectives are complex and difficult to describe and so this report attempts to slowly build the argument using a couple of key devices. Assumptions are highlighted in bold and form the basis of our argument. We also introduce discussion frameworks progressively into the report that we hope will guide the rest of this project but also that will have application outside this project and be able to facilitate discussion in other developing countries. Finally we have done some specific analysis, which forms the bulk of this document, to start this conversation in South Africa. The literature review report presented here is the outcome of the first phase of this project and will feed into the second and third phases of the project. The next phases attempt to identify specific areas where business, finance and government stakeholders can engage to create investment scale opportunities in the South African economy.
Core project assumptions and project goals

The title of the full project is “Green Economy Finance: a research study on the design of policy frameworks and financial instruments to enhance investment in the green economy in SA”. It is borne of previous work we have done and is premised on the following assumptions (our theory of change if you will):

Assumption 1: we will facilitate a better conversation about economic transition by avoiding definitional issues and focusing on economic principles.

Assumption 2: trying to talk about economic transition solutions at the level of macro-economics leads to fuzzy, potentially unhelpful solutions pitched at a very high level. Furthermore, having the conversation at this high level excludes stakeholders who may have meaningful inputs but who are not macro-economists.

Assumption 3: building on the outcome of our previous work we believe that there are significant structural barriers in South Africa’s (and other developing economies) economy and financial services sector that limit investment in appropriately transforming our economies. We believe that identifying a number of very specific investment areas that have the potential of both unlocking these structural barriers and providing a well-directed transformational benefit is critical.

Assumption 4: achieving investment at the scale required is not possible through the actions of any single stakeholder (be they government, financial services, project developers, civil society or business). The coordination of these stakeholders to achieve scale requires a set of framing tools and a common terminology.

Assumption 5: finance is the missing element in the conversations we have about economic transformation. We believe that technical feasibility needs to be supplemented by financial and economic feasibility and that the financial community must explicitly and deliberately be included in these discussions. We need to talk about how we innovate finance provision towards ensuring our investments have positive, transformative outcomes.

“Vision without action is just a dream, action without vision just passes the time, and vision with action can change the world.” Nelson Mandela

Assumption 6: Mr Mandela said it best but a unifying vision is critical. Due to there being multiple stakeholders required to identify and solve problems, we cannot hope to make progress without a unifying vision. A vision that helps us agree core priorities and objectives. The NBI believe that the National Development Plan is the best existing example of a unifying vision. It is agreed by the majority of stakeholders and endorsed by government, but most importantly it was developed in a most unique, positive and collaborative manner.

Understanding international finance is not easy but yet it can make or break a particular project. Particularly when that project is based on new, untested or innovative technologies, which often form the basis of economic transition projects. As identified in our first report there is a tension between the need to develop new technologies as envisioned within South Africa’s policy environment and the “fast follower” character of South Africa’s business and finance sectors. As an
illustration of how easily we can gloss over the finance needs one of our project team participated in a workshop of development experts where a potentially transformative project in Cape Town was raised. The idea was well received and quickly moved up the priority list. When challenged on how much it would cost the project champion declared that it would require R2 billion, which would be easy to raise through international climate funds, specifically the Green Climate Fund. Putting aside the politics of how the Green Climate Fund will be disbursed, to date the entire global green capitalisation is roughly US$10 billion, well short of the US$100 billion goal. It is unlikely that a single project would get such a large percentage of the total disbursement. Clearly what is needed is a package of finance from multiple sources of funding with different risk tolerances that enable financing of key projects.

As a consequence the research project overall aims to do a few things:

1. Provide specific areas of focus to guide recommendations for the design of policy and financial instruments that would accelerate investment in the economy in South Africa. This investment should acknowledge the need to specifically address environmental issues but also other social, governance and economic outcomes. This will alleviate more challenging and potentially circular discussions at a macro-economic level and engage stakeholders in providing specific solutions according to their specific expertise. This is the objective of phase 2 and 3 of the project.

   In this context it should be noted that there is a bias in this project to issues that could be considered green. We believe that capital is not currently allocated optimally and that the environmental externalities that are not priced into the system need addressing. This also reflects the intention and goals of our funding partners.

2. Develop a set of conversation frameworks through this technical report that enable the discussion, in order to enable item 1, these conceptual inputs include the following:
   - A framework that explores the underlying principles of all potential definitions of an economy. This common terminology will help support constructive discussion
   - Towards a uniting vision, an evaluation of South Africa’s guiding documents on economic and environmental planning that illustrates the direction and focus of our plan and exposes gaps. Central to this is an assessment of the NDP as a basis for unifying our efforts going forward
   - A framework that describes the levers or channels that create an enabling environment connecting specific projects to the economic principles or objectives we seek
   - A set of frameworks that enables stakeholders to explore their international context, their national context (specifically exploring structural barriers in finance) and the project context. These frameworks are also designed to introduce key concepts around the interaction of project development and implementation, finance and policy
   - Aggregate some examples of global best practice in financial innovation and policy reform

The overall project research will be conducted over an 18-month period. It will be delivered through a literature review (this document) and a managed process of stakeholder consultation and
collaborative design to produce recommendations on policy and financial instruments to overcome the identified barriers to investment in the green economy.

The research team is an established partnership between NBI and KPMG and is led by Steve Nicholls (NBI). The project is designed to leverage the substantial knowledge base and network created through initial work conducted by the NBI and KPMG on barriers to low-carbon finance, and is delivered in a cost-effective manner, including a significant co-investment from the NBI membership and KPMG.

This research represents the most significant attempt at understanding and unlocking barriers to investment in the green economy through the design of policy and financial instruments. It is expected to assist with the design of incentive structures to deliver on policy instruments (including flagship projects, NAMAs and NAPs), provide a view on the functioning of private public partnerships in finance (required for the green economy, in particular infrastructure development), and the implementation of private and public-led investment initiatives in the green economy.

As mentioned, the work under the project is to be delivered in 3 phases:

This document describes the outputs of the first stage of the project (the literature review) focused on preparing the conversation frameworks that will enable the stakeholder intensive phases 2 and 3. Brief notes on how the workshops for phase 2 will be facilitated can be found in Appendix I.
Specific research questions

As reflected in the original project proposal, this project aims to address the following four related research questions:

1. How do different stakeholders (government, business, civil society, and labour) view and define the green economy in South Africa? What are the common themes underlying these different conceptualisations and how can they be packaged into a commonly accepted set of principles that would facilitate project development and implementation?

2. Based on the set of principles derived, which elements of the green economy are addressed in the existing policy landscape across different areas of government? Where are the overlaps, synergies, inconsistencies, trade-offs and gaps in the current policy landscape, and what are the resulting policy imperatives for the green economy? What needs to be done for the private sector to better understand this policy landscape and respond to it in a manner that drives green economy investments?

3. What financial instruments and frameworks can accelerate investment into the green economy by overcoming structural barriers and providing bottom-up insights into policy development? Which stakeholders are best placed to develop these instruments and what support do they require? What lessons can be learnt from international best practice and how might these international innovations be localized in South Africa?

4. How can the number and quality of low-carbon project proposals be increased? What role can different stakeholders play in increasing the capacity of project developers to design and implement bankable low-carbon projects?

Aims and objectives of the research

This project is designed to achieve the following five aims and objectives:

1. Build consensus on the principles underlying a green economy in South Africa and create the framework for different actors (and in particular the private sector) to define and clarify their respective role(s) in its development

2. Support alignment between the efforts of different stakeholders on conceptual and practical solutions to promote investment and build momentum for further efforts

3. Create the evidence-base and frameworks that allow for the development of incentive structures for the implementation of the provisions of the Climate Change White Paper and other policy statements on the green economy, including flagship projects

4. Facilitate the transfer of knowledge and skills related to the green economy to a wider network of researchers and practitioners

5. Enhance the capacity of project developers to design and implement bankable projects

Structure of this document

The introduction (chapter 1) to this document that you have just read introduces the overall intent of the programme and some of the fundamental assumptions that drive the logic of our study. The rest of the document builds the argument, tools and examples that we need to structure a process to establish some systemic intervention areas that could aid in economic transformation.
Chapter 2 introduces three frameworks we propose to consider developing countries project finance context. The first looks at an international context and proposes that each country needs to resolve barriers that relate to institutions, structural (and policy) issues and instruments. The document picks up specific international best practice in relation to institutions, structural reform and instruments in chapter 5 and examples of financial innovation in chapter 6. It is intended that these will assist in the discussions in phase 3 focussing on solution development.

Chapter 3 deals with the principles framework we intend for use in avoiding circular conversations on definitions. We also hope that the principles framework will provide a means to evaluate positive and negative trade-offs across interventions. Chapter 4 proposes the NDP as a unifying vision around which business and government can unite and uses the principles framework to map a number of South African policy frameworks. This allows us to assess the bias and interactions between different policy documents and helps contextualise action.

Chapter 7 concludes with describing the way forward and our hopes for the project.
2. **International, national and project conversation frameworks**

The effective funding of new technologies requires the cooperation of different sources of funding, with differing risk tolerances, across the financial value chain from research and development to full commercialisation. Further, the emergence of fundable projects depends on clear, unifying policy signals and policy certainty. A successful economic transition, dependent on new behaviours and new technologies, requires project developers, policy setters and the finance institutions to work towards a common goal. In the interim there are many technologies that are mature and could have a significant sustainable development impact. Funding this latter category also requires overcoming barriers but given their maturity and potential sources of finance are likely to be easier to implement.

Understanding your context in terms of funding a green transition is critical. The project team has therefore identified four frameworks that help countries assess their context as it relates to the provision of financial services in the interest of economic transition. We believe that the frameworks will, especially for developing countries, help frame a conversation that will drive at solution development. At the very least it will enable some intelligence around potential barriers and the role of different stakeholders in addressing these barriers.

We explore each of these tools here, first at a macro level and then, given our focus is more specifically on South Africa, we investigate each framework in the South African context.

**The international context**

It is relatively more difficult to achieve economic transition in developing countries. For many developing countries progress cannot be made by purely thinking about deploying financial instruments differently as there needs to be equal attention to the enabling environment and available institutions. Furthermore, the generally smaller size of the economies means fewer transactions and fewer opportunities to harness economies of scale. A lack of domestic financial institutions and available instruments means finance must be sought through regional bodies or international multi-laterals.

To illustrate the magnitude of the challenge the project team has developed a framework that illustrates these differences between countries. Plotting financial services maturity against the log of GDP per capita presents a revealing picture. A clear pattern emerges with African countries (the least developed, with least mature financial services) in the bottom left, followed by South America and Asia, with the more developed Europe, Oceania and North America faring well. The reality is that least developed countries face structural barriers that relate to available institutions, governance, the presence of uniting visions and government plans, the presence of project pipelines and enabling policy, in addition to the challenge of deploying instruments that can balance risk across the value chain. See Figure 1 below, with African countries highlighted for the period 2008-9.
The framework above was developed using World Economic Forum Global Competitiveness Report data from 2008-2009 to 2013-2014. This data has been compiled into an online tool (available at https://public.tableausoftware.com/views/CountryGreenEconomyMaturityIndex/Dashboard1?emb ed=y&:display_count=no) that will help you explore the data more thoroughly.

GDP per capita provides two potential insights. GDP per capita represents a proxy for the size of the economy and also potential deal flows and the potential to aggregate many smaller deals into attractive programmes. It also however indicates the potential for private savings (through longer term pension and insurance products) and therefore longer term asset-liability matching. Furthermore some people we engaged with also felt that private savings allow for retail banking which can be used as a cheaper source of capital for investment banks and therefore subsidise the cost of capital. The financial ranking is a self-assessed ranking by a sample of respondents in each country and reflects respondent confidence in their country’s financial services. We believe that this is therefore a good proxy for the maturity of financial services and the presence of certain kinds of risk tolerant institutions and instruments.

In order to simplify the framework, we divided the countries into three bands that reflect the primary challenge for a particular country. While all frameworks represent an abstraction of reality we believe that the general principles hold true but acknowledge that there will be exceptions across the framework. We believe that as countries improve they will move towards the top right of the figure below (see Figure 2).
Figure 2: The Progression of Country Financial Maturity

For example, where countries are least developed they may not have the governance and financial institutions to implement a sophisticated financial product (for example an effective debt collateralisation vehicle) and often don’t have the assets whose value and cash flows could underpin sophisticated financial instruments. Their challenges are more fundamental and relate to having the in country sophistication to manage and execute large and potentially complicated deals. Having a conversation with a country in this zone around complicated financial instruments is futile. These countries require institutional solutions before they can progress. This may be at a regional level in the short to medium term. These countries are traditionally neglected by existing green economy finance programmes and climate readiness programmes who assume too much in country capacity.

A second category of countries is those that have sufficient institutional capacity but lack an enabling environment for appropriate development. These countries may have economic or financial sector structural challenges. Furthermore they may lack a development plan that provides the vision for companies, investors and government to align behind. These countries are the typical focus of international environmental finance and climate readiness programmes and it is typically these countries that attract much of the available development funding. Moving countries towards the top right of the figure requires a concerted focus on addressing structural challenges through policy and investment as well as providing a specific national plan that aligns stakeholders. While the discussion around innovative financial instruments is more relevant here, some of these instruments are constrained by on the ground realities.

Finally, countries in the top right hand corner of the figure tend to be the most developed of countries. Having fewer structural barriers and greater institutional and planning capacity, combined with large economies with greater transaction potential means innovation in the realm of financial instruments will have maximum impact.
At the very least you would need to seek solutions in parallel across each zone. With increased maturity in the bottom two zones you would be able to deploy more and more sophisticated instrument based solutions.

South Africa sits on the middle line of GDP per capita and is fortunate to have extremely sophisticated financial services (in the top 10 in the world). Given the sophistication of our financial services one would expect South Africa to be investing in significant infrastructure and especially the green infrastructure necessary for our transition. We would expect a high degree of financial innovation in this space. We also have some excellent planning documents including the National Development Plan and the Strategic Infrastructure Programmes. One would expect these plans to be well progressed in terms of implementation. However, as previous studies have shown, this is not the case. Despite our sophisticated planning and institutional infrastructure we face specific structural challenges. Amongst other reasons, the potential for South Africa to move towards the top right of the figure is constrained by institutional decline and corruption, which threaten to drop us towards the zone of requiring institutional solutions (see Appendix II for further detail). While many of these structural barriers relate to the economy as a whole, it is worth focusing on the structural barriers that relate specifically to the provision of finance.

After considering the international context and reflecting on South Africa’s specific position in the framework we need to consider specific structural barriers as they relate to financial services. The project team adapted previous work done by the NBI and KPMG to propose a second framework. Our previous work, a study on low-carbon finance identified several barriers in categories relating to structural challenges, fund design, policy and skills and capacity. While all are important it was the structural issues that piqued our interest and are most relevant for this report.

National structural impediments to financial services

We use a standard project/product maturity cycle chart in Figure 3 below to reflect the interaction between the maturity of the project and the source of finance required (given that differing forms of finance are required for differing levels of risk or project/product development).

Despite the sophistication of our financial services, the finance of green projects in South Africa is limited to specific instruments, including commercial debt, concessional debt, private equity, grants, venture capital and sweat equity. We believe that this limited set of instruments and instrument innovation is common for many developing countries, irrespective of the sophistication of their financial services sector.
We can therefore simplify this framework for a developing country context and for ease of communication, where we group sources of finance into 3 broad bands, taking out the less commonly available sources of finance. This simplified framework, with specific reference to the South African context, is illustrated in Figure 4 below.

The commercial banking sector is well capitalised, well regulated and very active in the South African market.

As projects mature, they rely on concessional loans, from local or international banks (both commercial and development banks). Private equity is scarce relative to the size of other sectors.

Early in the project developers rely on sweat equity with grant support. Venture capital, although present, is relatively unavailable given the size of our economy.
It commonly raised by finance and project experts we spoke to that project developers in South Africa are largely required to push projects through the development cycle focussing on grant money and concessional debt. Should this hypothesis be true this would have an inherent limitation on scale. Grant funding is limited in size and without the leverage of private equity concessional loans (especially without first loss guarantees) can only take you so far. The framework is therefore useful to understand immediate structural barriers in the provision of financial services. It also accounts for some stakeholder sentiment where individuals express their frustration with the private sector for not investing in early stage projects. The majority of capital is held by banks and private companies whose fiduciary duty and balance sheet management prohibit them from taking too much risk. In the case of the banking sector this is regulated and getting stricter with the implementation of Basel III. Basel III has a further potentially inhibiting factor in that it requires banks to hold greater levels of capital in reserve when holding higher risk, longer term investment in their portfolio. This has the net effect of pushing up the cost of capital.

The project team has two hypotheses.

**Firstly, the low levels of private equity in South Africa have the knock-on impact of inhibiting venture capital investment (which in theory is borderless).** Venture capitalists rarely take on long term investments and in South Africa, when it comes time to sell their investment they have very few buyers (who would typically be private equity houses). As a consequence, venture capitalists are forced to invest for longer periods or not invest at all. Given the culture and mandate of many venture capital firms they choose the latter.

**Secondly, the inability for our government (common in developing countries) to underwrite the risk of the national development banks means that these banks are forced to adopt a profit mandate.** The necessity for development banks to therefore hold a portion of their portfolio on traditional debt markets has the psychological impact of setting up development banks in competition with commercial banks. Ideally these two institution types would work as partners, with the development banks (having an inherently higher risk tolerance) leveraging the commercial banks capital through first loss and mezzanine debt to create greater scale. Instead of working together across the financial value chain in a strategic manner the banks are at odds and collaborate in an *ad hoc* manner. A further impact of the profit mandate is a lower tolerance for private equity levels in the development banks. Some people interviewed felt that given that these institutions are a traditional source of private equity in developing countries this exacerbates the lack of private equity available and limits leveraging opportunities.

Finally, the limited engagement from long term investors (asset owners and managers, and the insurance sector) especially in private equity requires further exploration. While this is a topic we will continue to explore our initial thinking relates to the continued impressive performance of the Johannesburg Stock Exchange (JSE). During a half decade of challenging economic conditions the JSE has doubled in value. There is little incentive for long term investors, and for that matter equity, to invest outside listed entities on the JSE.
The exception of the Renewable Energy Independent Power Producers Procurement Programme

The fascinating exception in the South African market for leveraging finance is the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP). In a relatively short space of time R80 to R90 billion (the first two bidding rounds) was invested in the renewable energy industry, dwarfing existing investments. This was possible because of several things but principally:

1. Reforms to policy that effectively secured a long term price for renewable energy (via the conclusion of ‘take or pay’ power purchase agreements). This allowed developers and financiers to reliably model cash flow certainty and predictability making debt finance easier
2. Innovations in financial services relating to the structuring of deals (the scale demanded a greater number of partners leading to greater levels of collaboration) and the provision of equity, especially in relation to Broad-Based Black Economic Empowerment equity and social equity

The result of this increase in investment had a number of significant impacts beyond the obvious sustainable development outcomes. These impacts included the following:

1. The process built investor confidence attracting international foreign direct investment, often in the form of equity
2. The learning process lead to more realistic assessments of project risk resulting in greater levels of capital allocation and a lowered cost of capital
3. While on a limited scale, there was the development of local ancillary expertise and production capacity. This strengthens the support to projects, reducing their cost and their risk and therefore the cost of capital for future rounds

While there are emerging challenges to the REIPPPP process the initial, rapid success was inspirational in the development of this research programme. The overriding question we seek to ask is what other areas, by tweaking policy and encouraging financial innovation, can we unlock that will drive similar levels of investment experienced during the REIPPPP. These areas may be technologies not yet mature that will require a longer term planning horizon and a greater level of incentives or established technologies that can be implemented to great effect in South Africa. We refer to these potential investment areas as systemic interventions throughout the report.

The project is therefore designed to:

- Provide the conversation tools to structure the discussion and be able to include a wide range of stakeholders with differing expertise. These are largely illustrated in this review report and we hope that they can be used to structure a conversation in a range of developing economies
- Underpin the discussions with a common terminology such that the participants are not distracted by issues of definition and ideology. It is our hope that the principles framework presented in this report will provide a conversation base that goes a long way to achieving this
- Solicit the views of many stakeholders on what systemic interventions should be our highest priority. We will support these conversations with a range of interventions identified
through the Department of Environment’s flagships programme and those that are emergent from the National Development Plan

- Seat these interventions within a common planning framework, the NDP. We have reviewed the NDP in relation to a firm set of economic principles to understand how this alignment might take place
- Petition the advice of many stakeholders in how best to tweak the policy framework and innovate finance in order to realise significant investment scale. Our research report will support this with a range of international finance best practice examples

So far the first proposed frameworks allow an analysis of the country in an international context and consider institutional, structural and instrument challenges. The second framework allows for an assessment of national level structural barriers to financial service provision. A next critical step is still necessary to understand barriers and nuances at the level of a system intervention (be that a project, programme or even technology or technology type).

Understanding systemic intervention level factors

While systemic interventions do not exist independently of their international and national contexts it is necessary to explore their implementation in detail. Given that newer, innovative technologies (those required to engender economic transformation) tend to be more capital intensive, the cost of capital is a key variable in project selection. Typically the cost of capital is weighted by risk and the riskier (real or perceived) the intervention or technology is the higher the cost of capital. Given that many of the interventions required to transform our economy are relatively new and possibly unknown they typically have a higher cost of capital than there traditional counterparts. In addition the case can be made that we underestimate the risk for traditional options based on a false sense of comfort. In both the case of new investments and established technologies the role of cost of capital is fundamental.

Therefore we propose that for each systemic intervention considered we apply an assessment methodology developed by Waissbein et al (2013) in the paper “Derisking Renewable Energy Investment - A framework to support policymakers in selecting public instruments to promote renewable energy investment in developing countries”, published by the United Nations Development Programme. While the original paper (using a South African case study) was aimed at policy developers and was developed to “address the existing investor risks that effect financing costs and competitiveness of renewable energy in developing countries’ we believe that the first two steps in the proposed four step process are applicable to establish the relationships between identified risk and cost of capital for any technology category (or systemic intervention). The second two steps in the recommended process are energy specific and we would need to adapt them for each systemic intervention identified. This latter investigation would therefore form part of phase three of this project, namely “solution development and barrier identification”.

Effectively the method proposed by Waissbein et al (2013) establishes the relationship between the risk environment and the local cost of capital for a particular intervention, as measured against the best in class cost of capital for that intervention anywhere in the world.
Stage 1 of this method uses a multi-stakeholder approach to identifying barriers and risk categories and quantifies the contribution of each risk category to the differing costs of capital (local and best in class). Figure 5 below illustrates Stage 1 of this method.

Figure 5: Risk Environment and Cost of Capital

Stage 2 investigates and quantifies the impact of public derisking instruments to mitigate against the impact of the identified risk category. Stage 2 does not need to be limited to public derisking instruments and can also be used to evaluate private sector and collaborative derisking efforts. Figure 6 below illustrates Stage 2 of this method. Understanding the elements contributing to the cost of capital provides a focus point for further engagement, as well as a useful starting point when considering financial innovation or policy intervention.

Figure 6: Use of Public Instruments to Reduce Financing Costs

Waissbein et al (2013) offer an illustrative example of how the overall financing costs might be viewed once the cost of capital impact has been allocated across risk categories (see Figure 7 below; we refer you to the original publication for a detailed review of the methodology).

**Figure 7: Illustrative Financing Costs, Quantifying the Impact of Risks on Increasing Financing Costs**

![Figure 7](image)


Naturally this exercise would need to be repeated for both debt and equity costs in the market. Waissbein et al (2013) completed the calculation for both debt and equity in relation to renewable energy in South Africa and we include their figure here to demonstrate the potential output of this step in the process. While we are certain that as this project develops we will identify alternate ways of proceeding, we think this is a good conceptual model from which to start.

**Figure 8: Impact of risk categories on financing costs for wind energy investment in South Africa, business-as-usual scenario**

![Figure 8](image)

As a further way of approaching the challenge of evaluating the relationship between the investment conditions and the proposed systemic intervention, we also propose exploring how projects are selected in comparison to other projects. One common method is the Net Present Value (NPV) approach. Capital has a time value, for example R1000 today is worth more than R1000 in 5 years. If we are comparing a series of separate cash flows we need to know what value those cash flows have today. This is the purpose of the NPV formula, which effectively discounts future cash flows to today’s values, allowing you to compare projects on a like-for-like basis (approximately). Critical to this is accurately modelling cash flows and the timing of payments, as well as an accurate assessment of the project length. The appropriateness and timing of cash flows can make a significant difference to project selection. Should a cash flow prediction be altered by policy or subsidy measure one may choose a less optimal intervention. Furthermore, the formula uses a discount rate which includes a premium based on actual and perceived risk. Should the perception of risk be too high or the actual risk be artificially raised for a particular intervention, this would lead to the incorrect selection of a different intervention.

Understanding the capital premium impact on project selection is superbly described by Waissbein et al (2013). By supplementing this approach with an understanding of the NPV calculation nuances one is able to explore the sensitivity of systemic intervention selection to modelling error and explore the impact of a wider range of policy and financial innovation measures.

Taking the frameworks illustrated above together we should be able to structure conversations that get to the key challenges in selecting systemic interventions with people from a variety of backgrounds and financial expertise. Their visual nature allows us to describe complex interactions in a simple manner. We hope that by drilling down from an international context, through the national context to systemic intervention specific frameworks, drawing on input from a range of stakeholders, we should be able to establish a strong set of barriers and specific risks as well establish the impact of those risks on the finance of the project. In addition this granular understanding of barriers should enable a discussion on how to apply financial innovation and policy interventions to scale up implementation.
3. An economic principles framework

In this section of the literature review, we seek to clarify underlying principles for South Africa’s green economy vision. The concept of the green economy is enshrined in different forms in a number of conceptual policy positions, in South Africa and globally. The project team has performed an analysis of these different policy positions and has extracted the common principles of all economic definitions, with a focus on the South African context. This is an important first step in building a working consensus of what a green economy, as a subset of the overall economy, means and entails. Rather than continuing to debate the exact definition of the green economy, it is more productive to extract a set of working principles that can be used to identify barriers and their solutions.

As discussed earlier, it does not make sense to view ‘the green economy’ in isolation of the general economy. Our set of economic principles is therefore designed as underlying principles for the South African economy as a whole, rather than a sub-economy or separate green economy. The principles are designed to address all of South Africa’s broad national development goals.

When considering different local and international approaches to economic definitions what is striking is the diversity in phrasing echoing the same underlying concepts. Furthermore, most definitions of a green economy seem to squeeze in multiple other issues with the view that the green economy encompasses other human development objectives. Trying to get to a single definition is unnecessary and unhelpful. Some example are listed below.

“A green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”

UNEP, Towards a Green Economy: Pathways to Sustainable Development And Poverty Eradication, 2011

“Green economies are defined as economic systems that take into account holistic remedial measures in incorporating economic, environmental (including ecological) and social challenges that stop of reduce economic activities and growth.

Central to the green economy is the desire to improve people’s lives by combating climate change, energy insecurity and ecological instability.”

South African Institute Of International Affairs, South Africa’s Green Economy Transition, 2013

Green growth should:

“contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the earth’s ecosystems”

UNSD, 2012: The Future We Want

Green growth
“means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies”

OECD (Organisation For Economic Cooperation And Development), Inclusive Green Growth: For The Future We Want 2012

It is evident from the above that each definition expresses the same underlying intent and therefore spending time choosing between them or attempting an additional definition does not progress the conversation. What is important is the underlying principles.

Seven principles for the green economy in South Africa

We have distilled seven principles for the economy that apply universally, although their specific phrasing may reflect a South African context. This selection was based on the following process:

- An extensive review of the green economy literature, including UNEP, OECD and the UNGC (refer to reference list for a complete list)
- A ‘sense-check’ against major development and human rights documents, particularly the Millennium Development Goals, the UNGC principles, the Universal Declaration of Rights, and the Bill of Rights in the South African constitution
- The policy mapping exercise in the next section of the literature review further serves as a completeness check for the seven principles (see chapter 4 of this report)

The seven principles are outlined as follows:

Figure 9: Seven Principles for the Economy in South Africa

1. Efficiency - Minimise the financial and natural resources required in production and consumption
2. Resilience - Withstand variability in social, economic and environmental conditions
3. Preservation of natural capital - Halt and reverse the decline in natural capital
4. Social equity - Minimise barriers to participation in the economy
5. Job creation – Maximise the number of people in employment
6. Growth - Create new economic opportunities
7. Governance - Ensure a transparent and effective system of governance

Each of these high level principles is divided into further subcomponents that try to incorporate the significant body of literature on that principle. We believe that this robust principles framework provides a means to compare the positive and negative trade-offs of an intervention in an economy. While most definitions of a green economy relate to principles 1 to 3 (efficiency, resilience and the preservation of natural capital) the framework acknowledges that these green economy aspects do not exist in isolation of each other and other economic principles (principles 4 to 7).
Principle 1: Efficiency

A green economy is characterised by the efficient use of resources in both production and consumption. Minimising the level of financial, labour and natural resources required makes production and consumption more sustainable by reducing the resource intensity per unit.

The efficiency principle is aligned to: Green Economy Coalition principle 8: “It delivers sustainable consumption and production.”

“Foster efficient and sustainable use of natural resources” and “aim to promote a low carbon/low emissions economy”, are green growth elements from the GGGI’s Green Growth Best practices.

The OECD Inclusive Green Growth report emphasises the need for enhancing productivity: “incentives needed for greater efficiency in natural resource use, and allocating resources to the highest value use.”

And the OECD report Towards Green Growth mentions productivity as a source of green growth “efficiency in the use of natural resources and assets. Includes reducing waste and energy consumption”. Additionally, innovation plays an important part in changing production technology and consumer behaviour.

UNEP also defines the green economy as ‘resource efficient’. This involves reducing carbon emissions and pollution and enhancing energy and resource efficiency.

The efficiency principle is further broken down into the sub-principles of decoupling, dematerialisation and input / producer goods productivity.

A breakdown of this principle is provided below:
Decoupling

Decoupling involves removing the current correlation between economic growth and the use of resources. The decoupling of economic growth and resource and environmental depletion includes both becoming more efficient in resource use through existing processes and technologies, and research and development of new technologies. Decoupling also involves the diversification of the economy away from resource intensive industries toward knowledge and skill based industries. This is dealt with further under the ‘Growth’ and ‘Job Creation’ principles. Decoupling is characterised by:

- **Resource efficiency** – becoming more efficient in the use of all resources, per unit of production or consumption
- **Change source material** – changing source materials in order to move away from the use of scarce or limited resources toward renewable or recyclable resources

Dematerialisation

Dematerialisation involves using less materials in the production and consumption of goods and service. Essentially, dematerialisation is ‘doing more with less materials’. Dematerialisation can be achieved through reducing the use of materials, reusing materials and recycling materials. Reducing resources can also include the redesign of processes and the use of new materials. Technological innovation plays an important part in all aspects of dematerialisation. Dematerialisation is made up of three elements:

- **Reduce** – reduce the resources used in production or consumption. This may include redesigning products, systems and processes. This is distinct from resource efficiency described above in that it implies an alteration of the manufacturing process rather than just being more efficient at it
- **Reuse** – as far as possible, reuse resources used in production or consumption. This could also involve repurposing waste from one process into a productive use in another process
- **Recycle** – when not possible to reduce or reuse resources, recycle resources wherever possible

Input Productivity

An improvement in input productivity requires an increase in the output in terms of the value of goods and services, per unit of input. Inputs other than natural and material resources, addressed in decoupling and dematerialisation above, come in the form of factors of production such as labour, capital and land, and the application of suitable technology.

- **Labour productivity** – the amount of goods and services produced per hour of labour
- **Capital productivity** – the amount of goods and services produced per unit of capital
- **Technology suitability** – ensuring that the most appropriate technology is used to achieve the right balance of efficiency of all factors of production
- **Land rights** – ensuring that land allocations achieve economies of scale in production of goods and services. This must be balanced with social equity considerations, addressed in the social equity principle
Principle 2: Resilience
A green economy must be resilient, in that it is able to withstand variability in social, economic and environmental conditions.

The resilience principle is aligned to: **Green Economy Coalition principle 7: It builds economic, social and environmental resilience – The Resilience Principle**

According to the GGGI one of the elements of green growth is to “Aim to improve resilience to climate change and natural disasters.”

The **OECD Inclusive green growth** report lists stability as a source of green growth: “more balanced macroeconomic conditions, reduced resource price volatility and supporting fiscal consolidation, through: e.g. reviewing composition and efficiency of public spending and increasing revenues by pricing pollution.” Conversely, resilience will also be improved through the greening of the economy by reducing risks of negative shocks to growth.

A resilient economy needs to be able to anticipate variability in social, economic and environmental conditions as far as possible. The economy needs to adapt to the anticipated variability, and in the case that shocks do occur, the economy needs to be able to recover as quickly as possible. Resilience is characterised as follows:

### 2. Resilience – withstand variability in social, economic and environmental conditions

**Anticipation**
A resilient economy needs to be able to anticipate variability in social, economic and environmental conditions. The understanding of trends and the level of vulnerability or exposure to these trends can be done through the following:

- **Scenario Development and Forecasting** should be done by government, research institutions, business and civil society, and findings should be shared across stakeholders groups in order to form a sound understanding of potential scenarios and exposure. Examples of forecasting in the area of climate variability include the Global Circulation Models (GCMs) and Regional Circulation Models (RCMs) developed by various international research institutes and local academic institutions.
• Early Warning Systems need to exist in order to disseminate information gathered by scenario development and forecasting, in order to adequately warn stakeholders of impending shocks and give them time to react

Adaptation

The economy needs to be able to adapt effectively to the changes anticipated. Adaptation can be categorised as:

• Autonomous adaptation – any capacity building initiatives carried out with the aim to strengthen the economy, or ecological changes that improve general resilience but are not consciously designed to improve resilience against a specific shock

• Planned adaptation – deliberate policy decisions to improve resilience in the presence or anticipation of a specific shock. This includes the prevention of maladaptation – this refers to adaptation activities that are not appropriate or may even hinder resilience

Recovery

In the event that shocks have not been anticipated and adaptation has not occurred sufficiently, the economy needs institutions and mechanisms to be able to recover from shocks. Lessons learned from the event should then be applied to strengthen anticipation and adaptation going forward. The key elements to successful recovery are:

• Disaster management – the management of resources to best deal with disasters and emergencies and lessen their humanitarian impact. This includes the immediate response to the disaster, the recovery from the disaster and reducing the risk of future disasters

• Emergency response – providing immediate emergency assistance to communities affected by a shock and the immediate reparation of damaged infrastructure, where relevant

Principle 3: Preservation of natural capital

The preservation of natural capital is a crucial characteristic of a green economy. The aim should be to halt, and wherever possible, reverse the decline in all forms of natural capital. This principle is also closely aligned to the social equity principle of inter-generational justice. In other words, today’s economy should function in a way that preserves natural capital for the benefit of future generations.

The natural capital principle is aligned to Green Economy Coalition Principle 4: “It improves the natural world – The Earth Integrity. The Planetary Boundaries and Precautionary Principle.”

The UNEP Business Case for the Green Economy highlights environmental security and the prevention of loss of biodiversity and ecosystem services as elements of a green economy.

The OECD’s Towards Green Growth report sees a green economy accounting for the true value of natural capital and also factors in the cost of pollutants, emissions and over-exploitation of resources.
Furthermore, natural resources bottlenecks and imbalance can create negative growth shocks: losses in natural capital “undermine the ability to sustain future growth” and “we need to develop potential thresholds to protect against climate change, biodiversity loss and nitrogen cycle disruption”.

Natural capital can be categorised as ecosystem services, both as a means of production and as support for social welfare. Ecosystems also deliver essential goods in the economy such as raw material inputs. The principle of the preservation of natural capital is outlined as follows:

### 3. Preservation of natural capital - Halt and reverse the decline in natural capital

<table>
<thead>
<tr>
<th>Ecosystem services as a means of production</th>
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<tr>
<td>Natural cycles</td>
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<td>Flood security</td>
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<tr>
<td>Religions and cultural importance</td>
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<td>Forestry</td>
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<tr>
<td>Natural cycles</td>
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<td>Medicinal and cosmetic products</td>
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<td></td>
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<td>Biomass</td>
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<td></td>
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<td>Non-renewables</td>
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</tbody>
</table>

**Ecosystem services as a means of production**

Ecosystem services, in the form of services provided by biodiversity and natural cycles such as carbon sequestration and pest control. These services are divided into:

- Biodiversity
- Natural cycles

**Ecosystem services as an input into social welfare**

Functioning ecosystems are crucial to maintaining social welfare, offering the following benefits to society:

- **Food security** – ecosystem services provide support to agricultural production
- **Religious and cultural importance** - people obtain spiritual, recreational and aesthetic benefits from natural capital
- **Pollution control** - ecosystems support human and animal health through the purification of water and air
- **Flood protection** – is provided by forests or wetlands, for example
Ecosystem goods

Ecosystems also provide specific raw materials, or goods that serve as factors of production in primary, secondary and tertiary sectors. Industries with significant reliance on natural capital inputs are listed below:

- Tourism
- Agriculture
- Fisheries
- Forestry
- Medicinal and cosmetic products
- Biomass
- Non-renewable resources

Principle 4: Social equity

A green economy must be geared towards intergenerational or long-term social equity by supporting the human development indicators (for example, universal access to basic health care, education and sanitation and also to clean energy and water). South Africa is one of the most unequal societies in the world, with high levels of income inequality, and a portion of the population that still do not enjoy access to basic services. South Africa’s apartheid history means that social inequities remain skewed along racial lines, and it is a priority for the country to transform and provide redress for past injustices.


The GGGI’s Green Growth Best Practice report lists the “Aim to achieve socially-inclusive development” an element of green growth best practice.

UNEP lists social equity and human development as key elements of the green economy, in the Business case for the Green Economy report. A green economy is socially inclusive, and contributes to poverty alleviation, according to the UNEP Green Economy report.

According to the OECD’s Toward Green Growth report, “Green growth strategies need to pay specific attention to social issues and equity concerns, at both the national and international level” and, “It is important to match green growth policies and poverty reduction objectives: there are “important complementarities:”

The principle of social equity is broken down as follows:
Redress past injustices

Redressing past injustices, or transformation, is a key aspect to social equity in a South African context. Relevant elements of the Broad-Based Black Economic Empowerment Codes of Good Practice include improving the balance of ownership, improving employment and management equity and developing the skills of previously disadvantaged groups. The preferential procurement mechanism – procurement from black-owned and empowered enterprises as a proportion of total procurement – acts as an overarching driver for all of these categories. Key aspects of this sub-principle include the following:

- **Ownership** – the percentage share of economic benefits
- **Employment equity** – weighted employment equity analysis
- **Management control** – % black people in executive management or executive board and board committees
- **Skills development** – skills development expenditure as a proportion of total payroll
- **Enterprise development** – investment in black-owned and empowered enterprises as a proportion of total payroll

Access to basic services and provision of human rights

Many South African citizens still do not have access to basic services, which is a contravention of their human rights. A priority in the achievement of social equity should be to ensure that all South Africans have access to the following basic services:

- Water and sanitation
- Housing
- Health
• Internet access

Improve educational outcomes

While education can be classified as a basic service and a human right, we have chosen to single this out as a separate category due to the importance of improving educational outcomes in order to achieve all social equity objectives. Poor educational outcomes are a persistent problem in South Africa, despite high expenditure in this area.

Improved outcomes in basic, tertiary and continued workplace-based learning are crucial in lifting people out of poverty, improving equality and indeed in furthering all seven green economy principles. Improved educational outcomes therefore apply to:

• Basic – primary, secondary and adult learning
• Tertiary – further education
• Workplace-based learning

Reduce Income Inequality

Widening income inequality is a growing problem globally, but this is a particular challenge in South Africa, with the highest GINI coefficient in the world according to World Bank data. Together with a high unemployment rate this is arguably South Africa’s greatest socio-economic challenge to overcome. A South African vision of a green economy would therefore not be complete without a focus on how the green economy will reduce income inequality.

Principle 5: Growth

Growth, or the creation of new economic opportunities, is a central tenet to a green economy, in so far as growth delivers progress in socio-economic development. This is especially pertinent in a South African context, where inclusive growth is considered a necessary condition for job creation, poverty alleviation and improving living standards for all citizens.

The growth principle can be a controversial one, in that some proponents argue that growth is not an end in itself and should not be pursued as the earth’s natural resources are being stretched to their limit. For this reason we have defined growth in a broader sense than pure economic growth, or growth in GDP as it has traditionally been measured. A broader definition of growth, in terms of the progress it delivers on human development and social indicators, should be used in order to understand whether growth is delivering the desired outcomes. A growing body of thinking supports the move away from GDP as a growth indicator, from groups such as the ‘New Economics Forum’ and the development of alternative indices such as the ‘National Happiness Index’.

According to the OECD, Inclusive Green Growth report, green growth policies “are necessary structural reforms and are needed to foster sustainable and inclusive growth.” These policies can unlock “new growth engines” by boosting investor confidence and opening up new markets “by stimulating demand for green goods, services and technologies”
The OECD supports our view that GDP is too narrow a measure to look at growth. GDP “overlooks contribution of natural assets to wealth, health and wellbeing”. The OECD therefore argues that a broader set of measures should be considered in the measurement of growth.

Our broad definition of the growth principle includes economic growth in the various tiers of the economy, the improvement of personal well-being and the strengthening of social cohesion, as outlined below:

**5. Growth – create new economic opportunities**

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<th>Social Cohesion</th>
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<tr>
<td>Secondary sectors</td>
<td>Relational</td>
<td>Combating discrimination</td>
</tr>
<tr>
<td>Tertiary sectors</td>
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</table>

**Economic Growth**

The total size of the economy needs to grow in order to be able to provide the desired levels of socio-economic growth. The NDP states that South Africa’s economic growth rate needs to exceed 5% per annum in order to be able to transform the economy and create sustainable expansion for job creation. The question of inclusivity of economic growth is dealt with in the social equity principle. We have organised the economic growth by the tiers of the economy. The sectoral focus of economic growth targets will affect how green the growth is. Economic growth is therefore divided between:

- Primary sectors – such as agriculture, fishing and mining
- Secondary sectors – such as beneficiation, food processing and manufacturing
- Tertiary sectors – such as legal and financial services

**Personal well-being**

Personal well-being can simply be described as ‘happiness’. It could be argued that personal well-being, or happiness is the end goal of economic growth, and indeed the ultimate objective of pursuing the transition to a green economy. The notion of happiness as an indicator of a nation’s progress is well-developed, for example through the development and growing interest in metrics such as “National Happiness Indices”. For the purposes of this framework, personal well-being is related to the following areas:
- **Emotional** – personal happiness, self-esteem and self-actualisation
- **Relational** – the number, quality and strength of interactions with others, and the sense of belonging to networks

**Social cohesion**

Social cohesion is broken down into two key aspects:

- **Human Development Index** - a summary measure of average achievement in key dimensions of human development, namely a long and healthy life, being knowledgeable and having a decent standard of living
- **Combating discrimination** – enhancing understanding and co-operation between people of different cultures, religions, races, classes, ethnicities, language, nationalities, ages, gender or sexual orientation. It is important to create an environment of zero tolerance for discrimination along any of these lines

**Principle 6: Job creation**

Job creation is an essential principle in the greening of the economy. South Africa’s main developmental challenge is arguably our stubbornly high unemployment rate and the particularly concerning high levels of unemployment among the youth. Job creation is a top objective in all of South Africa’s overarching macroeconomic policy documents, therefore a green economy vision must hold jobs as a central consideration. We have defined this as seeking to maximise the number of people in employment.

A green economy should foster the creation of new job opportunities as new products and services and new markets develop. The creation of job opportunities should take into account the existing skills profile of jobseekers, but also seek to shift toward more skilled, knowledge intensive jobs in the long run. The transition toward a green economy necessarily involves shifts in focus of the economy, which may involve job losses in certain industries. Care should be taken to understand the impact on existing jobs and employees in resource intensive industries. If this transition is managed carefully the perceived trade-off between jobs and protecting the environment need not materialise.

The UNEP, ILO Green Jobs report makes the case that "a global transition to a low-carbon and sustainable economy can create large numbers of green jobs across these sectors and become an engine for development" in developed and developing countries.

The OECD Towards Green Growth report argues that new markets created by a green economy stimulate demand for green technologies, goods and services and creates the potential for new job opportunities.

Principle 6, Job Creation, is characterised as follows:
6. Job creation – maximise the number of people in employment

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<tr>
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<tr>
<td>Existing jobs becoming available</td>
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<td></td>
<td></td>
<td>Ability to signal fit</td>
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</table>

**Increase the number of available jobs**

In order to get more people into employment, the supply of available jobs needs to grow. Key ways in which this can be achieved include the following:

- *Economic growth* – the economic growth aspect under the ‘Growth’ principle deals with the need for growth to increase the number of available jobs in the economy.
- *Labour intensity of growth* – growth in itself does not guarantee jobs. Growth priorities should be focused in labour intensive rather than capital intensive areas. The skills profile of growth should also be taken into account in relation to the skills in over-supply in the market. South Africa needs to create unskilled and semi-skilled jobs in the short to medium term. Promoting entrepreneurship can have positive effects on the labour intensity of growth, as small-medium enterprises have great job creation potential. This can be done through support in incubating start-up business, providing sustenance support and eventually helping to scale up the business.
- *Existing jobs becoming available* – due to people exiting the labour force for various reasons from retirement, to studying, self-employment and illness or death. Many of these are obviously not desirable from a policy perspective, however elements such as proactive and responsible retirement planning may help people exit the labour force at their preferred age.

**Enhance job-seekers’ suitability for jobs**

Another factor in getting more people into employment, is improving job-seekers’ suitability for available jobs. Factors such as improved skills, better experience and well-honed behavioural...
characteristics can improve an individual’s suitable for a particular job. These aspects are summarised below:

- **Skills** – specific skills required in order to be able to perform the job
- **Experience** – specifically related to the job
- **Behavioural characteristics** – professional conduct and emotional intelligence

**Match job-seekers with available jobs**

Even in an economy where there are available jobs, and the job-seekers are suitable for the available jobs, the economy needs to have sufficient mechanisms to match job-seekers with available jobs.

- **Access to information on available jobs** – jobs need to be advertised in appropriate forums to reach job-seekers. Recruitment agencies and labour brokers can play a role in disseminating information on available jobs to suitable candidates
- **Location and transport** – job-seekers need to be in the right location for the interview, or need the resources to be able to travel to the interview. Should they be successful in their application, they also need the flexibility to be able to relocate if necessary. Urban spatial planning, urban-rural demographic trends and the availability of public transport are pertinent in ensuring that location does not become a barrier to matching job-seekers with potential employers
- **Ability to apply** – job-seekers need to have access to resources to enable them to apply for jobs – for example, internet access, an email account and a phone number
- **Ability to signal fit** – job-seekers need the ability to signal to employers that they have the right skills, experience and behavioural characteristics for the job. For example, a suitable candidate still needs to arrive on time, dress appropriately and express themselves eloquently in order to signal their suitability to potential employers

**Labour Market Function**

Labour market function is composed of two distinct areas:

- **Legislation and regulation** – should be set at appropriate levels to protect employees, but allow employers flexibility
- **Labour union activity** – the right of labour to unionise is recognised in the Constitution and the universal declaration of human rights

**Principle 7: Governance**

A green economy must be underpinned by good governance in order to succeed. We have defined the governance principle as ensuring a transparent and effective system of governance. A transparent, accountable and effective system of governance is an overarching principle that enables efficiency, resilience, the preservation of natural capital, social equity, growth and job creation.
The governance principle is aligned to **Green Growth Coalition Principle 5:** “It is inclusive and participatory in decision making – The Inclusion Principle” and **Principle 6:** “It is accountable – The Governance Principle”.

### 7. Governance - Ensuring a transparent and effective system of governance

#### Building a more effective and efficient state

Enhancing the capacity of the state is a function of:

- **Individual and institutional capability** – individuals and institutions need the right capabilities, in the form of skills and experience, for the state to be able to fill its functions effectively and efficiently
- **Individual and institutional capacity** – sufficient capacity and human resources on the part of individuals and institutions needs to be available for the state to perform effectively and efficiently. This also involves empowering individuals and institutions to perform their jobs and fulfil their mandates

#### Fighting corruption

Fighting corruption encompasses:

- **Prevention** – appropriate incentive structures and codes of conduct should be place in order to prevent corrupt behaviour at all levels
- **Detection** – the ability to detect corruption should be heightened through greater monitoring and evaluation and making it possible to report corrupt practises when detected
- **Prosecution** – effective and appropriate enforcement of punitive measures against corruption

#### Inter-stakeholder relations

This area focuses on the relationship between:
• Government- business- labour and civil society – transparent and effective engagement between these four key stakeholder groups is crucial in building trust and ensuring that stakeholder interests are represented and balanced fairly

**International relations**

International relations is addressed at two levels:

• **Global** – South Africa’s role in international forums and negotiation processes. Includes South Africa’s participation in the BRICS and the UN
• **Regional** – South Africa’s relations with other SADC countries, and broader relations in the African region
4. Alignment of South African policy to the green economy principles

The seven principles outlined in the previous section form the central tenets to a green economy. South Africa’s key macroeconomic policy documents all make mention of a green economy or green jobs as an objective, alongside social and economic national development objectives. We have performed a policy mapping exercise to understand how well aligned the activities proposed by major policy documents are to the green economy principles we have set out above. Furthermore, this mapping provided a completeness check of the 7 principles. If we had been unable to map an intervention mooted in the policy documents against our economic principles, then our list of principles would have been incomplete. Fortunately this was not the case and we were able to map everything.

We have analysed three macroeconomic policy documents in detail, with the greatest focus on the National Development Plan, as the official latest policy document. We have also looked at the two policy documents specific to climate change and sustainable development. The five policy documents analysed are:

- National Development Plan (NDP)
- Industrial Policy Action Plan (IPAP)
- New Growth Path (NGP)
- National Climate Change Response White Paper (NCCRWP)
- National Strategy for Sustainable Development and action plan I (NSSD)

We have distilled tangible action items from each of these policy documents, and aligned them to each of the elements of the seven green economy principles. This exercise serves to illustrate:

- The extent of alignment that exists between the identified policy actions and the principles underlying the transition to a green economy
- The gaps in tangible action items required to further the seven principles
- Whether South Africa’s policy documents are mostly focused on:
  - ‘Implementation channels’ – the means for translating principles into activities; or
  - Focused on identifying the actual implementation activities

The analysis is also useful in identifying potential interventions emerging from the major policy documents, over and above the formal ‘flagship programmes’ defined in the NCCRWP. These emergent systemic interventions will be useful in identifying policy initiatives that may assist to bring sufficient implementation scale, in order to unlock finance.

The project team concluded that many of the documents focus on economic objectives and do not deal with the implementation channels required to connect these principles/objectives to specific actions. These channels are critical in creating an enabling environment that will give the intervention the maximum chance of success.
We believe these implementation channels are as follows:

- Financial innovation
- Policy suitability
- Business models and
- Consumer behaviour

The overall proposed framework for the green economy in South Africa, including the relationship between the economic principles, implementation channels and activities, is illustrated in the figure below:

**Figure 10: Green Economy Framework: from Principles to Channels to Activities**

For a specific intervention, scaling it up may require changes to any of the 4 implementation channels outlined above. While each channel is important, the NBI Green Economy Project as a whole will focus almost exclusively on Policy and Finance.

**Policy mapping to principles**

This section is set out according to the seven green economy principles defined in chapter 3 of this report. For each element of the principles, a consolidated synthesis of the actions identified within a policy document that are likely to further that particular principle is provided, organised by policy document.

For the detailed policy mapping exercise, with full detailed implementation activities and page references to the original policy document, refer to Appendix III. This appendix is a useful guide to readers as an alternative index to each policy document.
The charts below depict the extent to which each of the policy documents analysed address each economic principle, as defined in this literature review. The charts are populated only with specific implementable actions outlined in the policy documents, and this analysis does not show where a policy document has recognised the importance of a principle but not identified any specific implementable actions, or addressed the principle only at a high level.

- The green shading indicates that the policy document provides a comprehensive set of implementable actions related to the principle
- The orange shading indicates that the policy document contains some implementation actions relevant to the principle
- The grey shading indicates that no implementable activities were identified for this principle
### Principle 1: Efficiency

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Decoupling</th>
<th>Dematerialisation</th>
<th>Input Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NDP</strong></td>
<td>Resource efficiency</td>
<td>Change source material</td>
<td>Re-use</td>
</tr>
<tr>
<td></td>
<td>Vehicle efficiency, modal shift and public transport &amp; spatial efficiency</td>
<td>Reduce domestic use of fossil fuels – universal electrification, Biofuel and gas as alternatives – Lightweight materials in vehicles</td>
<td>Further water re-use, regional approach to wastewater management, Research into water reuse and desalination, Waste to energy projects, Reduce solid waste disposal, Capture land-fill gas methane</td>
</tr>
<tr>
<td><strong>IPAP</strong></td>
<td>Upgrade of the electrical power and energy measurement standards</td>
<td>Commercialisation of Natural Fibre Reinforced Composites</td>
<td>Development of Waste Management and Recycling Industry Strategy</td>
</tr>
<tr>
<td><strong>NGP</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

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### Principle 2: Resilience

<table>
<thead>
<tr>
<th>Resilience</th>
<th>Anticipation</th>
<th>Adaptation</th>
<th>Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NDP</strong></td>
<td>Scenario development/forecasting</td>
<td>Early warning systems</td>
<td>Autonomous adaptation</td>
</tr>
<tr>
<td>Research and capacity building</td>
<td>Policy makers to look at global best practice</td>
<td>General focus on planning for the long-term sustainability of South Africa, its people, environment and economy. - Make rural communities more self-supporting - Redress historical inequities - Social protection as a preventive measure</td>
<td>Sectoral development in areas where climate is a particular issue - Pilot and implement medium-term adaptation strategies</td>
</tr>
<tr>
<td><strong>IPAP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NGP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NCCRWDP</strong></td>
<td>Encourage voluntary reporting initiatives; - Monitoring climate change; - Medium and long-term modelling</td>
<td>Establish public platforms to assimilate and disseminate information - Develop and implement public awareness programmes</td>
<td>Reduce region’s dependency by working with regional partners - Sectoral development and adaptation planning - Transfer technology and build capacity through social networks</td>
</tr>
<tr>
<td><strong>NSSD</strong></td>
<td>Development of decision support systems</td>
<td>Food schemes – nutritious food to support quality of life - Strengthening financial support and extension services through the Land Care Programme to land claim beneficiaries</td>
<td>Climate change adaptation plans developed</td>
</tr>
</tbody>
</table>
### Principle 3: Preservation of natural capital

<table>
<thead>
<tr>
<th>Ecosystem services – means of production</th>
<th>Ecosystem services supporting social welfare</th>
<th>Ecosystem goods and services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity</td>
<td>Natural Cycles</td>
<td>Land use and conservation</td>
</tr>
<tr>
<td>Food security</td>
<td>Religious &amp; cultural importance</td>
<td>Critical infrastructure</td>
</tr>
<tr>
<td>Pollution control</td>
<td>Tourism</td>
<td>Bio-diversity &amp; natural</td>
</tr>
<tr>
<td>Food protection</td>
<td>Agriculture</td>
<td>Goods and services</td>
</tr>
<tr>
<td>Fishing</td>
<td>Fisheries</td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td>Medicinal &amp; Cosmetic products</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>Biomass</td>
<td></td>
</tr>
<tr>
<td>Fishery</td>
<td>Renewable energy</td>
<td></td>
</tr>
</tbody>
</table>

#### NDP
- Land use regulatory framework & incentives to protect & rehabilitate ecosystems
- National strategies for conservation & eco tourism
- Local & national plans and projects
- Compressed air & food security & nutrient recycling
- Regional co-operation & increased research focus on food security
- Conserve, rehabilitate & restore natural systems eg. mangrove forests & wetland ecosystems
- Water recognized as foundation for tourism & recreation activities
- Expand & improve natural plant cover in areas such as the Thicket biome
- Policy framework for how traditional medicine fits into the health sector

#### IPAP
- Provide national measurement of standards for air & pollution monitoring
- Air quality testing accreditation programs
- Agro-processing standards & certification
- Fishing produce standards & certification measurement capabilities
- Revision of SANS 368 for aloe products

#### NGP

#### NCRR WP
- Adaptation research: Strengthening bio-diversity research
- Conserve biodiversity & diversity
- Expand protected areas
- Expand gene banks
- Water conservation
- Carbon budgets & carbon tax
- Invest in carbon management
- Agro-industrial development
- Farming, such as organics & food security
- Natural resources management
- Sustainable livelihoods
- Conservation farming
- Organic farming
- Increase the number of wild bees
- Support for food growing & sustainable agricultural practices
- Reviewing policies
- Allocating land for conservation
- Rebuilding depleted stocks
- Ecosystem approach to management of fisheries

#### NSDD
- Land-use planning, including protected areas
- Stewardship & conservation programme
- Stewardship & natural resources regulation
- Environmental monitoring
- Seed banks
- Water-use activities
- Water conservation & equitable access to natural resources
- Promote water efficiency, food security & sustainable livelihoods
- Conservation farming, permaculture, organic farming
- Bio-fuel strategy

**Covered in efficiency/growth**
Principle 4: Growth

**Growth**

<table>
<thead>
<tr>
<th>Economic Growth</th>
<th>Personal Well-being</th>
<th>Social Cohesion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Section</td>
<td>Secondary Section</td>
<td>Tertiary Sector</td>
</tr>
<tr>
<td>NDP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expand global market draw, better access South African exports, simplified export structure</td>
<td>Strengthen national systems of innovation and learning</td>
<td>Focus areas for reusing tourist and business sites</td>
</tr>
<tr>
<td>Dynamic cluster development</td>
<td>Improve the role of government</td>
<td>Promote tourism, focus on cultural and social initiatives</td>
</tr>
<tr>
<td>Stimulate national innovation, technology, education, and training</td>
<td>Strengthen economic infrastructure</td>
<td>Усилить экономическую инфраструктуру</td>
</tr>
<tr>
<td>Improve the role of government</td>
<td>Promote social cohesion</td>
<td>Усилить социальную интеграцию</td>
</tr>
<tr>
<td>NIMAP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strengthening implementation of competition policy</td>
<td>Enhancing participation outcomes</td>
<td>Promote tourism, focus on cultural and social initiatives</td>
</tr>
<tr>
<td>Technology communication strategy</td>
<td>Harmonise economic development outcomes</td>
<td>Усилить экономическую интеграцию</td>
</tr>
<tr>
<td>Public procurement - drive-out of the non-national Industrial Participation programme (NIP)</td>
<td></td>
<td>Усилить экономическую интеграцию</td>
</tr>
<tr>
<td>Support the implementation of the National Economic Development and Labour Plan</td>
<td></td>
<td>Усилить экономическую интеграцию</td>
</tr>
<tr>
<td>NGP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promote public and private co-investment in infrastructure</td>
<td>Enhancing the participation of South African companies in international markets</td>
<td>Impact reduction in poverty and inequality</td>
</tr>
<tr>
<td>NCCRWP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integrate renewable energy and related technologies into national development plans</td>
<td>Impact reduction in poverty and inequality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Усилить экономическую интеграцию</td>
</tr>
<tr>
<td>NSDD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Principle 5: Social equity

<table>
<thead>
<tr>
<th>Social Equity</th>
<th>Redress past injustices</th>
<th>Access to basic services &amp; provision of human rights</th>
<th>Improve educational outcomes</th>
<th>Reduce income inequality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ownership, employment equity, management control, skills development, enterprise development</strong></td>
<td>Water, sanitation &amp; energy</td>
<td>Housing</td>
<td>Health</td>
<td>Internet access</td>
</tr>
<tr>
<td><strong>NDP</strong></td>
<td>Local and user management, water conservation and management, employment equity</td>
<td>Water management</td>
<td>Health sector</td>
<td>Health</td>
</tr>
<tr>
<td><strong>IPAP</strong></td>
<td>Disability and rehabilitation, employment equity</td>
<td>Employment equity</td>
<td>Disability and rehabilitation, employment equity</td>
<td>Disability and rehabilitation, employment equity</td>
</tr>
<tr>
<td><strong>NCCW</strong></td>
<td>The Water Conservation and Demand Management Programme</td>
<td>Water management</td>
<td>Health sector</td>
<td>Health</td>
</tr>
<tr>
<td><strong>NSSD</strong></td>
<td>Ensure universal access to basic and community services</td>
<td>Housing</td>
<td>Health</td>
<td>Internet access</td>
</tr>
</tbody>
</table>
## Principle 6: Job creation

Note: the economic growth category here is limited to those economic growth initiatives that are specifically mentioned in the context of job creation. See the ‘Growth’ principle for broader coverage of growth initiatives.

<table>
<thead>
<tr>
<th>Job Creation</th>
<th>Increase the number of available jobs</th>
<th>Enhance job-seekers’ suitability for jobs</th>
<th>Match job-seekers with available jobs</th>
<th>Labour market function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic</strong></td>
<td>Employment</td>
<td>Skills</td>
<td>Experience</td>
<td>Behaviour</td>
</tr>
<tr>
<td><strong>Labour</strong></td>
<td>intensity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interventions</strong></td>
<td>Interventions</td>
<td>Interventions</td>
<td>Interventions</td>
<td>Interventions</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>Economic</td>
<td>Economic</td>
<td>Economic</td>
<td>Economic</td>
</tr>
<tr>
<td><strong>Labour</strong></td>
<td>Labour</td>
<td>Labour</td>
<td>Labour</td>
<td>Labour</td>
</tr>
</tbody>
</table>

---

**NDP**

- Increase the number of available jobs
- Enhance job-seekers’ suitability for jobs
- Match job-seekers with available jobs
- Labour market function

---

**IPAP**

- Increase the number of available jobs
- Enhance job-seekers’ suitability for jobs
- Match job-seekers with available jobs
- Labour market function

---

**NGP**

- Increase the number of available jobs
- Enhance job-seekers’ suitability for jobs
- Match job-seekers with available jobs
- Labour market function

---

**NSER WP**

- Increase the number of available jobs
- Enhance job-seekers’ suitability for jobs
- Match job-seekers with available jobs
- Labour market function

---

**NSSD**

- Increase the number of available jobs
- Enhance job-seekers’ suitability for jobs
- Match job-seekers with available jobs
- Labour market function
## Principle 7: Governance

<table>
<thead>
<tr>
<th>Governance</th>
<th>Building a more effective and efficient state</th>
<th>Fighting corruption</th>
<th>Inter-stakeholder relations</th>
<th>International relations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Individual and institutional capability</td>
<td>Individual and institutional capacity</td>
<td>Prevention</td>
<td>Detection</td>
</tr>
</tbody>
</table>
| NDP        | - Strengthen capabilities of public service through recruitment and career progression  
- Create citizen-service mindset and drive accountability  
- Empower local government | - Regional service delivery where municipalities are stretched  
- Compulsory community service for law graduates | - Code of conduct  
- Central oversight of tenders | - Creating and strengthening institutions  
- Safeguarding whistleblowers | - Individual liability  
- Strengthening of Public Prosecutor and Special Investigating Unit | - Establishing effective public-private partnerships  
- Development of a social compact | - Strengthening international relations institutions and research capabilities  
- Strengthen regional trade partnerships |
| IPAP       | - Strengthening the role of municipalities in delivering services  
- Enhancing transparency and accountability  
- Empowering local government | - Detecting customs fraud  
- Clamping down on customs fraud, illegal imports and sub-standard products  
- Illegal imports programme | - Enhancing participation of innovative enterprises and SMEs | |
| NGP        | - Strengthening the role of municipalities in delivering services  
- Enhancing transparency and accountability  
- Empowering local government | - Strengthening the role of municipalities in delivering services  
- Enhancing transparency and accountability  
- Empowering local government | - Nedlac monitoring system to engage key stakeholders  
- Improving telecommunication and internet connectivity  
- Improve the road/rail/ports system serving southern and central Africa | |
| NCCRWP     | - Strengthening the role of municipalities in delivering services  
- Enhancing transparency and accountability  
- Empowering local government | - Strengthening the role of municipalities in delivering services  
- Enhancing transparency and accountability  
- Empowering local government | - Form a National Committee on Climate Change  
- Climate change as a key agenda item for Nedlac | - Participation and cooperation in international climate processes |
| NSSD       | - Enhancing qualification accreditation system  
- Establish National Committee on Sustainable Development  
- Sustainability M&E System | - Training on Integrated Ethics Management  
- Addressing Batho Pele service delivery improvement plans | - | |

5. Institutions, structural reforms and instruments with potential to unlock green economy finance

As depicted in our national level framework (figure 2), a country that has mature financial systems, and is able to generate deal flow is more likely to succeed in unlocking finance for the green economy. The framework suggests that three types of interventions are needed in order to reach this level of financial maturity and deal flow:

- **Institutions** – organisational structures that provide the necessary systems of established and prevalent rules to structure financial interactions, as well as organisational capacity to support the transition. Institutions may develop in government or the private financial sector

- **Structural reforms (including policy)** – implement the necessary policy reforms to support the green economy transition, and provide long-term policy certainty. Vivid Economics (2014) defines this as “a political economy context that provides confidence to investors both in terms of the stability of the investment climate and in terms of the political support for low-carbon growth”

- **Financial instruments** – design and implement innovative financial instruments to ease financing the green economy

Certain institutions may also be necessary to implement structural changes and for financial instruments to function effectively. Similarly, certain structural reforms need to be in place to facilitate the development of innovative instruments. While the development of institutions, structural reforms and instruments will certainly overlap, there appears to be a natural progression in maturity from institutions to structural reforms to the development of financial instruments. Therefore, we argue that:

- Countries in the early stages of development will gain most from the development and capacity building of crucial institutions
- Countries in intermediate stages of development will gain most from focusing on implementing the necessary structural reforms
- Countries at an advanced stage of development, with the necessary institutions and structural reforms in place will gain the most benefit from developing innovative financial instruments

We have categorised a list of best practice examples emerging from the literature of each of these phases in unlocking green finance. This collection of measures will be refined, tested and built upon in the stakeholder engagement phase of this research project.

**Institutions**

A health financial services sector is essential for unlocking investment and therefore project flows. The diagram below depicts the key groups of institutions necessary for financial maturity, and depicts the relationship between them. Borrowers and lenders need access to financial markets in
To meet their borrowing and lending needs as efficiently as possible. Financial intermediaries help borrowers and lenders to access financial markets. Government institutions and regulators act as the overarching institutional infrastructure for the financial system. Research institutions provide support and access to information for all players in the system.

**Figure 11: Institutions Contributing to Financial Maturity**

Examples of the types of organisations and systems needed for financial maturity in an economy are listed below, by type of institution:

**Government institutions/regulators**
- Reserve bank/central bank
- Sovereign wealth fund (where appropriate)
- Revenue collector/tax regime
- National Treasury
- Financial services regulator
- Ombudsman for the financial sector
- Reporting and compliance systems, fiduciary duty

**Borrowers**
- Government
- Listed companies
- Private companies

**Financial intermediaries**
- National development banks
- Bi-lateral development banks
- Multi-lateral development banks
- Commercial banks
- Credit unions or financial co-ops
- Pension funds
- Insurance sector
- Mutual funds/Investment funds
- Private equity funds
- Venture capital
- Financial advisors
Financial markets
- Bond market
- Foreign exchange market
- Interbank markets
- Stock exchange/ equity market
- Derivatives markets
- Hedge funds
- Markets for other ‘green’ tradeable instruments – eg. offsets, credits, swaps

Lenders
- Individual savings
- Companies

Financial support institutions
- Auditors
- Consultants
- Software providers
- Information providers
- News providers

Structural reforms (including policy)
Government’s role in unlocking finance, through structural reforms, is in creating an enabling policy environment that sends a strong signal to project developers and investors.

Governments have a range of fiscal, regulatory and market-based policy mechanisms at their disposal to create incentives to change behaviour and stimulate early market development. The aim is to use limited public finance to leverage and crowd in private sector investments. Key examples of these fiscal, regulatory and market-based policy mechanisms are provided below.

Overarching macroeconomic policy
Government needs to set a clear medium-long term strategy clearly positioning a transition to a green or low-carbon economy as a key national development priority. Various government departments should work together to ensure that portfolio or sector-level policies are aligned to this overarching policy imperative.

A clear and aligned macroeconomic policy imperative from government creates the confidence necessary for the private sector and investors to pursue green economy projects and investments.
Fiscal policy mechanisms
There are a variety of fiscal policy mechanisms at the disposal of governments. Key categories and examples of these fiscal mechanisms are outlined below:

- **Sustainable Public Procurement** – bulk procurement, preferential procurement or procurement conditions for suppliers that meet environmental requirements
- **Payment for Environmental Services** – government spending on well-defined environmental services. This includes a land use presumed to produce an environmental service
- **Corrective taxes and levies** – taxes and levies designed to correct market failures in the form of negative externalities
- **Subsidy Reforms** – subsidy reforms address market failures by reducing, redesigning or eliminating harmful subsidies that promote inefficient use of resources, and improving subsidies for activities that promote the efficient use of resources
- **Tax Incentives** – preferential tax treatments or exemptions function to help develop green technologies, preserve resources and increase climate resilience through direct fiscal incentives
- **Early Market Development Instruments** – these instruments support technology development and deployment by securing and boosting market demand. For example, governments can foster green procurement within commercial companies by requiring them to meet specific energy efficiency targets and to purchase a specific percentage of power from renewable energy sources. Specific examples are:
  - Feed-in tariffs
  - Public sector grants, including R&D grants
  - Concessional loans to crowd in private investment
  - **Concessional loans to citizens** – to stimulate demand. For example, the green mortgages programme in Mexico. This is a housing finance scheme developed by the Institute for the National Workers’ Housing Fund (INFONAVIT) to encourage the use of energy efficient systems and technologies for low-income households. Families purchasing homes with INFONAVIT are given an additional ‘green’ mortgage (a credit on top of the actual mortgage credit), to cover the cost of additional eco-technologies
  - **Capitalising funds** with grant capital and/or highly concessional loans
  - **Government demonstration projects** – a combination of government-led programs supported by international partners and private sector investment. For example, support for demonstration projects helped to scale up wind developments in Mexico

Regulatory approaches
Key regulatory approaches that can be employed to unlock green economy finance include the following:

- Standards
- Certifications
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- Permits and licenses
- Environmental regulation
- Regulation of the financial sector – Basel, Fiduciary Duty
- Mandatory reporting requirements
- Carbon budgets

Market-based mechanisms
In addition, a number of market mechanisms can be used by governments to help unlock green economy finance:

- **Cap and trade system** for emissions - Emissions trading mechanisms, such as carbon cap-and-trade and baseline-and-credit systems are intended to minimise the cost of a given level of pollution abatement by creating property rights to emit and limiting the supply of permits to ensure that the emissions level target is not exceeded. These permits can then be traded between emitters lacking permits and those who have a surplus.

The market making entities – or exchanges that are prominent players in the voluntary market space are the following:

- Chicago Climate Exchange (CCX): A cap and trade system implemented in North America for the 6 greenhouse gases
- European Climate Exchange (ECX): Since 2005, it has traded carbon emissions in Europe, using EU Allowances (EUAs) and Certified Emission Reductions (CERs), under the auspices of the Kyoto Protocol
- Other Exchanges include BlueNext (Paris), Chicago Climate Futures Exchange and Envex (Australia)

- **Offset mechanisms**, such as carbon, forestry or bio-diversity offsets, including voluntary offsets
- **Renewable Energy Certificates (RECs)**: The market price for an REC can be seen as a subsidy paid to a renewable energy source per unit of production. The purchase of RECs helps offset carbon emissions and contribute to building a market for renewable energy

Financial instruments
In parallel to resolving institutional and structural or policy barriers, innovation in financial market instruments can also be of assistance in furthering green economy interventions. Financial instruments can be grouped according to the type of barrier they are designed to overcome, or the aspect of project economics they are designed to enhance:

Targeted credit enhancement tools – **reducing risk through insurance or third party guarantees**
• **Risk and credit guarantees** – can be a structured type of insurance product to cover losses in the event of a debt service default
• **Risk buy-downs**
• **State-backed guarantees**
• **First-loss provisions** – policy holder agrees to accept an amount less than the full value of the losses claimed for and are in turn not penalised for under-insuring the goods or property in question. The policyholder also cannot claim against losses below a specified first-loss levels
• **Political risk insurance instruments** – Coverage for protection against investment risks in emerging markets, for example, the Overseas Private Investment Corporation (OPIC) political risk insurance product
• **Subordinated debt** – in the event of the borrowing company failing, the debt will only be repaid after all other debt has been settled. For example, the Project Bond Initiative by the European Investment Bank (EIB) is designed to enable eligible infrastructure project promoters to attract additional private finance from institutional investors such as insurance companies and pension funds. EIB provides a subordinated debt portion of the project financing. This boosts the credit rating of the project bonds to a level that allows institutional investors to invest. The 2020 Project Bond Initiative aims to provide partial credit enhancement to projects in order to attract capital market investors. The mechanism of improving the credit standing of projects relies on the capacity to separate the debt of the project company into senior and subordinated tranches. EIB will provide a subordinated tranche, or facility, to enhance the credit quality of the Senior Bonds, and therefore increase their credit rating. The Project Bond Credit Enhancement initiative will provide this credit-enhancing subordinated tranche in one of two ways:
  - A loan given to the project company from the outset; or
  - By way of a contingent credit line which can be drawn if the cash flows generated by the project are not sufficient to ensure Senior Bond debt service or to cover construction costs overruns
• **Risk pooling facilities**
  - The African Risk Capacity Initiative: An African-led Strategy for Managing Extreme Weather Risks. The African Union Commission’s Department of Rural Economy and Agriculture, with technical assistance from the UN World Food Programme (WFP), initiated the African Risk Capacity (ARC) Project to design and establish a pan-African risk pool. ARC is envisaged as an African-owned, standalone financial entity that will provide African governments with timely, reliable and cost-effective contingency funding in the event of a severe drought by pooling risk across the continent. The initial capital comes from participating countries’ premiums as well as one-time partner contributions. ARC works with countries to calculate country premiums and allocate payouts to member countries based on predetermined and transparent rules for payment. Countries elect the level at which they wish to participate by selecting the amount of risk they wish to retain and financing they would want from ARC for droughts of varying severity
  - The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is another risk pooling facility, owned, operated and registered in the Caribbean for Caribbean governments. It is designed to limit the financial impact of catastrophic hurricanes and earthquakes to Caribbean governments by quickly providing short term liquidity when a policy is triggered. It is the
world's first and, to date, only regional fund utilising parametric insurance, giving Caribbean governments the unique opportunity to purchase earthquake and hurricane catastrophe coverage with lowest-possible pricing. The CCRIF was developed under the technical leadership of the World Bank and with a grant from the Government of Japan. It was capitalised through contributions to a multi-donor Trust Fund by the Government of Canada, the European Union, the World Bank, the governments of the UK and France, the Caribbean Development Bank and the governments of Ireland and Bermuda, as well as through membership fees paid by participating governments.

Financial products relying on improved cash-flows through energy efficiency savings

- **Energy Efficient Mortgage (EEM)** – a mortgage that credits a building’s energy efficiency in the mortgage itself. EEMs give borrowers the opportunity to finance cost-effective, energy-saving measures as part of a single mortgage and stretch debt-to-income qualifying ratios on loans thereby allowing borrowers to qualify for a larger loan amount and a better, more energy-efficient home. This type of product can also be applied in the commercial and industrial sector for greenfields and brownfields projects.

Debt instruments tying the proceeds to environmental or social outcomes

These debt instruments provide a liquid financial instrument that enables institutional investors to invest indirectly in assets at scale. These types of debt instruments are especially attractive to sustainability oriented investors who are looking for stable, long term returns. However, there is a need to create standardisation in the instruments offered, and initiatives are ongoing to create a standard and standardised set of disclosure requirements for green bonds. A consortium of leading banks published a set of voluntary guidelines for green bond issuance early in 2014, in order to ensure the integrity of this fast growing market. The guidelines also help investors to obtain information required to evaluate the environmental impact of their investments.

- **Public Equity Products** – Institutional and retail investors can invest in specialised sustainability related sectors including renewable energy, energy efficiency or waste management but also related issues such as water and infrastructure investments.
- **Social bonds** – instruments which tie the proceeds of a bond issue to social development investments. Issuers promise to spend the capital on projects with good social returns. For example, Israel issued a social impact bond where the financial return on the Social Impact Bond is justified by the cost savings that are generated from the reduction in cases of type 2 diabetes.
- **Vaccine bonds** – The International Finance Facility for Immunisation (IFFIm) exists to rapidly accelerate the availability and predictability of funds for immunisation. The resources raised by IFFIm are used by the Gavi, the Vaccine Alliance, a public-private partnership, which provides funds to purchase and deliver life-saving vaccines and strengthen health services in the world’s poorest countries. The International Finance Facility for Immunisation (IFFIm)
uses long-term pledges from donor governments to sell ‘vaccine bonds’ in the capital markets, making large volumes of funds immediately available for Gavi programmes

IFFIm benefits from US$ 6.3 billion in donor contributions over 23 years from the governments of the United Kingdom, France, Italy, Norway, Australia, Spain, The Netherlands, Sweden and South Africa.

These long-term pledges support the issuance of vaccine bonds, which have been issued in various markets - from London 2006 to Tokyo in 2010, – and proved remarkably popular with institutional and individual investors who want a market-based return and an ethical investment opportunity.

- **Green bonds/ climate bonds** – instruments which tie the proceeds of a bond issue to environmentally friendly investments. ‘Green Bonds’ have recently been introduced by the International Finance Corporation (IFC) and European Investment Bank (EIB) as a financial vehicle to invest in sustainability related activities and finance green infrastructure in developing countries. Later in this document we include a brief description of green bonds issued in the last two years

**Quasi-equity products** – a category of debt taken on by a company that has some traits of equity such as having flexible repayment options or being unsecured. Quasi-equity products allow projects with a riskier profile to get financing. The products are generally aggressively priced, as investors seek high returns in return for accepting a lower level of due diligence.

- **Mezzanine finance** – a hybrid of debt and equity financing debt capital giving the lender rights to convert their debt to an equity interest should the borrower default on the loan terms. This form of debt is also generally subordinated to debt by senior lenders, meaning that in the event of the borrowing company failing the debt will only be repaid after all other debt has been settled

**Aggregation activities** – consolidating resources to address the problem of a lack of vehicles of appropriate size for channelling capital.

- **Semi-direct investment in pooled vehicles** (such as private equity funds) - for example, the IFC and DFID’s Climate Catalyst Fund- A private equity ‘fund of funds’ focused on providing growth capital for companies delivering resource efficiency and low-emission products and services in emerging markets. The Climate Catalyst Fund will seek to assemble a diversified portfolio of private equity funds managed by established and emerging fund managers. It also intends to make direct co-investments in early and growth-stage companies that are developing innovative technologies and helping reduce climate change. It will invest in private equity funds that specialize in what the IFC calls “low-carbon and climate-friendly projects and companies” in emerging markets. The fund will be managed by the IFC’s Asset Management Company (AMC). IFC’s Board has approved an investment of up to $75 million in the fund. The fund will also receive a $50 million investment from the UK government’s
Department for International Development (DFID). This money is included in a newly announced package of UK climate finance, and is part of a UK initiative called the Climate Public Private Partnership, or CP3, an expansive public-private investment platform part-designed by the IFC

- **Aggregating a large number of small investment opportunities securitised to form green bond offering**

**International aid – improving the outcomes related to international aid, or non-performing debt**

- **Debt-for-carbon or debt-for-nature swaps** – sovereign debt received by a creditor in exchange for the debtor government investing a specified level of funds in a low carbon or environmental conservation project. The creditor then takes ownership of the carbon credits, or there is a financial commitment related to outcomes. For example, the United States has swapped debt with Indonesia to preserve Borneo’s forests

- **Results-based financing - eg. Cash-on-delivery aid** – Results-based financing (RBF) is defined as any programme where the principal sets financial or other incentives for an agent to deliver predefined outputs or outcomes and rewards the achievement of these results upon verification. Results-based financing has been used extensively in the healthcare sector, however it could be applied in any scenario where funders and beneficiaries can agree on a set of measurable and verifiable outcomes. For example, a World Bank and Global Fund partnership created performance incentives by paying for health services only once negotiated and agreed results had been achieved, measured and verified by a third party. The Bank also has a channel to improve funder-country incentives through Program for Results (P4R) financing, which also focuses on strengthening institutional capacity. The Global Fund is also drafting operational guidance for a “menu of options” for Results-Based Financing.

An example of a performance-linked initiative in the carbon space is the World Banks’s Carbon Initiative for development (Ci-Dev). The initiative supports low-carbon investments in least developed countries, using carbon-linked performance payments.
6. International best practice examples of financial innovation

This section provides a number of examples of financial innovation. We felt that in most cases the description on the website of the innovation or organisation that owns that innovation would be more appropriate and less time consuming than our rephrasing each description. Each of the below descriptions is therefore taken verbatim from the website. For readability we have referenced each organisation in the reference list. We deeply apologise for any omission.

Government demonstration projects

A number of organisations or initiatives that focus on financing early market development. The initiatives use a mix of government grants and concessionary tools funded through the fiscus, combined with private finance:

Asian Development Bank (ADB) and DFID’s Climate Public Private Partnership Fund

The “Climate Public-Private Partnership Fund” - institutional investors can access opportunities to invest in resource efficient and low carbon private equity and infrastructure assets and services in Asia.

The funds and direct investments selected through the fund will have environmental impact and sustainability as key value drivers. As such, they are aligned with ADB’s Strategy 2020, which seeks to reduce poverty and improve living conditions and quality of life, by scaling up private sector development and supporting environmentally sustainable models through projects that aim to reduce greenhouse gas emissions and address climate change impacts. Key aspects of the Fund include the following:

- The Fund will be structured as a Public-Private Partnership to maximize opportunity and minimize risk
- The Fund will seek to use public sector seed capital, concessionary finance and risk mitigation techniques to create the conditions under which private sector investors will be attracted to invest capital at scale into emerging Asian markets
- The Fund is designed to have a catalytic effect in increasing the scale of private sector capital flows in resource efficiency and low carbon investment opportunities in developing markets by reducing risks and associated costs with such investments

The Sustainable Energy Fund for Africa (SEFA) – a multi-donor trust fund administered by the African Development Bank - anchored in a commitment of USD 60 million by the Governments of Denmark and the United States – to support small and medium-scale Renewable Energy (RE) and Energy Efficiency (EE) projects in Africa.

- SEFA is founded on the premise that reliable, clean and affordable energy can contribute to strong African economies and can have a positive impact in creating employment opportunities across the continent
The development objective of SEFA is to support sustainable private-sector led economic growth in African countries through the efficient utilization of presently untapped clean energy resources.

SEFA has been designed to operate under three financing windows:

1. Project Preparation: Cost-sharing grants and technical assistance to private project developers/promoters to facilitate pre-investment activities for renewable energy and energy efficiency projects.
   - All proposals received will be screened and pre-assessed against the basic eligibility criteria by the SEFA Secretariat.

2. Equity Investments: to address the lack of access to early stage capital for small-and medium-sized projects, as well as the low managerial and technical capability of smaller entrepreneurs and developers.

3. Enabling Environment: Provide grants to support mainly public sector activities that create and improve the enabling environment for private sector investments in the sustainable energy space in Africa.

**The Global Climate Partnership Fund (GCPF)** – an innovative public-private partnership dedicated to mitigating climate change through a reduction of greenhouse gas emissions in emerging and developing markets.

Focuses on financing energy efficiency and renewable energy projects primarily in cooperation with local financial institutions, thereby creating a positive impact on the local environment and economy.

- Investments should contribute significantly towards energy savings and the reduction of greenhouse gas emissions to promote the environmentally friendly use of energy.
- The Fund will observe the principles of sustainability and additionality, combining development and market orientations.
- GCPF aims to attract additional capital into climate financing.

The final beneficiaries of GCPF mainly comprise households, home owner associations, leasing companies, SMEs (including ESCOs and small renewable energy companies) as well as municipal entities which require financing in order to improve energy efficiency performance of their (or their clients’) buildings or processes, or to produce renewable energy.

To reach its final beneficiaries, GCPF can pursue two types of investments:

- Investments into Financial Institutions – these include local commercial banks, leasing companies and other selected financial institutions that either finance or are committed to financing projects of the Final Beneficiaries meeting the eligibility criteria of GCPF.
- Direct Investments – these comprise project developers, energy service companies (ESCOs), small-scale renewable energy and energy efficiency service and supply companies that serve energy efficiency and renewable energy market in the target countries.
The Global Environment Facility – a partnership for international cooperation where 183 countries work together with international institutions, civil society organizations and the private sector, to address global environmental issues.

- Since 1991, the GEF has provided $12.5 billion in grants and leveraged $58 billion in co-financing for 3,690 projects in 165 developing countries. For 23 years, developed and developing countries alike have provided these funds to support activities related to biodiversity, climate change, international waters, land degradation, and chemicals and waste in the context of development projects and programs.

The GEF would provide new and additional grants and concessional funding to cover the "incremental" or additional costs associated with transforming a project with national benefits into one with global environmental benefits.

The GEF is largely funded through voluntary contributions from member governments, raised through replenishment negotiations that take place every four years. Funding is meant to cover “incremental” or “additional” costs.

The Climate Investment Funds (CIF) – unique financing instruments designed to initiate transformational change towards low-carbon and climate-resilient development through scaled-up financing channelled through the Multilateral Development Banks (MDBs).

- Provides 48 developing and middle income countries with urgently needed resources to mitigate and manage the challenges of climate change and reduce their greenhouse gas emissions.

The CIF allocates financing through four funding windows:

- The Clean Technology Fund (CTF) - provides middle-income countries with highly concessional resources to scale up the demonstration, deployment, and transfer of low carbon technologies in renewable energy, energy efficiency and sustainable transport.
- The Forest Investment Program (FIP) - supports efforts of developing countries to reduce deforestation and forest degradation and promotes sustainable forest management that leads to emission reductions and the enhancement of forest carbon stocks (REDD+).
- The Pilot Program for Climate Resilience (PPCR) - is helping developing countries integrate climate resilience into development planning and offers additional funding to support public and private sector investments for implementation.
- The Scaling up Renewable Energy in Low Income Countries Program (SREP) - stimulates energy access and economic growth by working with governments to build renewable energy markets, attract private investment and target renewable energy.

Funds are disbursed as grants, highly concessional loans, and/or risk mitigation instruments.
IFC's Blended Finance

The ‘blended finance’ approach - subsidizes investment in the private sector at lower than market rates by combining donors’ concessional funds with the IFC’s own non-concessional funding.

The IFC uses the term blended finance to distinguish it from ‘concessional finance’, which requires a minimum 25 per cent grant element, according to the official definition of the Organisation for Economic Cooperation and Development’s Development Assistance Committee. Although blended finance has a concessional component, the IFC deliberately tries to minimise the subsidy portion of the investment and not to crowd out private financing.

The IFC’s blended finance instruments aim “to catalyse investments with strong social and development benefits that would not otherwise happen” and to address “market barriers by investing in projects that are not considered commercially viable today but have the potential to be in the future.”

The Blended Finance Unit (BFU) manages concessionary donor funds to be deployed for investment and advisory projects.

- BFU manages approximately $700 million in funds from the Climate Investment Funds, the Global Environment Facility, and the Canada Climate Change Program. These funds are often matched by IFC resources and can be deployed as softer loans, guarantees, equity, and grants for projects that would generally not be taken up by the private sector alone due to high project risks, technology costs, or technology risk.

African Union Commission (AUC) Geothermal Risk Management Facility

Geothermal Risk Mitigation Facility (GRMF) - to fund geothermal development in East Africa. The GRMF was launched in April 2012 and will consist of a series of Application rounds. The programme will co-finance surface studies and drilling projects aimed at developing this largely untapped indigenous and renewable energy resource.

The objective of the Facility is to encourage public and private investors as well as public private partnerships to develop geothermal prospects for power generation in Eastern Africa. The facility provides grants to co-finance surface studies and exploration drilling programmes for public and private developers.

- Infrastructure grants
- Surface studies grants
- Drilling grants
- Continuation Premium

The Japan Bank for International Cooperation signed an untied loan agreement for offering a credit line amounting up to 50 million U.S. dollars (of which JBIC’s portion is 30 million U.S. dollars) with the Development Bank of Southern Africa Limited (DBSA). The credit line is co-financed with
Sumitomo Mitsui Banking Corporation (SMBC; lead arranger), with JBIC providing a partial guarantee for the cofinanced portion by SMBC.

- This is JBIC’s first loan to Africa under GREEN operations. The credit line is intended to finance, through DBSA, environment-related projects such as wind power, solar photovoltaic power generation and other projects harnessing renewable energy resources in the member countries of the Southern African Development Community (SADC) where DBSA conducts operations.

The Inter-American Development Bank’s Green Credit Lines include loans and guarantees for financial intermediaries in Latin America and the Caribbean aimed at promoting a portfolio of environmentally-friendly subloans that have a reduced ecological footprint. Among the priority sectors are renewable energy; biomass; energy efficiency; sustainable tourism, transportation, buildings, forestry and agriculture; cleaner production and biomass.

**Overseas Private Investment Corporation’s (OPIC) Global Renewable Resource Fund call**

OPIC announced a Global Renewable Resources Funds call for proposals to help catalyse and facilitate private sector investments promoting renewable resources globally. OPIC selected the five funds from among 56 respondents to the call.

The Board of Directors of the Overseas Private Investment Corporation (OPIC) approved nearly $500 million in financing for five investment funds that could ultimately invest more than $1.5 billion in the renewable resources sectors of South and Southeast Asia and Africa, helping the fast-growing economies of the former to manage their environmental challenges, and the latter to enhance its farming sector.

**U.S Africa Clean Energy Finance Initiatives**

ACEF is an innovative financing program developed by the Overseas Private Investment Corporation (OPIC), the U.S. Department of State, the U.S. Trade and Development Agency (USTDA), and the U.S. Agency for International Development (USAID).

The goal of the four-year program is to catalyse much needed private sector investment in clean energy projects in Africa by providing support for early stage project development costs.

Eligible Projects:

- Environmentally sustainable and economically developmental
- Commercially viable technology
- Supported and managed by experienced energy professionals
- U.S. private sector involvement
- Project must be in an eligible country
Uses of ACEF Funds:

- Engineering costs - associated with project design, technology assessment, and overall feasibility studies
- Legal costs - for preparation of documentation related to permitting, PPAs, EPCs, O&M, and financing agreements
- Consulting costs - for the preparation of environmental and social impact studies
- Third-party costs - associated with physical and technical analysis of renewable resources

Description of green bonds issued in the last two years

**Bank of America - 2013** – issued a “green bond” consisting of a three-year, fixed-rate bond that is $500 million in aggregate principal amount. This issuance of bonds is part of the company’s ongoing commitment to advance renewable energy initiatives and promote energy efficiency.

Bank of America’s green bond is a senior bond where the funds will be used specifically to finance green investments such as renewable energy and energy efficiency projects. The proceeds from this offering will be used in furtherance of Bank of America’s 10-year, $50 billion environmental business initiative to help address climate change, reduce demands on natural resources and advance lower-carbon economic solutions.

Bank of America viewed this issuance as an opportunity to expand its investor base and to support an important market as investors seek more socially responsible investment options.

**Skandinaviska Enskilda Banken (SEB)** – a Swedish financial group for corporate customers, institutions and private individuals

- 2014 - The World Bank (International Bank for Reconstruction and Development, IBRD) announced a Swedish Kronor (SEK) 1.5 billion 5-year fixed rate green bond - lead managed by Skandinaviska Enskilda Banken AB (SEB) and sold to a group of eight investors
- The Green Bond concept was developed in 2007/2008 by SEB and the World Bank as a response to increased investor demand for engagement in climate-related opportunities

“Our concept is based on simplicity and our vision is to replicate the Fixed Income market. The Green Bond uses existing Issuance Programmes and financial risk, pricing and return profile are in line with non-Green Bonds. The proceeds are allocated to eligible Green Bond projects according to pre-defined criteria, verified by environmental specialists. Transparency is guaranteed through regular reporting of the Green Bond projects.”

**Export Development Canada (EDC)** – Canada’s export credit agency. Our job is to support and develop Canada’s export trade by helping Canadian companies respond to international business opportunities.
2014 - Priced its first Green Bond in the principal amount of USD 300 million, reflecting EDC’s commitment to the environmental aspects of its Corporate Social Responsibility (CSR) principles.

EDC’s current portfolio of green assets includes loans made to companies who are active in fields of preservation, protection or remediation of air, water, and/or soil, or the mitigation of climate change.

The Centre for International Climate and Environmental Research (CICERO), an independent research centre associated with the University of Oslo in Norway, endorsed EDC’s Green Bond Framework.

**GDF SUEZ** – a global energy player and an expert operator in the three key sectors of electricity, natural gas and energy services.

- 2014 - To support its ambitious development strategy in renewable energies and energy efficiency, GDF SUEZ issued a Green Bond of €2.5 billion.

The bond has two tranches: a 6-year tranche of €1,200 million with a 1.375% annual coupon, and a 12-year tranche of €1,300 million with a 2.375% annual coupon. The average coupon amounts to 1.895% for a 9.1 years average duration. The bond was 3-times oversubscribed and very successful with French, German and UK institutional investors. Strong demand came from investors focused on environmental and socially responsible investing who bought 64% of the issue.

The funds of this bond issue will be used to finance the Group’s growth not only in renewable energy projects such as wind farms and hydroelectric plants, but also in energy efficiency projects such as remote (smart) metering and the construction of integrated district heating networks powered by low-emission biomass plants.

To be eligible, the projects financed must meet a number of social and environmental criteria in five areas: environmental protection, contribution to local development and the well-being of local communities, fair and ethical relationships with suppliers and sub-contractors, human resources management, and good corporate governance for the selected projects.

**World Bank - Green Bond Issuance** – The World Bank had a record year for green bond issuances raising a total of almost $3 billion in FY14 (July 2013 to June 2014). With its first green bond issued for FY15 – a green bond linked to a sustainable equity index – World Bank’s total issuance reached $6.4 billion through 68 bonds in 17 currencies, supporting 62 projects in 20 countries. Recent issues also include more than $1 billion issued through two U.S. dollar transactions, an inaugural.

All World Bank bonds support sustainable development, poverty reduction and inclusive growth. They fit well with investment strategies that incorporate Environmental, Social and Governance factors into the decision-making process.

The World Bank’s Green Bonds are a subset of our sustainable investment opportunities focused specifically on climate change mitigation and adaptation.
**International Bank for Reconstruction and Development** – 2014 Green Bond for a European pension fund

**International Finance Corporation (IFC)** – a member of the World Bank Group, is the largest global development institution focused exclusively on the private sector.

“We help developing countries achieve sustainable growth by financing private sector investment, mobilizing capital in international financial markets, and providing advisory services to businesses and governments.”

2014 - IFC, a member of the World Bank Group, issued a 500 million renminbi-denominated green bond (approximately $80.29 million) that will be used to support climate-friendly investments in emerging markets. The bond is listed on the London Stock Exchange and sets a precedent as the first green bond issued by a multilateral institution in the offshore Chinese markets.

**City of Johannesburg 2014** – R1.46bn bond issued by the City of Johannesburg and listed on the Johannesburg Stock Exchange's (JSE), which will be used to fund green initiatives.

The money raised through the bond will be used to finance green initiatives such as the Bio Gas to Energy Project and the Solar Geyser Initiative, as well as all other projects that reduce greenhouse emissions and contribute to a resilient and sustainable City.

**Électricité de France (EDF) French energy group** - 2013 – raised €1.4 billion ($1.9 billion), the first euro-denominated green bond from a large company.

This marked the point at which corporate issuers took over from IFIs as the main issuers of such bonds.

The funds raised will be exclusively dedicated to financing future renewable energy projects led by EDF Energies Nouvelles, a wholly-owned subsidiary of EDF since 2011. For this inaugural issue, EDF made a dual innovative commitment, both in terms of project eligibility criteria and fund allocation. The selected projects will have to comply with the eligibility criteria drawn up by the Vigeo rating agency, which cover five areas related to environmental and social impacts.

**U.S State, Massachusetts** – first state to issue green, tax-exempt municipal bonds in 2013 to fund energy conservation projects, such as improving energy efficiency in state buildings and protecting open spaces.
**Big 60 Million UK** – 2014 Solar Bonds released to finance Willersey Solar Farm in the Cotswolds have been certified under the Climate Bond Standards and Certification Scheme as being used to deliver climate change solutions. First certified **climate bonds** in Europe.

**European Investment Bank** – 2014 Climate awareness bond – issue placed with Swiss investors.

**African Development Bank** 2013 – launched its first green bond to help carry out its green mission. $500 million issue to finance renewable energy, energy efficiency, solid waste management, water supply and access and other projects.

**MidAmerican Energy Holdings Co.** – 2012 Topaz Solar Farm renewable energy bonds.

**Asian Development Bank** – Clean Energy Bonds.
7. Conclusion

We believe that this literature review, while intended as an internal, interim, project deliverable, is a useful contribution to the debate on the green economy and in particular the role of finance. Not the least of which is providing a set of conversation tools that together provide a framework against which to contextualise the specific system level interventions.

In the remainder of the project we intend using this framework to lead several multi-stakeholder discussions intent on identifying and prioritising a small number of potential systemic interventions that could achieve significant scale in South Africa. We will then consider each of the prioritised interventions in terms of how we can unlock investment and implementation through financial innovation and policy intervention, drawing on the tools and examples provided in this report.

The framework of conversation tools to be used in the multi-stakeholder discussions consist of the following:

- 4 self-assessment models that drill down from an international context perspective to local project level engagement. This enables people from a variety of backgrounds to quickly understand how finance and international finance is relevant to local project development
- A set of 7 principles that circumvent discussions getting caught up in issues of definition and allows participants to consider positive and negative trade-offs across the entire economy. Furthermore a common terminology should lead to more constructive conversations
- An analysis of the guiding document to South Africa’s development, the National Development Plan, in the context of some critical supporting policy. We hope this will contribute to understanding the focus of South African policy as well as enable an understanding of which policy levers can be pulled to enhance implementation of the systemic interventions we hope to identify in future phases of the project. Most importantly, however, the NDP provides a common vision around which stakeholders can unite, hopefully creating greater cohesion and collaboration in selecting and implementing systemic interventions
- A set of workshop facilitation notes, in support of the intervention identification workshops that are to take place within the next project phase
- A set of best practice examples in identifying institutional needs, structural reform examples and financial instrument innovation, in support of the solution development workshops. This will be the final phase of the project
In addition to the above, we have consulted with over 100 individuals within South Africa from a range of stakeholder backgrounds and have developed a target list of invitees to our intervention identification and solution development workshops. We trust that our engagement will ensure a good set of representative experts attending the workshops in phase 2 and 3 of the project.

The remainder of the project will explore the identification and prioritisation of systemic interventions, as well as propose solutions for each of the prioritised interventions. While the implementation of these interventions is outside of the scope of the project, this highlights one of the key contributions of the project. The process and tools that enable the multi-stakeholder conversations we have and will host will start to break down some of the barriers to the collaboration that is needed. Furthermore, it will go some way in establishing relationships between key stakeholders who will need to work together for successful implementation. While it is our hope that some of the systemic interventions identified will form a key focus of future work, we believe the networks established and the conversation tools available are of inestimable value.

Finally, this is the kind of document that is never complete. The rate of innovation and change in the space of finance and development is impressive and new examples are being continually unearthed. This document is intended as a discussion document and we are very happy to receive your comments and further contributions. Should you wish to contribute to this project please review the companion website (www.nbigreeneconomy.wordpress.com) or email SteveN@nbi.org.za.
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Appendix I – Workshop facilitation notes

Overall objective

Introduce the participants to the discussion frameworks and facilitate a conversation around potential areas of activity that will have both a systemic impact on the South African economy (in particular in overcoming systemic barriers in the financial services value chain) and significantly aid in a transition to a green economy.

The overarching assumption is that having a conversation about a specific intervention is more productive and constructive than attempting to have a conversation about the economy as a whole.

While this process has been designed for use in South Africa it could easily be adapted for use in any developing country.

Workshops should be limited to between 12 and 20 people. More than 20 people may become unworkable and may not produce usable results.

Specific objectives and workshop steps

- Introduce the workshop participants to terminology around the financial services value chain and the overall objectives of the workshop. Provide one example of a systemic barrier. Information available on pages 10 to 12
- Introduce the workshop participants to a framework introducing the ideas of how institutions, governance frameworks and mature financial services, and financial instruments (products) interact and differ across countries. Different interventions are required depending on where a country sits within this framework. Information available on pages 7 to 10
- Using a framework to understand in country systemic barriers, lead a discussion on potential systemic barriers within your economies financial services sector. Examples of South Africa’s financial service sector are provided. Pages 10 to 12 of this report
- Using the example of the REIPPPP process in South Africa, where policy and financial services innovation unlocked R80 to R90 billion of commercial debt towards a renewable energy sector in South Africa, introduce the key project question. The key project question is then how can we replicate the success of the REIPPPP across other systemic intervention areas. Pages 13 and 14
- Re-emphasis the purpose of the workshop – to identify programmes that can simultaneously address systemic barriers in the financial services sector as well as provide economic benefits towards a green economy transition
- Introduce the concept of their being only one economy and that in effect the green economy is a sub-set of total economic priorities. When considering “green” systemic interventions you need a framework to consider the positive and negative trade-offs across the whole economy
- Introduce the NBI Economic Principle Framework as a tool for understanding the goals and intentions of economic planning as well as a means of assessing trade-offs. Pages 19 to 32.