Inquiry: Design of a Sustainable Financial System

UN environment

Nigerian Sustainable Finance Roadmap

December 2018

UN Environment Inquiry

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme (UN Environment) to advance policy options to improve the financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development. Established in January 2014, it published the first edition of 'The Financial System We Need' in October 2015, with the second edition launched in October 2016 and a final report launched in 2018. The Inquiry will close in December 2018 having worked in over 20 countries and produced a wide array of briefings and reports on sustainable finance.

More information on the Inquiry is at: *www.unepinquiry.org* or from: Ms. Mahenau Agha, Director of Outreach *mahenau.agha@un.org*.

FMDQ

FMDQ OTC Securities Exchange is Nigeria's foremost debt capital, foreign exchange and derivatives over-the-counter securities exchange, strategically driven to transform the Nigerian financial markets through its "GOLD" (Global Competitiveness, Operational Excellence, Liquidity and Diversity) Agenda.

With an average annual market turnover of circa ₦118 trillion, about US$600 billion, over the last three years, FMDQ operates the largest securities exchange in Nigeria.

Guided by its mission of empowering the financial markets to be innovative and credible in support of the Nigerian economy, FMDQ set up a market-driven initiative – the Debt Capital Market Development (DCMD) Project which draws extensively from the Nigeria's Financial System Strategy (FSS2020) Plan and the Nigerian Capital Market Masterplan 2015-2025; and is aimed at stimulating growth and accelerating the Nigerian DCM, to become a world class, properly functioning DCM by 2025.

About this report

This report was coordinated and co-authored by Iain Henderson, Head of International Cooperation (UNEP Inquiry) and Daniel Akinmade Emejulu, Nigeria Programme Manager (UNEP Inquiry), with assistance from Prajwal Baral. Comments are welcome and should be sent to *iainhenderson2007@gmail.com* and *daniel.emejulu@gmail.com*.

Acknowledgements

The UN Environment Inquiry would like to express its special gratitude to project partner FMDQ, notably CEO Bola Onadele (Koko), as well as the wider team for all their help and support. We would also like to thank the following for help and guidance throughout the project as well as the survey respondents who provided valuable input to the report. The involvement and engagement of varied members in Nigeria's finance sector has been key to this project.

Adeola Azeez, Akinsehinwa Akin-Taylor, Amaka Okechukwu Opara, Babatunde Majekodunmi, Emmanuel Etaderhi, Eyinna Anumudu, Fahad Husaini Adamu, Folake Elizabeth Fawunmi, Gbeminiyi Ade-Odiachi, Joan Abebe, Khalifa Umar Yakubu, Michael Ayotunde Emejulu, Mo' Omamgbe, Muhammad Bello, Ndah Adaba, Olawale Onaolapo, Olumide Lala, Olutade Olulade, Oluwaseun Pedro, Omawumi Kola-Lawal, Oyindamola Adeeko, Patrick Chidolue, Samuel Adelaja, Segilola Akin-Taylor, Sofiri Ezekiel-Hart, Tobi Edun, Tope Surakat and Zemmy Momoh.

Survey respondents

Access Bank: Omobolanle Victor-Laniyan, Head of Sustainability
Africa Finance Corporation: Omawumi Kola-Lawal, Associate Vice President, Environmental and Social Risk Management
Africa Infrastructure Investment Managers (AIIM): Yanmo Omorogbe, Investment Analyst
AIICO Insurance: Phil Maduagwu, General Manager, Corporate Services
Aluko & Oyebode: Olubunmi Fayokun, Partner
ARM Investment Managers: Chivuzo Offiah, Corporate Strategy
Bank of Industry (Nigeria)
Barclays (ABSA Group): Feyi Olusanya, Vice-President
Capital Assets Limited
Capital Market Solicitors Association: Onyinye Okafor, Member
Central Bank of Nigeria: Angela Sere-Ejembi, Deputy Director, Financial Markets Support and Development Division
Central Securities Clearing System (Nigeria)
Chapel Hill Denham: 'Kemi Awodein, Managing Director, Investment Banking
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Constant Capital: Niyi Omojola, Partner & Head of Investment Banking
Corporate Affairs Commission: Alhaji Garba Abubakar, Director, Compliance
Davisther Insurance & Reinsurance Brokerage: Wale Onaolapo & Lanre Ojuola,
Deutsche Bank: Andreas Vos, Country Head; Adeola Azeez, Deputy Country Head
FBN Merchant Bank: Adetoun Dosunmu, Fixed Income, Currencies and Treasury
Federal Ministry of Environment, Federal Republic of Nigeria: Ahmad Salihijo, Technical Assistant to Minister
G. Elias & Co: Gbolahan Elias, Partner; Ukamaka Okoli, Senior Associate; Jessica Atatigho, Associate
Heirs Holdings: Nwamaka Ogbonna, Research Analyst
Helios Investment Partners: Amaka (Ubah) Paul-Okafor, Manager
InfraCredit: Chinua Azubike, CEO
Investment One Vencap: Ore Sofekun, Managing Director
Jaiz Bank: Asmau Abubakar, Chief Service Officer
Kainos Edge: Doyin Salami, Partner
Lagos Business School: Olayinka David-West, Academic Director
Leadway Assurance Company: Adetola Adegbayi, Executive Director; Omowale Olatunde-Agbeja, Technical Assistant
National Pension Commission (Nigeria)
Nigeria Mortgage Refinance Company
Nigeria Sovereign Investment Authority: Tade Fadare, Head Operational Risk & Compliance
Rand Merchant Bank Nigeria: Funsho Odukoya, Chief Operations Officer; Oluwayemisi Ogunbodede, EA to Chief Executive Officer/Corporate Marketing Manager
Renaissance Capital, Oluwadamilola Okandeji: Corporate Service Analyst
Securities and Exchange Commission of Nigeria: Mo' Omamegbe, Deputy Director/Head of Strategy
Sahel Capital: Mezuo Nwuneli, Managing Director
Stanbic IBTC Bank: Tope Talabi, Head, Environmental and Social Risk
Standard Chartered Bank: One Dagun, Sustainability Manager
SunTrust Bank Nigeria Limited
The Infrastructure Bank: Adekunle AbdulRazaq Oyinloye, Managing Director and CEO
The Nigerian Stock Exchange: Ibe Enwo, Fixed Income Product Manager
The Society for Corporate Governance Nigeria: Chioma Mordi, Chief Operating Officer
University of Edinburgh Business School: Kenneth Amaeshi, Chair in Business & Sustainable Development & Director, Sustainable Business Initiative
Vetiva Capital Management: Olalekan Olabode, Head, Research; Michael Famoroti, Chief Economist

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PREFACE

With a Gross Domestic Product (GDP) of US$376 billion, Nigeria is the most populous country in Africa. Often referred to as the "*Giant of Africa,*" the country is home to approximately 186 million inhabitants. However, despite record growth in GDP over the last decade, Nigeria now has the highest number of extremely poor people in the world, according to a June 2018 Brookings Institute report.

Nigeria continues to grapple with a myriad of economic, social and infrastructure challenges on the back of a growing rural-urban migration, lack of pipe borne water, growing housing deficit, deteriorating environmental conditions that are heightening security challenges and creating increased social tension, and inaccessible health and education centres, signalling an annual estimated sustainable finance investment need of up to US$92 billion.

To address these challenges, FMDQ OTC Securities Exchange, in line with its strategic role as a catalyst for infrastructure capital, is working assiduously with key stakeholders on integrating the principles of sustainable finance to transition the Nigerian debt capital markets from a two-dimensional risk and return analysis to a four-dimensional risk, return, re-allocation and impact analysis.

It is in accordance with this core objective that we partnered with the UN Environment Inquiry to design and administer surveys to key public and private Nigerian financial sector stakeholders to obtain feedback needed to explore various options required to aid the alignment of sustainable finance with the Nigerian financial system, augmented by international experience.

The report highlights major barriers such as market failures, information asymmetries, lack of awareness and lack of consideration of non-financial or longer-term value, as well as opportunity costs that must be tackled. Nevertheless, it underscores the fact that the key stakeholders within the Nigerian financial system are taking steps to address the gap needed to mobilize long-term capital towards an inclusive, green economy.

Accepting the fact that there is room for improvements, we appreciate that the UN Environment Inquiry has taken the lead to prepare the Nigerian financial systems with the thought-starters needed to provide a platform for debates and to direct policy formulation in the near to medium term to improve market integrity while boosting investor confidence.

In summary, the adoption of the recommendations will no doubt pave the way for better diffusion of sustainable finance practice needed to lift out millions of Nigerians out of the poverty thresholds in line with the tenets of the Sustainable Development Goals of the 2030 Agenda for Sustainable Development and in fulfilment of the Nationally Determined Contributions of the Paris Agreement.

Bola Onadele. Koko
Managing Director/CEO
FMDQ OTC Securities Exchange

1. SUMMARY

The high-carbon, resource-intensive growth path of the last few hundred years has severely damaged both the planet and the people who live on it. Pollution, natural resource depletion and climate change are also creating significant social and economic stresses that have historically not been accounted for, or properly addressed, in development plans.

Growing empirical and anecdotal evidence signals that the development trajectory of Nigeria's economy will need to change dramatically in the coming years. The ability to deliver on key national policy objectives, diversify the economy away from its heavy reliance on natural resources, increase food security, provide jobs for a rapidly growing population, and fill a substantial infrastructure gap – these goals call for a new economic direction. Broader sustainability challenges, such as chronic air pollution, increasingly scarce fish stocks, depleted forest cover, climate-disrupted agricultural systems, and urban flooding further highlight the need for a new growth path.

Pivoting to a new economic pathway will require an unprecedented reallocation of capital. While the quantum of capital involved is large, this reallocation is only marginally about *more* investment; it is fundamentally about *different* investment. This capital redeployment is being facilitated by three powerful global forces. These include vast pools of capital searching for yield in a low interest rate environment, rapidly falling cost curves across many sustainable technologies, and an increasingly universal global policy blueprint.

This report lays out the ways in which Nigeria can unlock the investment needed to move onto a more sustainable growth trajectory that will benefit its people, its environment and the economy. It provides an analysis of sustainable finance opportunities in Nigeria out to 2030, assesses the characteristics of these opportunities, and estimates current sustainable finance flows. Based on expert interviews, it also identifies barriers to scaling sustainable finance in Nigeria and lays out options to address them.

Drawing on both top-down and bottom-up analyses, the report finds that the demand for additional sustainable investment in Nigeria is US$92 billion annually out to 2030. This presents an enormous investment opportunity – more than US$10 million of sustainable investment will be needed every hour of every day between now and 2030.

A survey of Nigerian investment experts identified several high potential areas within the US$92 billion annual sustainable investment opportunity. These include investments linked to clean energy systems, sustainable cities, agriculture and sustainable land use, health care and education, transport, circular economy business models and digital infrastructure.

Despite many data availability, methodological and definitional issues, the current annual sustainable finance flow is estimated at just over US$8 billion. This implies that annual sustainable finance will need to increase by approximately 1000% to capitalize on the opportunities identified in the report by 2030. The majority of current sustainable finance flows are from public sources. The proportion of private finance will need to increase in the future, given strained public balance sheets globally. This suggests that the opportunity for private sustainable finance in Nigeria could be roughly 20 times larger than the flows today.

To meet the demand, financial capital allocation patterns will need to change in two ways. Firstly, capital invested in polluting and environmentally damaging activities will need to decrease and allocations to activities with sustainability benefits will need to rise. This report focuses largely on the mobilization of new and additional sustainable finance. It is recognized that mainstreaming sustainability considerations into existing capital allocation patterns represents a considerable element of the sustainable finance challenge ahead, but this large area remains outside the scope of this report. Secondly, the speed at which capital is allocated to Nigerian sustainable investments will need to increase rapidly. As things stand, near-term capital expenditure will have a disproportionately large sustainability impact as a result of its long-term implications for future consumption patterns (technologies with long asset lives are 'locked in').

Meeting these dual objectives will require a detailed understanding of the Nigerian context. This includes the barriers that are currently preventing the scaling up of sustainable finance. These include both generic and sustainable finance barriers:

- Generic financial barriers impact sustainable investment and will ultimately need to be addressed to scale sustainable financial flows. These include structural issues such as maturity mismatches linked to the dominance of relatively short-term bank financing in an economy where much longer-term finance is required. Investment pools that could substitute for bank lending remain relatively shallow. Other generic barriers identified include access to finance for micro, small and medium-sized enterprises, the relative attractiveness of risk-free government securities compared to riskier securities, a range of market barriers including uncertainties over foreign exchange levels and land tenure, and aspects linked to the cost of doing business.

- Sustainable finance barriers are specific to the sustainable dimension of an asset or security. These included a relatively limited sustainable investment pipeline, the lack of a clear definition of what is and what is not sustainable, and a relatively low level of sustainable finance capabilities across the finance sector. A survey of experts also noted there was a lack of non-financial sustainability data and a sub-optimal alignment between incentives for providers of finance and sustainability objectives. Some stakeholders felt that sustainability is not yet readily accepted domestically, as it either damages financial performance or is perceived as an international concept.

As with many complex, multi-faceted challenges, no single solution set will deliver the sustainable finance required for Nigeria at scale and within the timeframe required. Identifying the optimal portfolio of interventions in Nigeria will require more detailed analysis. However, several areas have emerged that would benefit from further exploration. The non-exhaustive list highlights some potential solutions to overcoming generic and sustainable financial barriers to sustainable investment in Nigeria that are further explored in the report. These include:

- Enabling conditions that include developing sustainable finance definitions and taxonomies, improving non-financial disclosure, building the sustainable investment pipeline and developing more effective and efficient policy and regulations for sustainable finance.

- Banking will remain core to Nigeria's sustainable finance journey. The IFC estimates that globally its clients will need to scale sustainable finance operations from roughly 7% of the current lending book to around 30% by 2030 to meet demand. This will require an increased focus on identifying market opportunities, building internal capacity and developing new products.

- Capital markets will be core to the development of sustainable finance in Nigeria. Non-sovereign and corporate issuance will help develop the domestic green bond market and hold great potential for Nigeria and the continent.

- Cross-cutting issues such as harnessing the potential of digital innovation to unlock sustainable finance and broad awareness raising will also be key to scaling sustainable finance.

Sustainable investment opportunities in Nigeria up to 2030 represents a huge opportunity for Nigeria and the African continent. Realizing this sustainable investment opportunity could contribute to the continued transformation of Nigeria into a global powerhouse that can support a growing population in a sustainable manner and provide good returns for investors in parallel.

However, current flows of sustainable finance in Nigeria, as in most countries globally, remain inadequate to capitalize on this opportunity. Some of the solutions outlined in this report can help remove the barriers to sustainable finance.

The time is ripe for Nigeria to push hard to take advantage of the sustainable investment opportunity at hand, thus ensuring that climate change, pollution, demographic variables and unsustainable consumption and production do not hold back this global powerhouse from achieving its considerable potential.

2. EXPERT VIEWS ON SUSTAINABLE FINANCE IN NIGERIA

1. Government | Policy Regulators | Stock Exchange
2. Banking: Commercial, Investment & Merchant
3. Institutional Investors
4. Equity Capital Market
5. Debt Capital Market
6. Insurance
7. Development Banks | Development Finance
8. Legal Services | Professional Services | Credit Rating Agency
9. Professional Networks | Sustainability Initiatives | Academia
10. Islamic Finance

The strategic leverage points to scale up sustainable finance in nigeria include: advocacy and sensitization to key financial sector stakeholders in sustainable finance such as banking, insurance, capital markets etc.; secondly, deepening the green bond market, green loans, green private equity etc. Other important factors include the provision of incentives through digital finance solutions, better disclosure and new tools to aid financial decision making/risk assessment.

Alhaji Ibrahim Usman Jibril
Honourable Minister of Environment
Federal Republic of Nigeria

1

The CBN is totally committed to ensuring that we preserve our environment and natural resources, not only for the benefits of the present generation, but for generations yet unborn. The tree-planting exercise demonstrates our commitment to preserving our environment and a commitment to the prudent management of our natural resources.

Godwin Emefiele
Governor
Central Bank of Nigeria

1

As Nigeria strives to build a diversified economy that harnesses the resources of non-oil sectors to anchor the transition to a more resilient economy, there is the urgent need to close the huge infrastructure gap with investments in sustainable finance initiatives driven primarily by complementary efforts of the government, regulators and the financial services industry to direct financial capital to more sustainable economic activity

Mary Uduk
Acting Director-General
Security and Exchange Commission

1

There is huge market potential for green bonds and green financing in Nigeria. As a developing country with population in excess of 180 million, significant environmental sustainability and climatic adaptation needs have to be met. As a member of the UN Sustainable Stock Exchanges Initiative, The NSE believes that Exchanges can serve as sustainability change agents whilst driving economic growth.

Oscar Onyema,
Chief Executive Officer
Nigerian Stock Exchange

1

Sustainable finance presents a veritable platform for Nigeria to further deepen its financial system, in order to support sustainable socio-economic development and environmental protection.

Hajia Aisha Dahir-Umar
Acting Director General
National Pension Commission

1

It is imperative that financial institutions develop practical, cost effective strategies to de-risk and lend to MSMEs for the development of the African continent. As they are the largest part of the business community on the continent, there is no choice in this matter.

Ibukun Awosika
Board Chair
First Bank of Nigeria

2

There are currently enormous gaps in education, energy, infrastructure, housing, youth employment and other critical aspects of our national development. Sustainable Finance investments provide huge opportunities to address these gaps and set the Nigerian Economy on the path to growth and development.

Bola Adesola
CEO
Standard Chartered Bank Nigeria

2

The future Nigerian economy would require deliberate formulation and implementation of government policies to drive significant diversification away from Oil-dependency to other real sectors such as Agriculture, Manufacturing, Energy (with focus on clean/renewable energy), and Infrastructure, amongst others.

Yinka Sanni
Chief Executive
Stanbic IBTC Holdings PLC

2

The lessons learnt from the recession will be hard to forget. Going forward, focus will be on building capacity, the strong need of execution, strengthening institutions and scaling up infrastructure. Power, transportation and agriculture hold huge potentials for Nigeria to unlock its industrialization potentials and also for sustainable impact investing.

Andreas Voss
Chief Country Representative
Deutsche Bank Representative Office Nigeria

2

The lessons learnt from the recession will be hard to forget. Going forward, focus will be on building capacity, the strong need of execution, strengthening institutions and scaling up infrastructure. Power, transportation and agriculture hold huge potentials for Nigeria to unlock its industrialization potentials and also for sustainable impact investing.

Adeola Azeez
Deputy Country Representative
Deutsche Bank Representative Office Nigeria

2

Sustainable finance serves as a valuable tool for driving social, environmental and economic impacts, which contribute significantly to the attainment of the Sustainable Development Goals. Nigeria is a country with untapped resources, rich potentials and opportunities that help facilitate increased long-term value for investments. Technological innovations, poverty alleviation and environmentally-friendly projects, provide opportunities for strategic collaborations/collective actions. As a nation, we need to explore these opportunities for social development, environmental protection and economic growth, creating a future for Nigeria that is indeed sustainable.

Herbert Wigwe
CEO and Managing Director
Access Bank

2

For now, and the future, diversification from the celebrated Oil industry is key. The country is blessed with huge mass of fertile land as well as good weather which support Agriculture, hence this should be explored more. Other areas where focus should be shifted to should include Mining, Tourism, Waste Management/Recycling, Real Estate, and Entertainment.

Kayode Akinkugbe
Managing Director and CEO
FBN Merchant Bank

2

We want to ensure that the projects we finance are developed in a manner that is socially responsible and reflect sound environmental management practices to avoid negative impacts on project-affected ecosystems and communities. Climate change is real and is affecting all of us, as well as our stakeholders. Being part of the FirstRand Group, we are continually exploring ways to address environmental concerns. One way to minimize the impact of climate change is to reduce our greenhouse gas emissions.

Michael Larbie
CEO & Managing Director
Rand Merchant Bank Nigeria Limited

2

Real inclusive growth is achievable only when a majority of the adult population have access to formal financial services. Telecommunication companies must lead this effort in the short to medium term as they bring all the critical assets necessary to achieve rapid penetration of financial services. The Banks and FinTech ecosystem stand to benefit a lot as they can leverage the scale eventually created by Telcos to extend enhanced propositions for the benefit of all.

Chidi Okpala
Group Managing Director | FinTech
Atlas Mara

2

One way to unlock the benefits of sustainable financial investments is to find a way to tie profits to sustainability related goals. Once managers are incentivized to deliver on this, as we currently see in parts of Western Europe, the results should follow here.

Temi Poopla
Chief Executive Officer, Nigeria
Renaissance Capital

2

"As the Nigerian economy seeks a new growth path, sustainable finance – at private and public sector levels – becomes paramount. In this regard, green bonds are just the start. A cultural shift is required, to be aided by a transparent and robust regulatory framework that promotes financial innovation at a micro-level."

Chuka Eseka
Managing Director & CEO
Vetiva Capital Management Limited

2

The opportunities for sustainable financial investment in Nigeria are substantial and should be rewarding in the long term to the economy and investors. Key sectors for development include power, aviation, oil & gas, maritime, among others, which could stimulate the growth of the economy.

A. Olawale Edun
Chairman
Chapel Hill Denham

3

UNEP's focus on the design of a sustainable financial system could not be more timely or more relevant. As someone who champions responsible investment, seeing long term social gain as an intrinsic element of robust investment returns, I firmly believe a financial system that has sustainability at its core is crucial to balanced and inclusive global growth. Nowhere is this more true than in Africa, where my philosophy of empowering financial services, catalysing entrepreneurial growth and breaking down geographical and social barriers, is I believe vital, in creating self-sustaining and transformative economic growth. Africapitalism.

Tony Elumelu
Chairman
Heirs Holdings

3

The opportunities for investing in sustainability assets currently exists in our environment without a doubt. The derivable value in this segment lies in asset managers' ability to carefully identify these opportunities (as they are not yet in readymade form), thoroughly analyse and create vital linkages between sustainability and finance, and finally, actively influence and support the operability and viability (mainly through partnerships) of underlining assets to create both sustainable and financial returns for all stakeholders.

Jumoke Ogundare
Chief Executive Officer and Director
Asset & Resource Management Holding Company (ARM)

3

Consistent with the requirements of the Santiago Principles, NSIA is committed to operationalizing transparency, good governance, accountability and prudent investment practices whilst encouraging stakeholder consultation and dialogue to elicit understanding of and support for sovereign wealth fund activities. NSIA will continue to pursue these goals through enhanced disclosure as well as environmental and social impact considerations for all Infrastructure projects it embarks on.

Uche Orji
CEO and Managing Director
Nigeria Sovereign Investment Authority

3

Sustainability can be understood as efficiency. Nigeria needs efficient resource allocation, and investment innovations which create that are likely to be successful. At Constant Capital we believe sustainable financial investment opportunities are present anywhere in the economy one wants to focus, innovate and add value.

Niyi Omojola
Partner
Constant Capital

3

Achieving a Sustainable Financial System is a win for all.

Kunle Jinadu
CEO and Managing Director
First Pension Custodian Nigeria

3

Financial investment in infrastructure is critical to achieving sustained economic growth and development, not just in Nigeria but across all of Africa. Among infrastructure projects, energy faces the most pressing need for investment and Nigeria has huge renewable energy potential. Unfortunately, much of it is still to be realized, with only 50% of the population with access to the national electricity grid. As the largest infrastructure investor in Africa, with a 17-year track record on the continent, we know it takes a long-term coordinated and committed approach between public and private sectors to plug this gap, but doing so promises not just returns but sustained economic growth.

Olusola Lawson
Director & Head of West Africa
Africa Infrastructure Investment Managers (AIIM)

4

We believe that the greatest contribution to regional development will come from the building of profitable, value-creating, and socially responsible private enterprises. In so doing, we hope to demonstrate that the duty of firms such as Helios to earn acceptable risk-adjusted returns for their investors is not in fact at odds with the goal of social and economic development in Africa.

Temitope Olugbeminiyi Lawani
Co-Founding Partner and Managing Partner
Helios Investment Partners LLP

4

The Nigeria of tomorrow needs: to boost its revenue profile especially from non-oil sources; improvement in the country's energy mix, with a focus on the use of renewable and clean energy; deepened capital markets especially for debt, with increasing issuances of green bonds. It also needs improvements in agricultural practices and development of the agro-allied value chain with more emphasis on commercial agriculture and investments in mechanized tools.

Professor Charles Inyangete
Managing Director and Chief Executive Officer
Nigeria Mortgage Refinance Company

4

The financial industry plays a pivotal role in the economic development of any country. The sustainable finance approach will no doubt help resolve various socio-economic challenges in the country, it will provide a veritable platform by providing investment opportunities that will uncover hidden potentials in the agricultural sector, bio-technology and clean energy which will boost sustainable socio-economic development.

Mezuo Nwuneli
Managing Partner
Sahel Capital Agribusiness Managers

4

Sustainable financing is still in its formative stage in Nigeria so it is imperative that all parties that will be instrumental to its success, (i.e. regulators, banking system, legislative arm of Government and entire populace) collaborate NOW.

Ore Sofekun
Managing Director
Investment One Vencap

4

Sustainable finance may be the catalyst for unlocking Nigeria's new commanding heights.

Bola Onadele. Koko
Managing Director
FMDQ OTC PLC

5

Nigeria is facing an unprecedented $3 trillion infrastructure funding gap over the next 30 years. We believe that this funding gap presents the Nigerian government, working in partnership with private investors, with the opportunity to lead the way in addressing barriers to financing sustainable infrastructure projects in ways that work towards increasing the scale of the market. The Nigerian government has to navigate this monumental challenge and continue to promote sustainable development by utilizing innovative partnerships and new financing models to build sustainable infrastructure.

Chinua Azubike
CEO
InfraCredit

5

Nigeria is straddling a line between urban 'open' consumption and copious wants in poverty. Open consumption has to be managed sustainably in a manner that helps us to leapfrog destructive factors of production as part of a developing industrial complex to an automated digitized economy. Copious wants teach us subliminal lessons in recycling and reuse that quietly speak the language of sustainability at the most basic level of existence. Insurance, as part of sustainable financial protection, is the ring that runs through open consumption and copious wants, using risk improvement measures to promote sustainability.

Oye Hassan-Odukale
Managing Director and CEO
Leadway Assurance Company Limited

6

AIICO Insurance has done its bit to improve financial inclusion in the country by providing innovative products through its agency network. We believe that any opportunity for sustainable finance must consider the current realities Nigerians face and offer real solutions that work to the benefit of all stakeholders.

Mr. Edwin F. Igbiti
CEO and Group Managing Director
AIICO Insurance Plc

6

Nigeria can win the future, expand its economy and position it towards growth and development. We can trigger the type of change that is necessary to achieve a sustainable financial investment for our country through an inclusive finance, covering financial access to majority for MSMEs, start-ups, women entrepreneurs, etc.; this will put us on a path toward financial sustainability in the shortest possible time.

Wale Onaolapo
Chairman
Davisther Insurance Brokers Limited

6

The Africa Finance Corporation is poised to take on the challenge of fortifying the Continent against the risks and threats of climate change, through sustainable infrastructure development. The quest for sustainable financing solutions is an urgent one and we must continually evolve innovative solutions that will guarantee environmental preservation, social dividend and financial returns.

Samaila Zubairu
Chief Executive Officer
Africa Finance Corporation

7

The sustainable banking principles that was developed by the CBN and the Bankers committee has been integrated into Nigeria's financial services industry is helping to scale up green finance. However, some organisations need to scale up on fully adopting these principles.

Olukayode Pitan
Managing Director and CEO
Bank of Industry

7

Development Bank of Nigeria remains committed to Sustainable Banking Principles which cuts across environmental and social risk, financial inclusion, human rights, women, economic empowerment and capacity building to name a few key principles. DBN will continue to provide sustainable financing through Participating Financial Institutions (PFIs) to alleviate the financing constraints faced by the Micro, Small and Medium Scale Enterprises including small corporates to promote and achieve inclusive growth.

Tony Okpanachi
Managing Director and CEO
Development Bank of Nigeria

7

As we consider our footprint on the world we inhabit, it is imperative that our investment decisions actively target positive environmental, social and governance outcomes. In Nigeria today, sectors such as agriculture, renewable energy and financial technology potentially provide that nexus between profit and impact that creates true sustainability.

Adekunle AbdulRazaq Oyinloye
Managing Director and CEO
The Infrastructure Bank Plc

7

As an Export Development Bank, NEXIM's mandate fully aligns with the objectives and ideals of sustainable finance, hence we seek to ensure that the projects we select for funding are those that have demonstrated commitment to the need to preserve our environment and promote sustainable development. The Bank's commitment is also demonstrated in its being a founding shareholder in the African Biofuel and Renewable Energy Company, (ABREC) as part of our strategic policy initiative, towards encouraging investment in Clean Development Mechanism (CDM) projects to mitigate effects of global warming.

Abba Bello
Managing Director and Chief Executive
Nigerian Export-Import Bank

7

With the current influx of new entrants into Nigeria's agric space occasioned by the Federal Government's drive to diversify the economy and the strategic financial support through the Anchor Borrowers Program, there is the expectation of continuous growth in production at primary level.
Therefore there will be the need to fund market structures on a sustainable manner such that the commodity exchange would once again bounce back to operations with active brokers creating an enduring circle of economic activities along the agric value chains.

Kabir Mohammed Adamu
Managing Director and CEO
Bank of Agriculture

7

The proposed issuance of FG-backed Green Bonds cannot be arriving too soon. It is very necessary and will be very well received. Nigeria's size, population and energy production, demands much more focus and support, for environmentally sensitive economic activities. The bond issuance will kick-start this and hopefully provide a sustainable window for affordable finance of projects in this area.

Ike Osakwe
Board Director
Development Alternatives Inc. (DAI) LLC

7

Nigeria presents a plethora of opportunities for sustainable financial investment in view of its strategic importance in Africa, abundant natural resources and large population. Hence, it is imperative for Nigerian business leaders and policy makers to design a viable financial system that is geared towards attracting sustainable investment into Nigeria.

Olubunmi Fayokun
Partner
Aluko & Oyebode

8

Perhaps the most significant opportunities for sustainable financial investment in Nigeria are those that are focused on Nigeria's demographics. Its relatively young, large and growing population offers compelling opportunities in the education, healthcare, infrastructure – transport and energy, fast-moving consumer goods, pension funds, life insurance and telecommunications sectors.

Professor Gbolahan Elias, SAN
Principal Partner
G. Elias & Co

8

The slow acceptance of a mixed economic model (market and command) by Nigerian policy makers, is opening up the economy to a slew of joint ventures and partnership initiatives between the Government, private sector and international capital markets. No less than $10bn of projects in railways, refineries and airport concessioning will unlock capital, improve market access and sharply increase productivity in the Nigerian economy.
The result will be an increase in gross capital formation and a positive shift in aggregate output in the medium to long term.

Bismarck J. Rewane
Managing Director
Financial Derivatives Company Limited

8

The economy tomorrow must be an inclusive one – in other words, it must work beneficially for many more Nigerian than are the beneficiaries of a system we have built over the past half-century. Specifically, we have to ensure it grows and develops in a manner consistent with the creation and sustenance of employment – this would proxy our ability to meet the demographic challenge presently faced.

Doyin Salami
Partner
Kainos Edge Consulting

8

Sustainable finance is definitely still novel and yet untapped. It could be the next avenue to unleash financial markets investment in Nigeria. If countries and markets that we respect their financial markets are making their marks in this area, then Nigeria is bound to exploit same opportunities once there is awareness and full embrace supported by the right organised market framework, international best practices and standards.

Tayo Onadele
CEO and Managing Director
Financial Datanet House Limited

8

Given Nigeria's developmental needs in power generation, agriculture and transportation, sustainable investment opportunities exist. Opportunities in generating renewable energy through wind and solar power thereby improving our power production which will in turn have positive impact on social, environmental and financial returns for the Nigerian people.

Olabode Agusto
Founding Managing Director
Agusto & Co

8

Policies should be guided not only by improving GDP but a more strategic development in improving composite measure of human development index through improving the ease of doing business, enhancing labor productivity and strengthening the overall capacity of the anticorruption agencies.

Pascal Dozie
President
The Society for Corporate Governance Nigeria

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One way to leave the planet better than we met it is to promote the ideals of good environmental governance within the context of a sustainable growth strategy.

Chief Dr Mrs Nike Akande OON, CON
Former Minister of Industry
Federal Republic of Nigeria &
Immediate Past President
Lagos Chamber of Commerce and Industry

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Mainstreaming national sustainability initiatives, including in the biofuels sector will foster the conditions to create widespread youth employment, eradicate perennial poverty, resolve the herdsmen/farmers clashes, address electric power infrastructure gaps and enhance the overall well-being of the average Nigerian. Aspiring toward those objectives, Global Biofuels Limited along with Unicorn Energy Resources (our foreign partner) is contributing towards the E-10 recommendation in the UN Kyoto protocol, thereby helping to reduce Nigeria's carbon footprint. We are engaged in large scale commercial cultivation of sweet sorghum for use as feedstock for biofuels production, which is required for transportation in a sustainable agro-allied industrial cluster.

Felix Babatunde Obada, PhD
Chairman
Global Biofuels Limited

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It has become clear that the SDG's are ambitious targets that cannot be met without a clear financing framework. Recognition of this in Nigeria has spurred action in the areas of the development of the green bonds led by the Ministry of Environment. Similarly, many other private sector initiatives are ongoing even as the attention begins to be drawn to issues of circular economy, climate change and resilience adaptability. The NESG as a think tank and advocacy group remains committed to engagement in this regard through its Sustainability Policy Commission.

Asue Ighodalo
Chairman
Nigerian Economic Summit Group

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The Nigerian Economic Summit Group in recognition of the importance of the environment and the need to sustainably preserve it for now and future generations, actively engages in the space through its Policy Commission on Sustainability. Thematic focus include climate change, environmental management renewable energy and circular economy.

Laoye Jaiyeola
Chief Executive Officer
Nigerian Economic Summit Group

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At Baobab/Microcred, one of the leading microfinance banks in Africa, we finance consumers and small and medium scale enterprises not only in Nigeria but in other African countries. We seek to enable employment and improve the standard of living of our customers and their employees in a sustainable manner.

Arnold Ekpe
Chairman
Baobab - Microcred Group

9

The attainment of 20 percent financial exclusion by 2020 will also offer banks and other financial services providers access to deeper credit pools. An inclusive financial system creates economic and social benefits for Nigeria and the realization of SDGs - poverty elimination, gender equality, economic growth and job creation.

Enase Okonedo
Dean
Lagos Business School (LBS)

9

The Nigerian economy of tomorrow needs to fully embrace the principles of sustainability. Sustainability thinking needs to be thoroughly embedded in the economy. The economy of tomorrow needs to be ideologically driven and truly green! For this to happen, Nigeria needs economic advisors and policy makers, as well as private sector actors and the civil society, who are well grounded in sustainability thinking to drive the momentum and realize this agenda.

Professor Kenneth Amaeshi
Chair in Business & Sustainable Development
Director, Sustainable Business Initiative
University of Edinburgh Business School

9

At Fenix, we provide financing for highly efficient and affordable solar products to low income customers from as little as 50 Naira (15 cents) a day. We focus on creating financially inclusive life-changing products for the 60 million Nigerians who are off-grid and not considered in the majority of investment decisions.

Bankole Cardoso
Managing Director
Felix International, Nigeria

9

With our huge infrastructure deficit across various sectors coupled with our mass population that is the seventh largest in the world, I have no doubt that Nigeria is bound to be the next frontier for sustainable finance in before 2030.

Hassan Usman
Managing Director and Chief Executive
Jaiz Bank Plc (Non-Interest Bank)

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3. THE CONTEXT

3.1 INTERNATIONAL CONTEXT

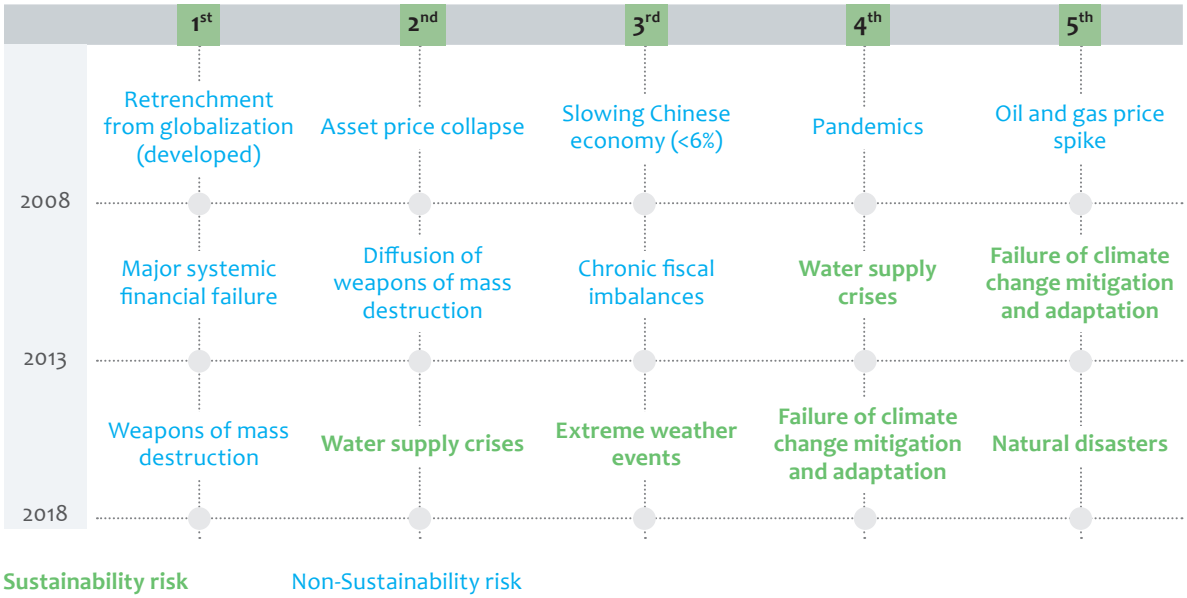
The world is entering an unprecedented period. Forces of change, unparalleled in human history will require a pivot towards a new economic era in order to deal with pressing societal, economic and environmental issues. Such issues include social instability, price volatility linked to resource scarcity and the impacts of climate change. The drivers of these challenges are numerous and will be compounded by key aspects of economic growth which are set to 'double' over the next few decades. Investment in new infrastructure will have to double in 15 years. Global GDP is predicted to double within 20 years. Urban populations are predicted to double within 40 years.[1]

The confluence of such trends will put great pressure on people and the planet. This substantial upheaval will need to take place in parallel with a 30% fall in greenhouse gases (GHG) to meet the international targets set in Paris in 2015 and to ensure society remains within the planetary boundaries.[2] Other issues including rising global inequality, disruption to employment markets, increasing pollution and natural resource scarcity will all have to be managed.[3] These factors ensure that choices made over the next decade will be critical. They will either catalyse a period of sustainable, inclusive growth or lock the global economy onto a pathway exposed to undesirable economic, environmental and societal consequences.

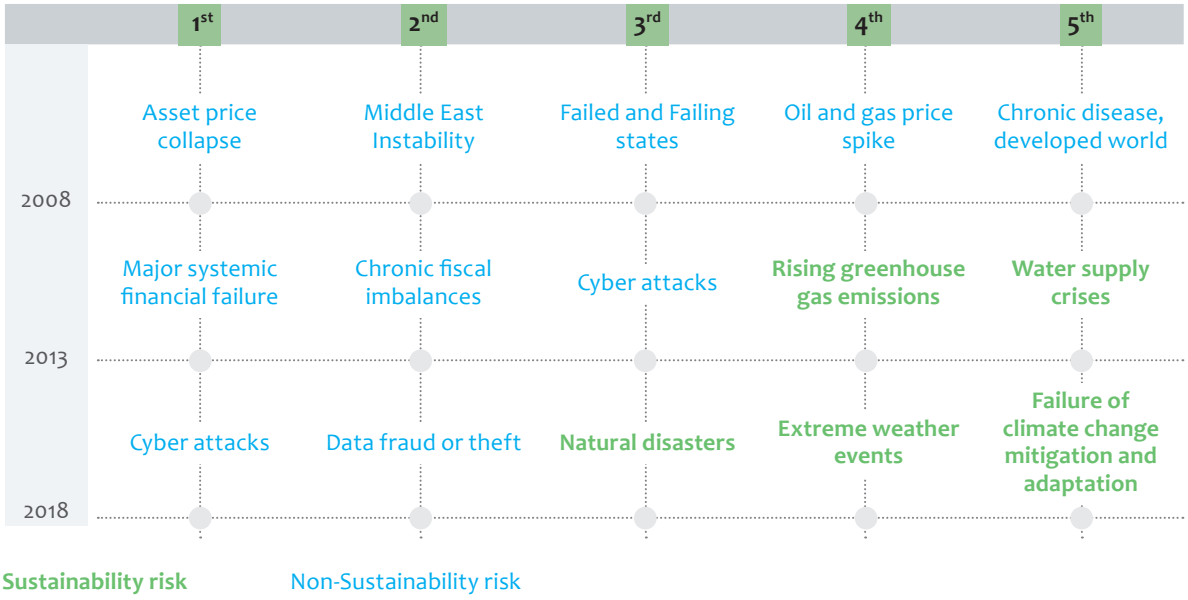
There is growing recognition that the risks of inaction are considerable. The World Economic Forum (WEF) 2018 Global Risk Report lists the top ten global risks in terms of both likelihood and impact. As illustrated in Figure 1, in terms of impact, 4 of the top 5 risks in 2018 are sustainability-related (extreme weather events, natural disasters, failure of climate change mitigation and adaptation, and water crises). In terms of likelihood, 3 of the top 5 risks are directly related to sustainability. Every sustainability risk assessed by the WEF in 2018 falls into the 'high risk, high likelihood' quadrant.[4]

FIGURE 1: TOP 5 GLOBAL RISKS IN TERMS OF IMPACT AND LIKELIHOOD.

Global Risks in Terms of Impact



Global Risks in Terms of Likelihood



Source: Adapted from the World Economic Forum Global Risk Report 2018.

The international community has mobilized at scale in response to these challenges. There is a growing awareness that change is required for the current institutional, economic and financial models. As a response, a new blueprint for the global economy was agreed on by all countries in 2015. The Sustainable Development Goals (SDGs)[5] of the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change[6] highlight the political importance of sustainable development and lay out a bold new direction for global growth. Nigeria shares this development vision, as it both adopted the SDGs and ratified the Paris Agreement.

Delivering on these international ambitions will require an unprecedented global reallocation of capital. According to the New Climate Economy, a projected US$90 trillion in infrastructure investment alone by 2030 will be required.[7] Nearly all of this will need to be aligned with a 2°C (or less) emissions trajectory, provide resilience to environmental shocks and support the replenishment of natural capital. It is also now widely accepted that much of this sustainable finance will have to come from private sources, given the strained state of global public finances.[8]

This vast capital reallocation is being supported by three powerful global forces. Firstly, global savings remain high while global interest rates remain relatively low, with negative rates in several jurisdictions including Switzerland, Sweden and Japan.[9] The global nature of 'quantitative easing'[10] means that there is no shortage of capital searching for growth and yield. Secondly, technological cost curves are falling rapidly. The renewable energy space has seen average solar photovoltaic (PV) unit prices fall by 77% from 2009 to 2018, while lithium-ion battery prices fell by 79% over the same period.[11] Thirdly, national, regional and international agreements have provided political direction and evidence of international cooperation on a number of different levels.[12]

3.2 Nigerian Context

Nigeria plays a central role on the continental and global stage. As Africa's biggest economy, and with a fast-growing, young population, its exposure to global challenges as well as the potential to capitalize on these new opportunities is considerable. Despite economic and political headwinds felt in many corners of the globe, there are encouraging signs domestically. Business friendly economic reforms have resulted in an upswing in the 2018 World Bank Doing Business rankings[13] and inflation is trending lower.[14]

However, there is growing empirical and anecdotal evidence that the development trajectory of Nigeria's future economy will need to change dramatically in the coming years.[15] The ability to deliver on key national policy objectives, diversify the economy away from its heavy reliance on natural resources, and fill a substantial infrastructure gap all support a new economic direction. The rapidly growing working age population requires an increased focus on job creation to absorb new entrants to the job market. Future markets offer tremendous growth opportunities in this respect. In the energy sector alone, over one hundred million Nigerians are without sufficient access to energy and experience daily power outages.[16] Box 1 below summarizes additional important issues that domestic stakeholders who participated in a survey for this report highlighted as the biggest drivers of future economic change.

BOX 1: Drivers of Nigeria's Economic Transformation

Over 40 Nigerian stakeholders were interviewed to survey their views on the key factors that will shape Nigeria's development pathway. The reoccurring themes that emerged are summarized below, in response to the question, '*Why will the Nigerian economy of tomorrow need to look different to today's*?'

Key policy objectives: Existing national development plans (*e.g.* Economic Recovery & Growth Plan, Nationally Determined Contribution (NDC), National Policy on Climate Change) will shape and lead to a different growth trajectory.

- **Economic diversification:** There is a clear need to broaden the economy beyond the oil and gas sector to increase resilience to commodity price shocks. This diversification should include a focus on job-intensive sectors, such as agriculture and on cross-cutting issues like stimulating growth in SMEs and increasing access to energy through the development of renewables.
- **Demographics:** The increase in working age population and increases in the growth rate of the total population. The growing population will also include a rapidly expanding middle class. This will not only change consumption patterns, but will require the creation of many more jobs and will drive a reconfiguration of infrastructure needs.
- **Infrastructure gap:** Significant infrastructure investment is required, especially in power and transport, to support the future Nigerian economy and help improve productivity.
- **Food security:** Large investment in agriculture is required to create jobs, boost the economic growth, build FX reserves and strengthen food security.
- **Poverty reduction & financial inclusion:** Greater social inclusion and poverty reduction is required across the economy to mitigate the risks of tensions and instability. This must include a greater focus on SMEs and the unbanked. Digital finance represents an interesting opportunity to contribute to financial inclusion goals but appropriate regulation will be key.
- **Leadership:** A bold new development pathway will help to ensure Nigeria remains a continental leader and to capture the associated opportunities. This could include expanding Nigeria's sustainable finance capabilities.

Beyond the economic drivers of change highlighted above, there are also growing indications that the economy of tomorrow needs to differ from that of today for broader sustainability reasons.[17] Across the African continent, the economic and social implications of business-as-usual growth are sobering. Examples of sustainability-related factors that could influence an alternative future growth trajectory include:

- **Health:** The World Health Organization (WHO) estimates that over 600,000 deaths each year are caused by indoor and outdoor sources of air pollution on the African continent.[18] Nigeria experienced 150 deaths per 100,000 fatalities in 2016 which are attributable to air pollution.[19] This is the highest incidence on the African continent and the 4th highest incidence globally.

Beyond fatalities, air pollution can impact health in many ways. As air quality declines, the risk of stroke, heart disease, lung cancer, and chronic and acute respiratory diseases, including asthma, increases for those exposed. Measured by levels of PM10 (a measure of particulate matter), Nigeria has three of the top ten most polluted cities in the WHO's global database.[20] World Bank analysis from 2015 suggested that 94% of the Nigerian population were exposed to air pollution levels exceeding the WHO guidelines. Collectively, these aspects of air pollution are estimated by the World Bank to cost the Nigerian economy 1% of Gross National Income.[21] In Africa, water access is often linked to economic access with Nigeria's shrinking Lake Chad illustrating the economics of water shortage externalities in the Sahel.[22] Furthermore, issues related to increases in aggregate temperatures (see 'climate change' section below) could act as a multiplier on climate-related health outcomes including access to water, sanitation and disease transmission.[23]

- **Natural resource scarcity:** Rapid growth is placing stress on finite stocks of natural resources. Nigeria is considered by the UN to be one of 37 countries with extreme water stress and over 40% of the population are estimated to lack access to clean water sources. [24] Over 30% of West Africa's population live in coastal areas, with seafood contributing up to two thirds of the region's protein supply. [25] World Bank analysis indicates regional fisheries are all already at threshold levels or overexploited. This contributes to stress on fish stocks and increases the potential of adverse social, economic and environmental consequences. [26] Rates of forest loss are also estimated by the University of Ilorin to be high, with recent rates estimated to be over 11% per annum.[27] Nigeria lost over 1,800km^2 of forest cover in Cross River State between 1991-2008.[28]

- **Climate change:** Physical impacts related to climate change will also create challenges for the African continent. The Intergovernmental Panel on Climate Change (IPCC) concluded in 2014 with a high degree of confidence that temperatures across African land regions have warmed, and mean temperatures increases by the end of the century are likely to exceed 2°C.[29] It is likely that July 2018 marked the highest ever recorded temperature in Africa, with 51.3°C (124.3°F) recorded in Ouargla, Algeria.[30] In Nigeria, mean annual temperature is projected to increase between 1.1°C and 2.5°C by the 2060s and 1.4°C and 4.6°C by the 2090s. Projections indicate that warming will be greater in the northern part of Nigeria.[31] Climate change will also amplify existing stress on water availability and will exacerbate the vulnerability of agricultural systems. A warming of 1.5-2°C would reduce crop-growing areas for maize, millet and sorghum by 40-80%.[32] Global warming is also linked to thermal expansion and related rising sea levels.[33] This can magnify the risk of flooding, including for coastal cities. Having suffered with a spate of floods that have intensified over the course of a decade, millions of people in the coastal city of Lagos are potentially at risk of loss or damage to their homes.[34]

Solutions exist to deal with many of these challenges. While many factors are key to delivering a new economic vision, investment will be critical to realizing these opportunities. Sustainable finance can help stimulate the growth of high-potential industries including renewable energy, transport, waste management and critical measures addressing climate adaptation and agriculture. Sustainable finance can help to promote job-creating technological innovation and catalyse business opportunities for the financial industry through the creation of new products (such as green bonds or sustainable loans), tools and services. It can also help to access new markets domestically and internationally that are showing a rapidly increasing appetite for sustainable investments.[35]

3.3 Global Progress on Sustainable Finance

A sustainable economy is a more capital-intensive economy. Investments are often characterized by relatively higher up-front capital requirements in sectors such renewable energy generation, energy efficiency and resource management compared to conventional investments. This higher upfront cost

is generally offset by far less spending on operating expenditures, such as on fuel and other resources over the life-cycle of the asset. It is the capital-intensive nature of the sustainable economy which makes financial innovation critically important in order to increase the volume, reduce the cost and improve the quality of capital flows.

Globally, considerable progress has been made in sustainable finance over the past few years. As the Chairman of the Financial Stability Board (FSB) and Bank of England Governor, Mark Carney, has remarked, the transition to a low carbon, resilient and inclusive economy "implies a sweeping reallocation of resources…for this to happen, green finance cannot conceivably remain a niche interest over the medium term".[36]

There is no single measure that can be used to measure sustainable finance progress although there is growing logical, empirical and anecdotal evidence that momentum is building globally across several dimensions:

- **Financial Institutions:** There are several indications that sustainable finance is moving beyond a niche offering in many areas of the financial markets. Indictors include: (i) emerging evidence that larger financial actors are integrating elements of sustainability into financial decision making including development banks,[37] investors,[38] commercial banks[39] and private equity firms,[40] (ii) growing consolidation among providers of environmental, social and governmental (ESG) data,[41] (iii) increasing sustainability integration by providers of financial securities analysis, including credit ratings agencies, indicating that sustainability considerations are being incorporated into their core valuation and risk methodologies,[42] (iv) increased availability of more comparable, granular and forward looking data on elements of sustainability,[43] and (v) growing examples of commercial financial transactions where the cost of capital is directly linked to sustainability criteria.[44]

- **Corporates:** A material global shift in corporate behaviour towards sustainability is developing. An analysis by Goldman Sachs in 2018 of transcripts for quarterly earnings calls going back to 2010 reveals a 75% increase in the number of corporates discussing sustainability issues. There was a 44% increase from 2016 to 2017, rising from a 21% year on year growth rate between 2010 and 2015.[45] The FSB Task Force for Climate-related Financial Disclosures (TCFD) in 2017 issued recommendations aimed at helping companies disclose decision-useful information.[46] These will enable financial markets to better understand climate-related financial risks and opportunities. As of April 2018, more than 275 companies, with a combined market capitalization of more than US$6.6 trillion, have publicly expressed support for the TCFD recommendations. The companies include more than 160 financial firms which are responsible for assets of over US$86 trillion.[47]

- **Asset quality and growth:** Data are still lacking, but there is emerging evidence to support the hypothesis that sustainable assets can outperform conventional assets both at portfolio and sector levels. China is one of very few countries to define, track and measure green bank loans. The China Banking Regulatory Commission released analysis on the performance of green loans across the 21 largest Chinese Banks in 2018. Over a 2013 to 2016 observation period, the non-performing loan (NPL) ratio for Chinese green loans stood at an average of 0.37% compared to an average NPL ratio of 1.69% for all loans across the banks.[48] From a sectoral perspective, there are numerous examples of a positive correlation between energy efficiency and higher sales and rental values in the property sector.[49] ING Bank in the Netherlands has established that higher energy efficiency ratings (energy efficiency grades A to C) on commercial properties lead to 10% higher rents and 9% higher market values than lower energy efficiency rated properties.[50] There is emerging evidence of solid growth in sustainable financial products. In China, green loans are growing at 16% year on year which is 2% higher than the national loan book growth rate, and Brazilian green loans grew from 11% of bank's portfolios in 2013 to 14% in 2015.[51]

- **Sustainable finance policy and regulation:** The ultimate impact of policy is not a linear function of the number of measures related to sustainable finance that are implemented. Nonetheless, there has been a significant increase in the number of sustainable finance measures implemented across an increasing number of jurisdictions. Sustainable finance measures doubled between 2013 and the end of 2017 and the number of jurisdictions that have implementing sustainable finance policies now totals 53.[52] By December 2017, nearly 300 financial policy and regulatory measures targeting sustainability were in place globally.[53] There is increasing evidence that the processes that underpin the development of these measures are becoming more inclusive in terms of both range of stakeholders and geographical scope, and the proportion of regional and international measures is increasing.[54] Internationally, one of the most ambitious developments has been the European Union Action Plan on Sustainable Growth.[55] The action plan is built on three pillars targeting (i) the reorientation of capital flows towards sustainable investments, (ii) the mainstreaming of sustainability into risk management, and (iii) the promotion of transparency and long termism.

- **Demographics:** There is growing evidence that sustainably-related investment is rapidly growing in certain parts of the demographic profile. Millennials globally are poised to inherit over US$30 trillion of investible wealth. A 2018 survey by global investment manager Fidelity found that 77% of affluent Millennials (between 18-37 years old) and 72% of affluent Generation X (38 to 53 years old) investors had made some form of impact investment.[56] This compares to only 30% of affluent investors from the Baby Boomer group (54+ years old). Morgan Stanley published findings from a 2017 survey assessing investment appetite through the broader lens of 'sustainable investment'. Among survey respondents, 86% were either interested or very interested in sustainable investing.[57]

International experience is starting to indicate that considerable synergies could be exploited through a more holistic and integrated approach to sustainable finance.[58] There is now considerable opportunity for countries wishing to advance sustainable development to systematize and clarify these existing developments into a strategic plan or 'roadmap'. Multi-stakeholder groups, including the governments of China, Indonesia, Mongolia, Morocco and Argentina, along with regions such as the European Union, have either developed or are in the process of developing such roadmaps or strategic plans.[59]

Much progress has already been made on sustainable finance in Nigeria. The 2012 Sustainable Finance Banking Principles developed by the Central Bank of Nigeria laid strong foundations for sustainable finance.[60] More recently, Nigeria placed itself in the international spotlight by joining the small group of countries who have issued a sovereign green bond.[61] This builds on related innovation in the financial and capital markets, such as through the issuance of a social impact bond[62] and a sovereign sukuk bond,[63] which is increasingly viewed as an vehicle with considerable potential for sustainable finance.[64] The Nigeria Green Bond Market Development Programme will build on this momentum and help unlock Nigeria's potential in green bonds.[65] Further evidence of growing momentum includes the Nigerian Stock Exchange joining the Sustainable Stock Exchanges Initiative[66] and several insurance companies becoming signatories to the UN's Principles for Sustainable Insurance.[67] Innovations such as these have contributed to Nigeria being categorized as 'established' in the Sustainable Banking Network (SBN) assessment of member sustainable finance progress.[68] This is the highest ranking that any of the 34 SBN member countries has currently achieved.

This report will examine how these innovations can be leveraged further in this embryonic field. It will explore the possible options to build on strong domestic leadership and also, where appropriate, on evolving practice internationally. The paper will assess Nigerian sustainable finance investment needs, the characteristics of those needs, and estimate the existing sustainable finance flows. It will then assess barriers highlighted by key stakeholders, and present possible options to overcome those barriers.

4. SUSTAINABLE INVESTMENT OPPORTUNITIES

A key task in the development of a sustainable finance roadmap is clarifying the key investment areas and the magnitude of the investment required. However, estimating sustainable investment opportunities at the state, national or regional scale remains an embryonic field. Assessments can be derived using a variety of methods, assumptions and perspectives.[69] Various definitional and methodological challenges mean that these appraisals are not always mutually exclusive, nor are they necessarily additive. However, despite these challenges, they can collectively generate a directional estimate for the quantum of sustainable investment opportunities over a given timeframe. These numbers are derived from secondary research and will be refined as data availability improves. Total volumes will be impacted by changes to technologies, consumer preferences and the broader policy landscape, but serve as the foundation from which preliminary observations can be derived.

This section uses several approaches to describe the sustainable investment opportunity space. Commonly used definitions of sustainable finance are highlighted, then the sustainable investment opportunity universe is first assessed through a qualitative lens, based on a survey of key Nigerian financial stakeholders across the public and private sector. The second lens is quantitative and draws on various top-down and bottom-up approaches taken from relevant emerging international best practice to generate a directional estimate of Nigerian sustainable investment needs.

4.1 DEFINITIONS

While the term 'sustainable finance' is increasingly used globally, it does not have a universally agreed definition. The G20 Sustainable Finance Study Group used the following high-level definition in 2018:

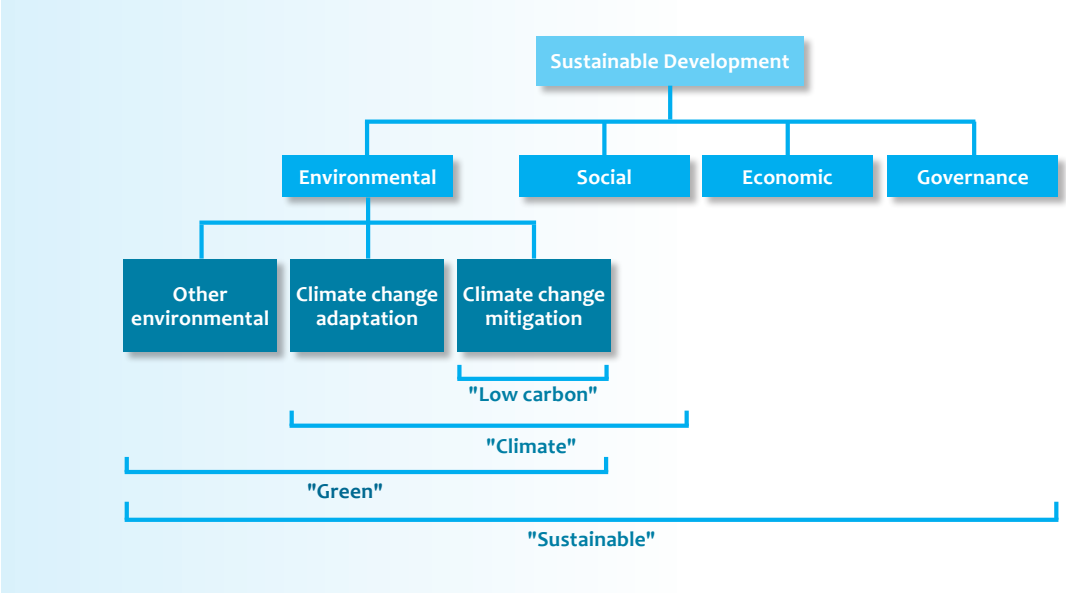
'Sustainable finance can be broadly understood as financing as well as related institutional and market arrangements that contribute to the achievement of strong, sustainable, balanced and inclusive growth, through supporting directly and indirectly the framework of the Sustainable Development Goals (SDGs).[70] *'*

Sustainable finance terminology can often be context-specific. It includes definitions at the level of financial instruments (*e.g.* sustainable finance indices or green bonds), subsectors of the financial market (*e.g.* sustainable insurance or responsible banking), definitions used by international organizations (*e.g.* UN, World Bank or OECD), as well as national and international definitions (*e.g.* the G20 Sustainable Finance Study Group). Definitional challenges are not confined to an assessment of the environmental integrity of sectors (*e.g.* infrastructure, agriculture or energy efficiency) or themes (*e.g.* adaptation or circular economy business models). There can be considerable differences in definitions of the underlying sectors and thematic areas themselves. Literature on infrastructure investment highlights the range of interpretations of terms used in the sector. 'Infrastructure' can vary from a narrow focus on a subsector of built physical infrastructure such as roads or ports, to a much broader interpretation of infrastructure including all economic, environmental and social infrastructure (including areas such as forests and schools).

Although sustainable investment categories are not mutually exclusive, a mapping of related definitions found broad agreement in the distinctions between 'sustainable', 'green' and 'climate finance'.[71] 'Sustainable finance' is recognized as being the most inclusive term, encompassing social, environmental

and economic aspects. 'Green finance' is generally accepted as including climate finance but excluding social and economic aspects, although there are some social spill-over effects linked to 'climate'. A simplified schema for understanding the broad terms is displayed in Figure 2 below illustrating how 'sustainable' relates to other terms.

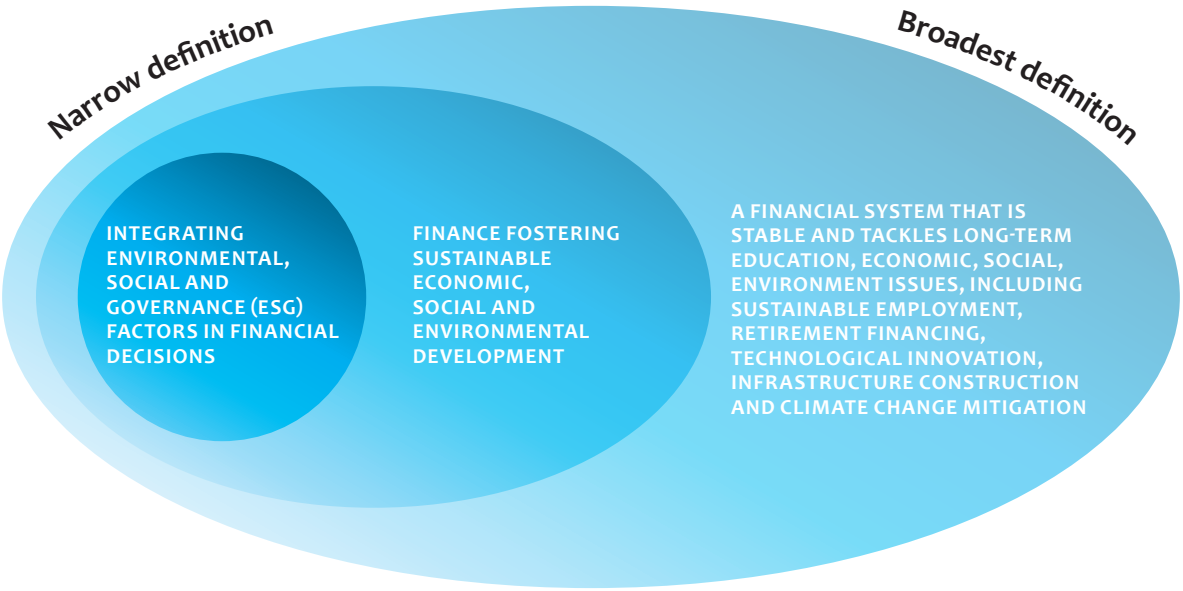
FIGURE 2: VARIATIONS OF SUSTAINABLE INVESTMENT



Source: UN Environment Inquiry (2017)

While the absence of a universal definition can create challenges in developing a domestic sustainable finance roadmap, the European Commission (2017) highlights a range of definitions from narrow to broad in Figure 3. The EU's broad definition is largely aligned with that of the G20 definition, which will be used throughout the remainder of this report. Both are consistent with the SDGs.

FIGURE 3: EU DEFINITIONS OF SUSTAINABLE FINANCE



Source: EU (2017) https://ec.europa.eu/info/sites/info/files/170713-sustainable-finance-report_en.pdf

4.2 Qualitative Approach

The survey results used in the section below were generated in response to the question, 'which sectors offer the most opportunity for sustainable finance in Nigeria?'. There was considerable alignment in the core sectors that offered significant sustainable finance opportunity. The opportunities surfaced by the survey can be broadly grouped into several economic systems. The most notable outlier is related to 'digital'. This was described both as a distinct investment opportunity in its own right (where digital infrastructure, products and services represented the bulk of the investment opportunity) and also as a transversal factor that would impact the technologies and business models of nearly all the other sectors highlighted.

The interconnected nature of global economies combined with anticipated disruption across technologies and business models makes some overlap across categories inevitable. A further caveat relates to varying levels of survey response granularity. The broad economic systems identified include:

- **Clean Energy Systems:** Nearly all respondents highlighted strong opportunities in the power sector. Domestic demand currently outstrips supply by a considerable margin. In 1990, 29% of Nigerians had access to electricity and this number rose to 59% in 2016.[72] Demand driven by a rapidly growing population, combined with an existing shortfall, implies that energy demand will remain strong.[73] Over 20 million households are currently without power[74] and around 86% of small and medium-sized enterprises (SME) use a generator.[75] The World Bank estimates that 80 million Nigerians lack access to electricity.[76] There is also a considerable number of consumers affected by chronic under-supply of electricity. The combined total of those currently off-grid and those experiencing a chronic under-supply totals 27.9 million households and 10.6 million SMEs.[77] The potential solutions to serve the population with critical access to energy issues is being altered by supply side dynamics. These include rapidly falling technology cost curves and increases in energy storage technologies which are shifting the economics across the energy system (see Figure 4).[78] Many survey respondents also highlighted considerable opportunities in driving greater efficiencies and reducing pollution along the oil and gas value chains, as well as leveraging supply chains to help deliver the SDGs.[79] It was also noted that the ongoing initiative to commercialize gas flaring could contribute to a transitional pathway towards a low-carbon economy. This would also help deliver the SDGs, while reducing pollution and generating finance for sustainable infrastructure development.

- **Sustainable Cities:** There is an increasing global focus on sustainable cities as a lens through which to assess sustainable investment opportunities. One of the SDGs (Goal 11: Sustainable Cities and Communities) is devoted entirely to cities, which highlights their keystone role in delivering sustainability outcomes. Globally, 88% of urban populations are subject to unacceptable pollution. Cities consume 75% of all resources and are responsible for 64% of global primary energy demand despite only representing only 54% of the global population.[80] Survey respondents highlighted the strain on cities and related infrastructure from rapid urbanization.[81] Responding to the challenges by creating urban spaces with features such as better mobility systems and that promote better health could unlock myriad sustainable development returns. High conviction opportunities within cities were noted in energy, transport, water and sanitation, housing, education, health care and waste management.

- **Agriculture and Sustainable Land Use:** An increased focus on more sustainable land use practices was a strong theme throughout the survey results. This reflects a global focus on more efficient land use management that is being driven by factors including changing demographics, consumption patterns, employment patterns and climatic conditions.[82] Challenges faced by farmers and herders are often exacerbated by processes including desertification and changing rainfall patterns. More specifically, domestic issues that were highlighted included

food self-sufficiency. Several stakeholders noted that opportunities lay with crops that can be produced domestically yet are currently imported at scale, such as the US$4-5 billion that is spent annually on wheat imports.[83] The employment potential of the sector is considerable. The food economy currently accounts for 34.5 million jobs in Nigeria representing over 60% of those in total employment.[84] Women also play a significant role in the West African food economy. Notably, 68% of all women in West African employment work in the food economy, largely in downstream off-farm jobs including food processing and food marketing.[85]

- **Health care and education:** Survey respondents noted that demographic trends are likely to have a significant impact on Nigeria's development trajectory. According to the UN, 2018 marked the year where the percentage of the Nigerian population living in urban areas equalled the rural population. It is estimated that 70% of the population will be living in urban areas by 2050, up from an urban population of 10% in 1950 according to UN projections.[86] By 2030 the population is estimated to increase to 264 million from approximately 196 million in 2018.[87] The median population age is estimated to increase from 17.2 years in 2000 to 20.9 years in 2025.[88] These statistics collectively imply substantial opportunities in the education and health care sectors. Some estimates of 'medical tourism' put the forgone revenue to foreign medical facilities as over US$1 billion annually.[89] The survey highlighted substantial sustainable investment opportunities including improvements to tertiary health care infrastructure and better collection of data.

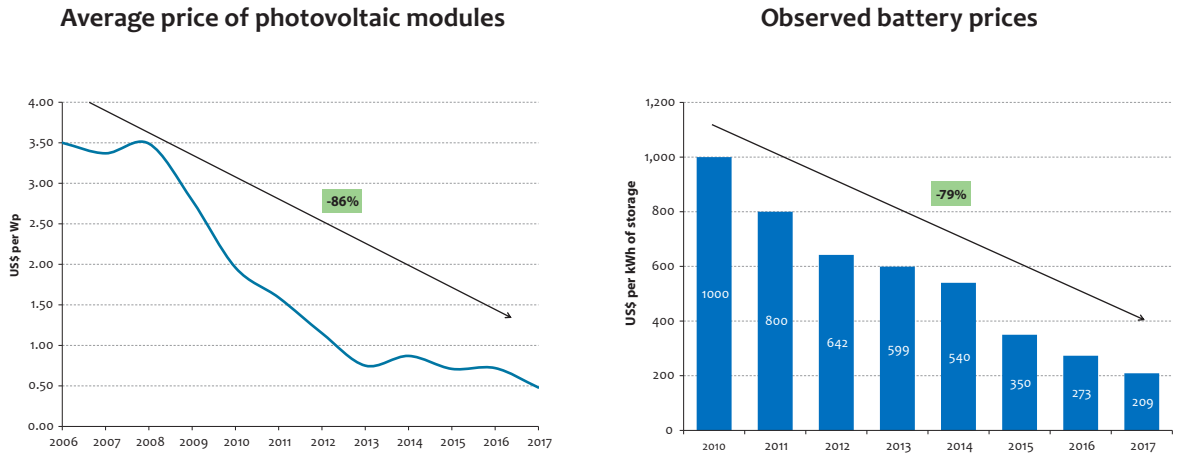
- **Transport:** Beyond opportunities in urban transport already captured in the 'sustainable cities' above, several other types of transport were highlighted as high conviction sustainable finance opportunities. These included both improving the sustainability profile of existing vehicles and pivoting to more efficient modes of transport. The expansion and upgrade of the railway network was flagged as a key opportunity to drive sustainability outcomes in Nigeria along with highly efficient air and sea ports. A recent agreement signed by the Federal Government with an international consortium should help increase freight capacity by an order of magnitude, and gives an indication of the potential economic boost such sustainable infrastructure could help deliver.[90]

- **Circular Economy:** Many survey responses highlighted the potential for variations of circular economy business models. Fundamental to these models is a more efficient use of resources. Such business models could be applied across many sectors of the Nigerian economy. The potential will vary across sectors and time, but as an indication of the potential benefits, the WEF estimates that 95% of plastic packaging material value globally (which is in the order of US$120 billion) is destroyed after first use.[91] Various different types of business models are driving business opportunities globally that include circular supply models (*e.g.* replacing traditional inputs with renewable or recovered materials), resource recovery models (*e.g.* recycling of waste into secondary raw materials), product life extension models that extend the use period of existing products, sharing models (*e.g.* car sharing platforms such as Taxify and Uber, which had 30% greater growth in its first 16 months in Lagos compared to London)[92] or product as service models, where the service provided by the asset, rather than the asset itself, is marketed.[93]

- **Digital:** Digital finance includes technologies such as big data, artificial intelligence (AI), mobile platforms, blockchain, and the internet of things (IoT). It makes more data available more quickly at lower costs, increasing transparency and access to information related to sustainable investments. It also promotes greater inclusion and innovation, increasing opportunities for citizen participation in the financial value chain and unlocking new sustainable business models.[94] The potential for digital innovation to deliver global sustainability outcomes is considerable. A mapping exercise by the Sustainable Digital Finance Alliance has found that sustainable digital

finance innovations can be harnessed to deliver 13 of the 17 SDGs.[95] Although further analysis is required to understand the most promising domestic applications, Nigeria clear has potential in areas including mobile payments, where Nigeria is already Africa's largest mobile market, with 162 million subscribers and a penetration rate of 84%.[96] Digital innovations could unlock myriad opportunities, including increasing energy access to the Bottom of the Pyramid (BoP).

FIGURE 4: TECHNOLOGICAL ADVANCES AND COST REDUCTIONS



Source: EIA (2017) and Bloomberg New Energy Finance (2017)

4.3 QUANTITATIVE APPROACH

Various methods can be used for estimating sustainable investment opportunities in Nigeria. Although there is no universal template to derive estimates that offers consistency of variables including scope, methodologies and definitions, the opportunity is considerable. At a global level, the United Nations Conference on Trade and Development (UNCTAD)* anticipates that current annual infrastructure investments of US$3.4 trillion will need to increase to approximately US$6 trillion with developing countries facing a US$2.5 trillion investment gap for SDG-related sectors.[97] Almost all of this sum will need to be climate-compatible investment.[98] The African Development Bank estimates Nigeria's infrastructure needs at an estimated US$100 billion per annum out to 2044.[99] At a regional level, the International Finance Corporation (IFC) conducted a global analysis of climate investment needs in emerging markets in 2016.[100] The investment opportunity for Sub-Saharan Africa was estimated to be US$783 billion from 2016 to 2030 (see Figure 5). The largest investment sector was estimated to be transport, with 64% of the total investment opportunities, with other large opportunities in buildings (20%) and renewable energy (16%). These numbers are likely to an underestimation, as there are certain data gaps for sectors like climate-smart agriculture which were not covered in the analysis.

* At the global level, the United Nations Conference on Trade and Development (UNCTAD) anticipates that total investment needs are in the order of US$5-7 trillion per year. Total infrastructure investment needs in developing countries in key SDG sectors are estimated at US$3.3-4.5 trillion per year over the proposed SDG delivery period.

FIGURE 5: GLOBAL EMERGING MARKET CLIMATE INVESTMENT OPPORTUNITIES 2016-2030 (US$ BILLION)

	Wind	Solar	Biomass	Small hydropower	Geothermal	All Renewables	Electric Transmission & Distribution	Industrial Energy Efficiency	Buildings	Transport	Waste	Subtotal	Investment Potential
East Asia Pacific	231	537	48	34	16	866	392	143	13,235	1,357	53	16,046	>1000
Latin America and Caribbean	118	44	45	11	14	232	0	21	901	1,460	26	2,640	>500<1000
South Asia	111	211	16	0	0	338	0	85	1,543	255	13	2,234	>250<500
Europe and Central Asia	51	39	6	7	6	109	0	57	410	78	11	665	>100<250
Sub-Saharan Africa	27	63	3	3	27	123	0	0	153	499	8	783	>50<100
Middle East and North Africa	50	46	0	1	0	97	21	1	92	50	4	265	>25<50
Total Climate-Smart Investment Potential by Sector	588	940	118	56	63	1,765	413	307	16,334	3,699	115	22,633	<25

Source: IFC (2016) https://www.ifc.org/wps/wcm/connect/51183b2d-c82e-443e-bb9b-68d9572dd48d/3503-IFC-Climate_Investment_Opportunity-Report-Dec-FINAL.pdf?MOD=AJPERES

4.3.1 TOP-DOWN APPROACHES

Several approaches to derive directional estimates for green or sustainable finance have been used over the past decade. One of the earliest modelling exercises on investment needs for a transition to a green economy was carried out by UN Environment at a global level in 2011.[101] It estimated that additional annual investments required to deliver universal sustainability outcomes would cost 2% of global gross domestic product (GDP). China calculated in 2015 that annual average green investment needs would exceed 3% of China's GDP. In 2017, the Research Bureau of the People's Bank of China estimated that green investment needs would be even higher. Green investment needs were estimated to be between RMB3-4 trillion (roughly US$450-600 billion per year) and that this annual need will grow in line with China's GDP in the short term.[102] This implies a range of 4.0% to 5.3% of China's GDP although there is growing consensus from domestic green finance experts in China that the upper end of this range is more likely.[103] A recent stocktaking exercise on green finance needs in ASEAN found that this range of 4.0% to 5.3% of GDP was broadly consistent with the green finance needs in ASEAN from 2017-2030.[104]

These numbers above relate to a narrower scope of 'green' investment, rather than 'sustainable' investments. As such, it cannot be applied directly to Nigeria's sustainable financing needs. However, a similar exercise can be undertaken based on analysis of India's sustainable finance needs. While there are many caveats and assumptions to make, India's economy has various similarities with Nigeria. Both are the largest economies and most populous countries in their respective sub-continents, both will

rank in the global top three fastest growing countries by 2030,[105] and both will be in the top 3 countries with the largest forecast populations by 2050.[106] Projections for GDP growth out to 2030 are broadly similar for both countries.[107] UNDP (2015) estimated that achieving the SDGs in India would require annual investment of US$960 billion.[108] Based on projected growth rates, Nigeria's GDP should equate to roughly 12% of India's GDP out to 2030.[109] Applying this percentage to India's SDG annual investment needs out to 2030 would imply Nigeria requiring approximately US$122 billion annually in 2018 prices over the same time period to finance its SDGs.

A more granular top-down approach can also be applied. The Sustainable Development Solutions Network (SDSN) produced a comprehensive framework to calculate SDG investment needs in 2015 (see Table 1).[110] Using assumptions about GDP growth rates, the implied annual sustainable investment needs for Nigeria were between US$59 billion and US$63 billion per annum in 2018 prices.[111] Applying the SDSN projections for lower middle-income countries, roughly 43% of this total is expected to come from private sources, while 57% is expected to come from public funding at the aggregate level. However, as highlighted in Table 1, the blend of public to private finance can vary substantially between investment sectors.

TABLE 1: BREAKDOWN OF SDG FINANCING NEEDS FOR LOWER MIDDLE-INCOME COUNTRIES

	Total needs (%GDP)	% Private	% Public	Private (%GDP)	Public (%GDP)
Health	0.4-0.6	0	100	0	0.4-0.6
Education	1.5	0	100	0	1.5
Agriculture & food security	0.8	51	49	0.4	0.4
Energy					
Access to electricity & clean cooking stoves	0.4-0.5	9-15	85-91	0.0-0.1	0.4
Power infrastructure	1.8	59-62	38-41	1.1	0.7
Water and Sanitation					
Basic water supply & adequate sanitation	0.4	0-20	80-100	0.0-0.1	0.3-0.4
Water and Sanitation infrastructure	0.4	0 - 20	80-100	0.0-0.1	0.3-0.4
Transport & infrastructure	2.8	52-57	43-48	1.4-1.6	1.2-1.4
Telecommunications infrastructure	1.3	54-86	14-46	0.7-1.1	0.2-0.6
Ecosystems including biodiversity	0.1-0.2	15	85	0.01-0.03	0.1-0.2
All SDG investments	**9.4-9.8**	**39-45**	**55-61**	**3.7-4.5**	**5.4-5.7**

Source: Sustainable Source: Development Solutions Network. http://unsdsn.org/resources/publications/sdg-investment-needs/

The considerable spread (US$59 billion to US$122 billion) between the two approaches to estimation highlights the challenges of generating estimates for sustainable investment needs out to 2030. These top-down approaches can be complemented by a bottom-up approach, which is more grounded in national realities.

4.3.2 Bottom-up Approach

A bottom-up approach has been developed that uses inputs from key national planning documents. These include the National Integrated Infrastructure Master Plan (NIIMP), Nigeria Vision 20:2020 alongside international resources such as the G20 Global Infrastructure Hub.[112] Although the categories are not necessary mutually exclusive (*e.g.* there is some overlap between agricultural investment and both water and transport), they are broadly consistent with other analyses, such as that by the IFC (2016). Transport is the largest opportunity in the period out to 2030, with considerable opportunities across buildings, energy (particularly renewables and gas) and communications. The estimated annual investment needs range from US$44 billion to US$76 billion.

While the bottom-up estimates generated from the G20 Global Infrastructure Hub offers a comprehensive assessment of infrastructure needs, including the cost of meeting SDGs, these estimates do not cover social infrastructure such as agriculture, health, education and housing. On the other hand, NIIMP estimates lack the total investment need in energy sector by categories (particularly, energy efficiency, renewable energy and clean energy). Consolidating the estimates from these two sources generates a total annual investment need of US$92 billion in the period out to 2030. This equates to an opportunity of over US$10 million of sustainable investment for every hour of every day between now and 2030.

Table 2: Bottom-up Estimations of Annual Investment 2019-2030

	Average Annual Investment required between 2019 and 2030 (in 2018 US$ billion)		
Sectors	**NIIMP Estimate**	**GIH Estimate**	**Consolidated Estimate**
Transportation	100	0	1.5
Road	14.75	10.53	14.75
Railway	3.18	1.7	3.18
Aviation	2.22	0.85	2.22
Maritime/Ports	1.93	3.62	1.93
Urban Transport	9.86	0	9.86
Energy		17.77	17.77
Transmission & Distribution	1.85	-	-
Energy Efficiency	0	-	-
Renewable Energy	0	-	-
ICT/Telecommunications	12.52	5.85	12.52
Water	5.17	3.97	5.17
Agriculture & Food Security	5.2	0	5.2
Housing/Construction	13.49	0	13.49
Social Infrastructure	5.78	0	5.78
Total (annual)	**75.95**	**44.29**	**91.87**

Note: Social Infrastructure includes Health, Education, Environment, Tourism and Employment

Source: UN Environment analysis based on G20 Global Infrastructure Hub and the National Integrated Infrastructure Master Plan (NIIMP) of Nigeria.

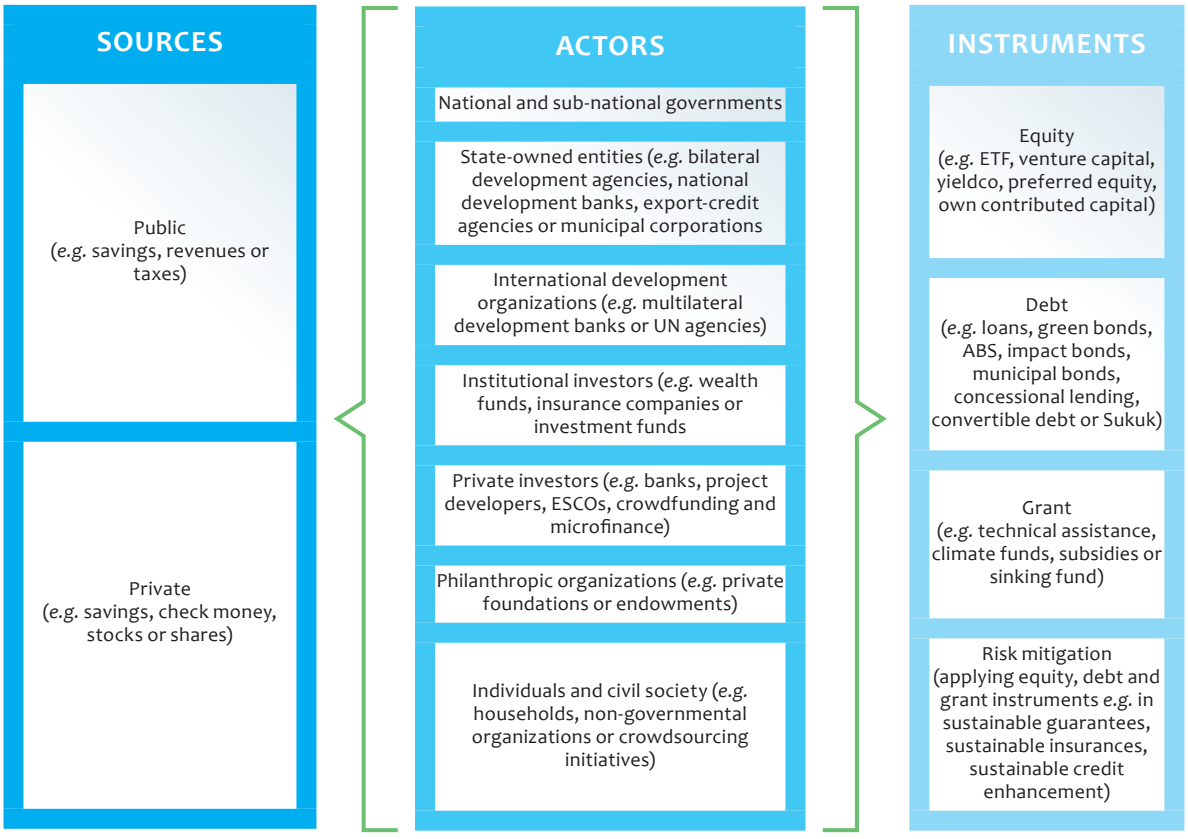
5. SUPPLY OF SUSTAINABLE FINANCE

5.1 Estimating Existing Sustainable Investment Flows

To understand the magnitude of the sustainable investment gap in Nigeria, it is necessary to estimate existing sustainable finance flows. This is challenging for a variety of reasons, but the primary barrier is that there is no shared understanding of what 'sustainable investment' means. The European Union is addressing this by developing a unified regional sustainable finance classification system or 'taxonomy'. The High-level Expert Group on Sustainable Finance considers this task the single most important and urgent component of their Sustainable Finance Action Plan.[113] Further challenges to understanding sustainable finance flows include data gaps, double counting and methodological complexities.[114]

The challenge is further compounded by the complex and diverse landscape of finance. Although ultimately all finance stems from either a public or private source, it is intermediated by many different actors and channels, and invested using a variety of instruments as illustrated in Figure 6. The exact configuration of source, instruments and channels will vary depending on a variety of factors, including expectations or risk-adjusted returns, liquidity, legal issues and differing investment horizons and objectives.

Figure 6: Investment Sources, Actors and Instruments



Source: Adjusted from Mehta, A. (2017). Catalyzing Green Finance: A Concept for Leveraging Blended Finance for Green Development. Manila: Asian Development Bank. Available at: http://dx.doi.org/10.22617/TCS178941

While recognizing the many limitations of the approach and caveats outlined above, Table 3 summaries an estimate for current sustainable finance flows in Nigeria. Further detail on data and methodology used is available in Annex 1. The current annual investment flow is estimated to be close to US$10 billion per annum. Based on an annual investment need of US$92 billion, this implies an annual investment gap of more than US$80 billion.

TABLE 3: ESTIMATED ANNUAL SUSTAINABLE FINANCE NEEDS

	In US$ billion	
Yearly sustainable investment need	**91.9**	
Current sustainable funding flows (2017)		
Public Finance	3.0	
International Development Aid	2.5	
Commercial Loan Funding	0.7	**Total private US$2.3 billion**
Corporate Bonds	0.0	
Institutional Investment	-	
Microfinance	-	
Foreign Direct Investment	1.1	
Other Investment (Private Asset Managers)	0.5	
Other Investment (Public)	0.5	
Total	**8.3**	
Yearly increase in funding required to meet the need	**83.6**	

Source: Based on authors estimates. See Annex for further details.

There is considerable variation in global estimates for the aggregate ratio of public versus private finance. In China, 85% to 90% of green finance supply in the near to medium term is expected to come from the private sector.[115] Indonesia lies at the other end of the continuum, with an expectation that only 10% of sustainable finance will originate from private sources out to 2020. India lies somewhere in between with an estimate of a 50/50 split between public and private sources.[116] Although this percentage will vary at sector and project level, based on an assumption that Nigeria will require a 60/40 split between public and private funds, private sustainable finance will need to scale from the current levels of around US$2.3 billion to above US$35 billion. It is therefore clear that current sustainable investment opportunities far exceed sustainable investment supply. Applying the numbers above, and with the caveat that the margin of error will be considerable, the annual investment opportunity is approximately 15 times larger than 2017 flows.

5.2 CHARACTERISTICS OF THE SUSTAINABLE INVESTMENT GAP

The financial characteristics of these flows will vary along many dimensions. The composition of the capital stack (i.e. ratio of debt to equity) will be a function of many factors, as will the ratio of public to private capital, the tenor of finance required and the average size of each transaction in any one sector.

Many of the investment opportunities outlined above in Section 3 require medium- to long-term capital. Much infrastructure has an economic asset life ranging from 15 years in the case of some telecommunications infrastructure to over 50 years with some forms of construction-related infrastructure such as airports.[117] Further details are provided in Annex 1.

5.3 Characteristics of the Nigerian Financial System

Nigeria's financial system is currently driven by activity in the banking sector, which accounts for approximately 80% of total financial assets according to IMF analysis.[118] Deposits are the primary source of funding for banks, which represent roughly 75% of total liabilities. Of these deposits, 95% are under one year in maturity.[119] These features make it more challenging to borrow over the medium to long term compared to other countries with more mature capital markets, such as the US, where bank debt is less than 45% of total debt.[120]

Nigeria remains relatively unbanked compared to some peers, with considerable growth potential given more than half of adults remain unbanked.[121] The credit to GDP ratio is often used as one measure to assess the level of financial inclusion. The credit to GDP ratio is under 15% in Nigeria compared to around 31% in Kenya and 65% in South Africa.[122]

Alternative pools of capital to bank finance are in relatively short supply in Nigeria. The non-banking sector remains relatively small compared to the banking sector but is growing rapidly in terms of membership and assets. The pension industry is on track to meet its strategic objective of capturing 30% of the working population under the Contributory Pension Scheme. As of Q1 2018, approximately 70% of pension assets are held in Federal Government fixed income securities.[123] The insurance sector is growing but remains a relatively small part of the non-bank sector. A considerable amount of risk from some of Nigeria's largest sectors by revenue are transferred through to the international insurance markets.[124]

The relative scarcity of deep investment pools in Nigeria stems in part from households' savings patterns. A considerable fraction of the country is saving, although not necessarily in banks. The World Bank Global Findex Database (2017) shows that while 62% of adults have saved in the last year, only 21% have saved at a financial institution. Although volumes saved will differ, the absolute number of adults saving using informal means was higher in 2017. Notably, 25% of adults used a savings club, such as a Rotating Saving and Credit Association (ROSCA), or someone outside the family.[125] There is emerging evidence that some of the traditional savings schemes, popularly called Adashe, Ajo, and Esusu in local languages are now being digitized by domestic financial institutions.[126]

5.4 Comparison of Supply versus Demand

Sustainable finance investment opportunities in Nigeria are consistent with a global trend and far outstrip the current supply of sustainable finance. Addressing this imbalance can realize new job-intensive growth opportunities and prevent negative economic, societal and environmental consequences. In order to address the current imbalance, current financial capital allocation patterns will need to change along two broad dimensions.

First, capital allocation to polluting and environmentally damaging activities will need to decrease while allocations to activities with environmental benefits will need to increase. Second, the speed at which capital is allocated to sustainable investments needs to increase rapidly in order to meet national and international policy goals on time. The rate at which sustainable finance is deployed is important. Despite linear assumptions of investment opportunities out to 2030 for simplification purposes, near-term capital expenditure will have a disproportionately large sustainability impact due to the long-term implications it has on future consumption patterns (*e.g.* in the energy sector) as technologies with long asset lives are 'locked in'.

6. BARRIERS TO SCALING SUSTAINABLE FINANCE

Barriers to scaling sustainable finance can be broadly grouped into two categories. The first set relates to generic finance barriers that can affect all transactions. The second one relates to the sustainable dimension of investments. These sets of barriers are often interrelated and there can be considerable overlap between them in many instances. Many longer-dated sustainable investments such as infrastructure projects have higher capital expenditure (capex) requirements relative to more carbon-intensive investments. Although access to longer tenors of finance might be a generic challenge for many infrastructure projects, the higher capex component of a sustainable project can create an additional hurdle. Both sets of barriers will need to be addressed to effectively scale up sustainable finance.

The G20 Green Finance Study Group identified five core barriers to scaling up private green finance in 2016. These barriers included: (i) challenges with internalizing externalities (ii) maturity mismatches (iii) information asymmetries, (iv) inadequate analytical capabilities, and (v) lack of clarity of green definitions.[127] While a comprehensive review of barriers and solutions is outside the scope of this report, several generic and sustainability barriers to scaling sustainable finance in Nigeria have been consistently highlighted during expert surveys and the literature review. Many of these are consistent with those identified by the G20. A non-exhaustive overview of barriers to scaling up Nigerian sustainable finance is listed below.

6.1 Generic Finance Barriers

Generic barriers apply to all sectors, and not just the sustainable investment opportunities identified in Section 4. Many generic barriers are highly relevant to sustainable investment and will ultimately need to be addressed to scale up sustainable investment.

Lack of long-term capital: Alternative sources of medium- to long-term finance to bank lending are relatively scarce in Nigeria. This barrier was most one of the most important generic barriers identified by domestic actors in the survey responses. This is a common issue in many countries and has been compounded by international regulation including Basel III, which has driven stricter capital adequacy ratios globally.[128] As highlighted in Section 4, many Nigerian sustainable investment opportunities, including infrastructure, transport and some types of agriculture, are characterized by relatively large medium- to long-term capex requirements with associated asset lives of 10 to more than 30 years. The tenor of banking liabilities across the global financial system is generally short-term, with weighted average maturities of commercial loans often under three years.[129] As highlighted in Section 5, IMF analysis indicates many loans in Nigeria are under one year in tenor. Sources of equity held by investors with longer-term investment horizons, such as insurers and pension funds, are in relatively short supply. This feature of the Nigerian financial system indicates that a structural asymmetry exists between the characteristics of the supply and demand for sustainable finance, especially in areas such as infrastructure.[130] This highlights the need for medium to long-term patient capital.

MSME access to finance: Access to finance for micro, small and medium-size enterprises (MSMEs) has been highlighted as a material problem in Nigeria. This is reflected in 2017 World Bank data where only 2% of adults have borrowed from a financial institution to 'start, operate or expand a farm or business'

compared to a world average of roughly 9%.[131] This challenge is reflected in domestic policy, such as the Central Bank of Nigeria's 2012 Financial Inclusion strategy.[132] Contributing factors identified by the IMF in Nigeria include a lack of a functioning personal identification system; costs associated with verifying and obtaining official documentations; limited data quality and scope of credit bureaus; and challenges with enforcing contracts and collaterals, typically with long delays in the judicial processes.[133]

Opportunity/financing costs: The attractiveness of low-risk alternative domestic investments was highlighted in the survey as a key barrier to mobilizing sustainable finance. Nigerian Federal Government securities offer an attractive risk-free return. The yield on 10-year Federal Government of Nigeria bonds has broadly fluctuated between 13% and 16% since January 2017.[134] This can create challenges for projects competing for capital. The additional risks linked to many investment opportunities requires a very high financial return to ensure the risk-adjusted return is comparable with the risk-free rate. The survey also highlighted that government securities are clearly defined and well understood, which is not necessarily the case with some sustainable investment opportunities where technologies, business models or track records can be less clear and established. Related to the above, the high cost of bank loans was identified as an associated barrier to scaling up sustainable finance. Lending rates which have been documented at well over 20% per annum which significantly increases the hurdle rate required to capitalize on sustainable investment opportunities.[135]

Market barriers: The barriers associated with volatility in FX markets was a key generic market risk highlighted by many of the survey respondents. Other issues included challenges related to land tenure and its use as collateral. It was noted that aspects of Nigeria's land tenure laws can create disincentives to invest in farming infrastructure that can drive efficiency and higher yields.[136] A further challenge related to information asymmetries in the absence of comprehensive systems linking personal identification and credit scores.

Costs of doing business: Despite promising progress in terms of ease of doing business, the survey respondents identified this factor as a key barrier. Aspects highlighted included challenges related to stable power supplies, land tenure (also viewed as a market barrier above), import- and export-related challenges, transaction costs related to importing technology, bureaucratic inefficiencies, poor data sets, and challenges related to registering businesses, including in the informal sector.

6.2 Sustainable Finance Barriers

Sustainable finance barriers are specific to the sustainable dimension of an asset or security. These barriers are relevant at the level of the asset, but also at a broader structural level. A non-exhaustive list can be found below.

Sustainable investment pipeline: Expert interviews highlighted the challenge of a relatively limited pipeline of commercially viable sustainable investment opportunities in Nigeria. This is a global phenomenon. Only 45% of current renewable energy projects in South-East Asia are estimated to be bankable without support from outside the private sector.[137] Similarly, around 60% of infrastructure projects in emerging markets in Asia are not 'bankable' without non-commercial financing or guarantees that often comes from public sources.[138] It was also noted that many sustainable technologies are relatively new, and therefore lack the financial returns track record required by many institution's capital allocation processes. An additional challenge relates to transaction size. It was noted that even with a strong financial record, some projects may be too small to be financially attractive once transaction costs are considered without some sort of aggregation platform. Examples provided included distributed and micro-generation renewable energy projects. Furthermore, projects may also depend on supporting infrastructure to ensure competitive financial returns. Examples include the reliance of many types of renewable energy on the resilience of or connection to the grid, or the infrastructure a farmer requires to get produce to processing facilities or markets.

Underdeveloped sustainable finance toolkit for financial decision makers: The lack of clear definitions and clarity over what a 'sustainable' project, asset or investment is, was consistently highlighted as a core barrier. This is a universal factor. The European Commission's Action Plan for sustainable growth mentions the development of a sustainable finance definition and taxonomy as 'the most urgent and important action' that needs to be undertaken in the EU to scale up sustainable finance.[139] The absence of a definition and taxonomy increases search costs for investors, banks and companies looking to invest. Without clarity on what is and what is not sustainable, internal budgeting, accounting and performance measurement functions will struggle to allocate capital towards sustainable projects and assets.[140] It will also hinder measuring sustainability-related risks and returns. Even where asset- or enterprise-level data is available, the lack of common standards and metrics makes comparison across a universe of sustainable opportunities challenging.

Inadequate analytical capabilities: Understanding of the financial implications of sustainability varies by financial institutions. It is still at an early stage in Nigeria, and in most countries globally. In many financial institutions, the capacity to identify and understand the credit and market risks remains relatively underdeveloped. In a 2017 IFC survey of 135 financial institutions globally, one in two banks responded that they have used consulting or technical assistance to build their climate-related lending business.[141] Underdeveloped capabilities can hinder more effective risk management, and lead to an overinvestment in projects that may have unintended sustainability consequences. This in turn can limit the volume of finance that can be mobilized for sustainable investment. As noted in Section 6.1, the availability of government securities offering a high risk-free rate might decrease the incentive to build internal sustainable finance capacity in financial institutions.

Lack of non-financial sustainability data: Limited disclosure from companies and financial institutions on sustainability criteria in a comparable format creates difficulties for financial decision makers when conducting risk assessments. It also increases the difficulties for companies trying to attract new sources of sustainable finance. There are also few projections of how business models will vary along different established trajectories (such as business-as-usual and a 2°C pathway scenario), which can be valuable information for understanding medium- to long-term risks in some sectors.

Policy frameworks: National environmental and broader sustainability objectives have not been always translated into coherent financial policy frameworks. While this remains embryonic, it was noted that the lack of incentives for providers of capital and financial services prevents the effective alignment of the financial system with broader sustainability objectives such as NDCs, renewable energy targets or the delivery of the SDGs. In a survey of 860 accountants in Nigeria, 92% of respondents 'disagreed that regulatory enforcement was strict enough to compel social and environmental sustainability considerations in business decisions by companies in Nigeria'.[142] Emerging examples of countries having started to align general and financial policy were also noted in the survey. China has been among the more innovative countries in this respect. It issued a comprehensive policy framework in 2016 to align its financial system with green growth objectives and the goal of 'ecological civilization'. The *Guidelines for Establishing the Green Financial System* contain 35 measures to scale up green finance, including green guarantees, green insurance, environmental disclosure guidelines and the development of equity and bond green indices.[143]

Embryonic appetite for sustainability: An emerging theme from the survey was that the concept of sustainability is not readily accepted by all stakeholders domestically in Nigeria. Although many point to empirical, anecdotal and logical evidence of the importance of sustainable finance, acceptance is not universal in Nigeria. Two main perceptions underpin this. The first one is that sustainability would involve a reallocation of scarce resources, which might detract from delivering on more pressing needs domestically. The second one is that, in some quarters, sustainability is more of an international approach than a domestic one, and therefore does not resonate as strongly as it might otherwise. Notably, 72% of respondents in the 2017 survey of Nigerian accountants felt that the public was not aware and conscious of social and environmental sustainability issues as they affect companies' products and services.[144]

7. OPTIONS TO SCALE UP SUSTAINABLE FINANCE

7.1 Possible Solutions

As with many complex, multi-faceted challenges, no single solution set will deliver the sustainable finance required at scale and within the timeframe required in Nigeria. Based on international experience, interventions are likely to be required at multiple levels and might include a blend of policy and financial market innovations.[145] This will result in changes to the balance of financial sources, the types and relative importance of financial intermediaries, and the range of instruments used to deliver sustainable finance.

Identifying the optimal basket of interventions in Nigeria will require more detailed analysis. Financial transactions can also be complex and context-specific. However, several areas have emerged from the survey and interviews that would benefit from further exploration. The following illustrative, non-exhaustive list highlights progress to date, as well as a selection of possible market and policy innovations that have the potential to address the generic and specific barriers to mobilizing sustainable finance at scale in Nigeria.

These interventions can be broadly grouped into categories including (i) enabling conditions (ii) banking, (iii) capital markets, and (iv) cross-cutting topics. In reality, many of these possible solutions are highly interrelated and interdependent. For example, scaling sustainable bank lending will rely in part on a robust taxonomy, solid policy, capacity-building, and potentially capital markets and digital innovation. Figure 7 provides an illustrative mapping of how the solutions below relate to the barriers from the previous section.

7.2 Enabling Conditions

Definitions/taxonomies: Relevant definitions and technically robust taxonomies for sustainable assets and financial products in Nigeria could be developed. Related work is already underway, including initiatives such as the Debt Capital Market programme being led by FMDQ, FSD Africa and CBI.[146] Progress on this front could help scale up sustainable finance in many ways by providing clarity to the market and policy makers on what is and what is not sustainable. They could facilitate access to new and more diversified pools of capital searching for sustainable assets, facilitate the inclusion of assets in sustainability benchmarks and could improve the ability of policymakers to create effective and efficient policy. Once a taxonomy is developed, it would help the 'tagging' of sustainable assets, especially by primary lenders such as banks in sectors such as real estate.[147] This could enhance the visibility over internal sustainable stocks and flows, satisfying the growing global demand by investors for more sustainable financial visibility.[148] It could also help banks measure their sustainable asset quality and performance versus non-sustainable assets. Tagging could also help financial institutions with the creation of sustainable investment products such as asset backed securities (ABS). The development of sustainable standards or labels for financial products could also help scale the market.

FIGURE 7: ILLUSTRATIVE MAPPING OF BARRIERS AND SOLUTIONS

BARRIERS		SOLUTIONS: Definitions and taxonomies	Improve non-financial disclosure	Sustainable investment pipeline	Sustainable finance policy	Banking	Capital Markets	Institutional investors	New products	Digital finance	Awareness Raising
Generic	Lack of long-term capital	✓	✓	✓	✓	✓	✓	✓	✓		✓
	MSME access to finance	✓		✓	✓	✓			✓	✓	✓
	Opportunity/financing costs				✓	✓	✓	✓		✓	
	Market barriers				✓					✓	
	Cost of doing business				✓					✓	
Sustainable finance barriers	Sustainable Investment pipeline	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Underdeveloped toolkit	✓	✓		✓	✓	✓	✓	✓	✓	✓
	Inadequate analytical capabilities				✓	✓	✓	✓	✓	✓	✓
	Lack of non-financial data	✓	✓		✓	✓	✓	✓			✓
	Policy frameworks	✓	✓		✓	✓	✓	✓			✓
	Limited appetite for sustainability			✓	✓		✓		✓	✓	✓

Improved non-financial disclosure: Sustainability disclosure by the users and preparers of financial information could be enhanced and made more consistent, drawing on international best practice where appropriate. This would allow more informed financial decision-making, including improved understanding of sustainability risks and opportunities. There is considerable emerging work in this space globally which could be leveraged, and which includes initiatives such as the Global Reporting Initiative and the FSB-led TCFD.[149]

Sustainable investment pipeline: Scaling up the creation and identification of sustainable assets can be achieved in several ways. This could include: (i) Aggregation: sustainable definitions and taxonomies, as well as sustainable asset tagging, can facilitate the development of a sustainable investment pipeline. These would allow the creation of new products such as sustainable ABS that could aggregate a variety of assets, including sustainable MSME loans. These would individually be too small for institutional investors to invest in directly, but could become suitable once transformed into larger, liquid and familiar investment products, (ii) Public finance: public finance includes a diverse range of instruments and institutions, including development banks. Uses can include improving the bankability of projects by altering the risk profile of sustainable assets. This often involves types of early stage financing, where project risks are higher and there is often no positive cash flow. Other examples of using public funds to increase a sustainable product pipeline include initiatives such as the World Bank Group's work on carbon markets[150] or help in scaling up new investment product, such as Singapore's green bond grant fund.[151]

Sustainable Finance Policy: As noted in Section 3, financial policy and regulation that is aligned with aspects of sustainable development is increasing globally. Figure 8 illustrates global examples of different types of recent sustainable finance measures. The survey indicated that there is considerable

interest in developing a better understanding of where examples of international best practice might be appropriate for Nigeria. These policy measures can help complement market innovations and more traditional policy measures.

FIGURE 8: GLOBAL EXAMPLES OF SUSTAINABLE FINANCE MEASURES

REALLOCATION OF CAPITAL	**Brazil**: Agricultural credit contingent on environmental compliance.	**India**: Priority sector lending to distributed renewables.
RISK MANAGEMENT	**Netherlands**: DNB review of climate risk.	**UK**: Insurance prudential review of climate risk.
RESPONSIBILITIES OF INSTITUTIONS	**US**: Department of Labor recognizes ESG issues as fiduciary factors.	**South Africa**: Code for Responsible Investment in South Africa (CRISA).
REPORTING AND DISCLOSURE	**France**: New Investor reporting requirements.	**California**: Fossil fuel disclosure for insurance firms.
ROADMAPS	**Indonesia**: OJK Roadmap for Sustainable Finance.	**Sweden**: Budget Bill: Finance sector to serve sustainable development.

7.3 BANKING

Banking: Given the nature of the investment opportunities identified in Section 4, debt financing will play a key role in Nigerian sustainable development with significant demand for longer tenors. Banks provide most of the formal credit in many emerging economies, and this is true of the Nigerian financial system (see Section 5). IFC analysis focused on 'climate-smart' opportunities across its client base indicates that the share of banks loans dedicated to sustainable finance would have to increase significantly to meet the IFC estimates of sustainable investment opportunities depicted in Figure 5. A recent IFC survey indicates that 7% of their surveyed client's collective loan book is allocated to climate-smart investments. This will have to increase to 30% of the total loan book by 2030 if demand is to be fully met.[152] Key areas that have been identified to help scale bank lending include: (i) identifying market opportunities and risk related to sustainable investment (ii) analysing the banks current portfolio related to sustainability (iii) developing technical expertise to develop sustainable lending, and (iv) developing market/product strategy and impact reporting.[153]

7.4 CAPITAL MARKETS

Capital Markets: There is growing global recognition that capital markets will play a vital link in scaling sustainable finance. The G20 2018 Sustainable Finance Study Group focused on ways to use capital markets to link investors with the majority of private sustainable finance that has been originated to date.[154] This largely sits on bank balance sheets in the forms of loans. While acknowledging that banks may have legitimate reasons for retaining these assets on balance sheets, a range of debt capital market products could provide pathways for institutional investors to finance or refinance these sustainable loans. Examples of these products include sustainability-targeting bonds, covered bonds, ABS, mortgage-based securities, and collateral loan obligations (CLOs). Nigeria's sovereign green bond issued in 2017 was the first issued by any nation on the continent and offered a glimpse of the potential for similar products. Further momentum will be accelerated by the Nigeria Green Bond Development Programme (NGBDP). The NGBDP is supported by FMDQ, FSD Africa and the Climate Bonds Initiative with the joint goals of supporting non-sovereign/corporate issuance and the development of a domestic green bond market.[155]

Institutional Investors: Although pools of investment capital are relatively small in Nigeria, emerging evidence suggests that domestic bank finance alone will be insufficient to deliver the SDGs in Nigeria and most countries globally.[156] Banks will remain vital players in sustainable finance but institutional investors could help address some of the limitations of bank finance with regards to challenges such as maturity mismatches. Institutional investors could help free up operating stage debt and equity capital initially provided by banks. This would require products that can help transform unrated, illiquid assets on bank balance sheets into public, rated and freely tradable investment products. Once transformed, institutional investors could potentially purchase these sustainable instruments on the capital markets within their existing product, liquidity and creditworthiness constraints. Such active bank balance sheet management could open up a broader universe of investors with a range of investment horizons and return expectations. The process might also encourage more bank lending if there is a low-cost and predictable means to refinance the assets once early stage projects are operational.[157]

New products: Expert interviews and the survey highlighted various other tools that could help scale up sustainable finance. These include new sustainable indices could build on innovations such as the NSE Corporate Governance Ratings System Index[158] and their use could be encouraged as benchmarks by money managers. A variety of risk management tools, including insurance, are also of potential significance. They can help improve the bankability of projects by hedging technology risks associated with new types of renewable energy, weather risks for farmers, and there is emerging evidence of insurance covering costs associated with adaptation.[159]

7.5 Cross-cutting Solutions

Digital finance: The universe of sustainable digital finance solutions covers a broad spectrum of technologies including mobile payment platforms, crowdfunding, the internet of things (IoT) and big data. While advances in digital finance have been most pronounced in the field of social inclusion, there is emerging innovation where broader sustainability considerations are considered. Given the relatively high and rapidly growing mobile and digital penetration rates in Nigeria, the application of digital solutions to sustainability issues warrants further analysis.[160] Areas of promise that address some of the barriers highlighted in Section 6 include MSME access to finance. Examples include Scandinavian start-up Trine which links private sources of capital to distributed solar energy systems through sustainable loans in rural Africa.[161] Trine uses the 'pay as you go' model to circumvent the challenge of high upfront costs associated with installing renewable technology, and which is a significant challenge for many MSMEs. There is also potential to look at other mobile-related schemes across Africa that could help unlock new pools of savings. The Government of Kenya issued the M-Akiba bond in March 2017, which was designed to mobilize retail savings to fund Kenyan infrastructure. M-Akiba can only be subscribed to through a mobile platform and has helped mobilize household savings for infrastructure investment.[162]

Awareness raising: There are several possible dimensions to sustainable finance awareness raising. These could include developing modules on sustainable finance within academic institutions such as business schools or within professional bodies or networks. There are also a number of networks globally where knowledge and best practice on sustainable finance is shared. Examples include the International Network of Financial Centres for Sustainability[163] and the Green Finance Leadership Programme in China.[164]

8. CONCLUSION

Sustainable investment opportunities in Nigeria stretching out to 2030 present a huge opportunity for Nigeria and the African continent. The size of the average annual sustainable investment opportunity up to 2030 is just under US$100 billion. Realizing this sustainable investment opportunity would contribute to the continued transformation of Nigeria into a global powerhouse to support a growing population in a sustainable manner and provide good returns for investors in parallel.

However, current flows of sustainable finance in Nigeria, as in most countries globally, remain inadequate to capitalize on this opportunity. The barriers outlined in this report, including a lack of medium- and long-term finance, an underdeveloped toolkit, and a lack of data, need to be addressed.

Although more analysis is required, this report outlines some options that could be used to overcome these barriers, including further developments in the banking sector and capital markets, and investment in enabling conditions.

The time is ripe for Nigeria to push hard to take advantage of the sustainable investment opportunities at hand, thus ensuring that climate change, pollution, demographic variables and unsustainable consumption and production do not hold back this global powerhouse from achieving its considerable potential.

ANNEX 1: FMDQ DCMD PROJECT SUSTAINABLE FINANCE SUB-COMMITTEE

1. **Mr. Emmanuel Ukeje** → Central Bank of Nigeria → Special Adviser to CBN Governor on Financial Markets
2. **Mrs. Eme Essien-Lore** → International Finance Corporation → Country Manager, Nigeria
3. **Dr. Momodu Omamegbe** → Securities and Exchange Commission → Head, Strategy Division
4. **Ms. Olayemi Idris** → International Finance Corporation → Senior Investment Officer
5. **Ms. Damilola Sobo** → International Finance Corporation → Program Coordinator, Sustainability Banking
6. **Mr. Oladele Afolabi** → Debt Management Office → Director, Portfolio Management
7. **Mrs. Titi Lawani** → Pension Fund Operators Association → Vice President
8. **Mrs. Onyinye Okafor** → Udo Udoma & Belo-Osagie → Managing Associate
9. **Mr. Ariyo Olushekun** → Capital Assets Limited → Vice Chairman
10. **Ms. One Dagun** → Standard Chartered Bank → Sustainability Manager
11. **Mr. Ibe Enwo** → Nigerian Stock Exchange → Fixed Income Product Manager
12. **Mr. Muhammad Mamman-Daura** → Chapel Hill Denham → Assistant Vice President, Investment Banking
13. **Mr. Iain Henderson** → UN Environment Inquiry → Head, International Cooperation
14. **Mr. Daniel Akinmade Emejulu** → UN Environment Inquiry → Nigeria Programme Manager
15. **Mr. Olumide Lala** → Climate Bonds Initiative → Africa Programme Manager
16. **Dr. Gregory Jobome** → Access Bank → Executive Director, Risk Management
17. **Mrs. Halima Bawa-Bwari** → Federal Ministry of Environment → Deputy Director, Department of Climate Change

ANNEX 2: METHODOLOGY FOR ESTIMATING THE SUPPLY OF SUSTAINABLE FINANCE

This appendix outlines the methodology and assumptions used to derive the analysis in Section 5.

Public Finance – Current Investment (2017)

In order to calculate public finance, the capital budget expenditure (31% of the total expenditure) of the Federal Nigerian Government was analysed to identify investments that correspond with the SDGs.[165] Under the line item 'power', only hydropower and rural electrification expenditure has been included. Similarly, under the line item 'housing & works', only those investments that are aligned with SDGs were incorporated. The expenditure on interior and defence were excluded. For rest of the sectors, an assumption was made that the entire expenditure contributes to the social and economic development of the country while also adhering to the goals of SDGs. All these expenditures were therefore considered sustainable and included in the calculation. Table 4 summarizes the public finance for the year 2017.

TABLE 4: PUBLIC FINANCE (2017)

Sector	Expenditure (US$ billion)	Expenditure (US$ billion)
Power, Works and Housing		
Power	45.8	0.1
Housing & Works	92.5	0.3
Interior	0	0
Defense	0	0
Education	142	0.4
Health	51.3	0.1
Transportation	262	0.7
Agriculture and Rural Development	91.7	0.3
Water Resources	85.2	0.2
Industry, Trade and Investment	80.9	0.2
Youth and Sports Development	5	0
Science and Technology	37.3	0.1
Special Intervention Program	150	0.4
	0	0
Total	**1043.6**	**2.9**
Subtracting ODA Contributions at 9%	949.7	2.7

Further, since most of the Official Development Assistance (ODA) is reflected in government budget expenditure, the share of ODA from the total public finance has been excluded. The ODA is presented separately as International Development Aid in the forthcoming sections.

To account for any shortfall resulting from government investment outside of the regular budget (*e.g.* through state owned enterprises), this report has added roughly 10% of the estimate to arrive at an approximate figure of US$3 billion.

Public Finance – Future Investment

Provided oil revenues are constant, public finance in Nigeria could potentially account for up to 60% of sustainable infrastructure financing in the next 12 years.[166] This means out of total annual sustainable finance needs of US$92 billion, the public finance could cover US$55 billion a year out to 2030.

Commercial Loans (2017)

The estimate is derived from data from the World Bank,[167] which defines domestic credit to private sector by banks as the financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. The total domestic credit to private sector by banks as of 2017 is US$53 billion.

According to the 2018 global progress report on sustainable banking by IFC, "green credit now makes up approximately 10 percent of Chinese banks' portfolios (top 21 banks). Brazilian banks' lending to green sectors of the economy has grown from 11 percent of the banks' portfolios in 2013 to 14 percent in 2015." Given the SDG universe is much larger than the 'green' universe, the SDG-aligned lending in these countries could be more than 15-20 percent. The Sustainable Banking Network (SBN) Progression Matrix report shows that Brazil, China and Nigeria at the same stage in advancing sustainable finance - at the 'established' stage. This means that they have comprehensive implementation actions in place and have begun to report on results and impacts of sustainable finance. However, given various adjustments based on the peer group, it has been conservatively estimated that Nigerian commercial banking portfolio could be in the range of 5-10% and the 5% was used to be conservative.

Hence, the total outstanding loans of commercial banks in 2017 is US$2.66 billion. Further, assuming that the commercial banks in Nigeria have an average loan tenor for infrastructure of 4 years,[168] and a growth rate of 5.4% (similar to the projected Nigerian GDP growth for the period 2019-30), gross issuance of commercial sustainable finance loans in 2017 is calculated as **US$0.7 billion**.

Corporate Bonds (2017)

Corporate Bonds are conventional bonds issued by corporations. The estimate is derived from data from the Securities and Exchange Commission of Nigeria.[169] The corporate bond issuance in 2017 amounted to US$65 million, the lowest in the last four years. Assuming 2017 was an outlier, an average of 2016, 2017 and 2018 (projected) was used to arrive at an average annual corporate bond issuance of US$300 million.

The report applies the same assumptions as for commercial loans (5%) in absence of more specific data to assess the sustainable finance portion of the total bond issuance. Using the bond maturity data from the Securities and Exchange Commission of Nigeria for all corporate bonds issued in 2016 and 2017, corporate bonds in Nigeria were found to have an average tenor of 6 years. With a growth rate of 5.4% (similar to projected Nigerian GDP growth for the period 2019-30), gross issuance of corporate bonds (sustainable) in 2017 is calculated as **US$3 million**.

International Development Aid (2017)

The estimate for international development aid, or in other words, official development assistance (ODA) and official aid, is derived from data from the World Bank.[170] Since most of ODA follows international development best practices and is therefore usually aligned with the SDGs, the entire ODA is taken as sustainable finance. The World Bank data has put ODA to Nigeria at US$2.5 billion for 2016. The data from the OECD[171] has also produced the average of three years (2014, 2015 and 2016) of ODA to Nigeria as US$2.47 billon. Hence, **US$2.5 billion** has been used for 2017 as well.

Foreign Direct Investment (2017)

The net foreign direct investment (FDI) in 2017 in Nigeria was US$2.21 billion.[172] Assuming 50% of net FDI is invested in sectors that contribute towards the achievement of sustainable development goals in Nigeria (oil and gas excluded),[173] the net SDG-aligned FDI in 2017 equates to **US$1.11 billion**.

Other Investment (Public and Private) (2017)

To account for sustainable finance from other private asset managers that could have been missed in the calculations, (primarily because of lack of verifiable data), **US$0.5 billion** of sustainable finance in 2017 has been estimated to have been provided by private asset managers.

Similarly, to account for any missing public sustainable finance, **US$0.5 billion** of sustainable finance in 2017 was estimated to have been delivered by 'other' public sector. This is very likely given possible additional sources of public finance such as Federal Government of Nigeria (FGN) bonds and sub-national bonds. For instance, in 2016, FGN accounted for more than 90% of Nigeria's bond market.[174]

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