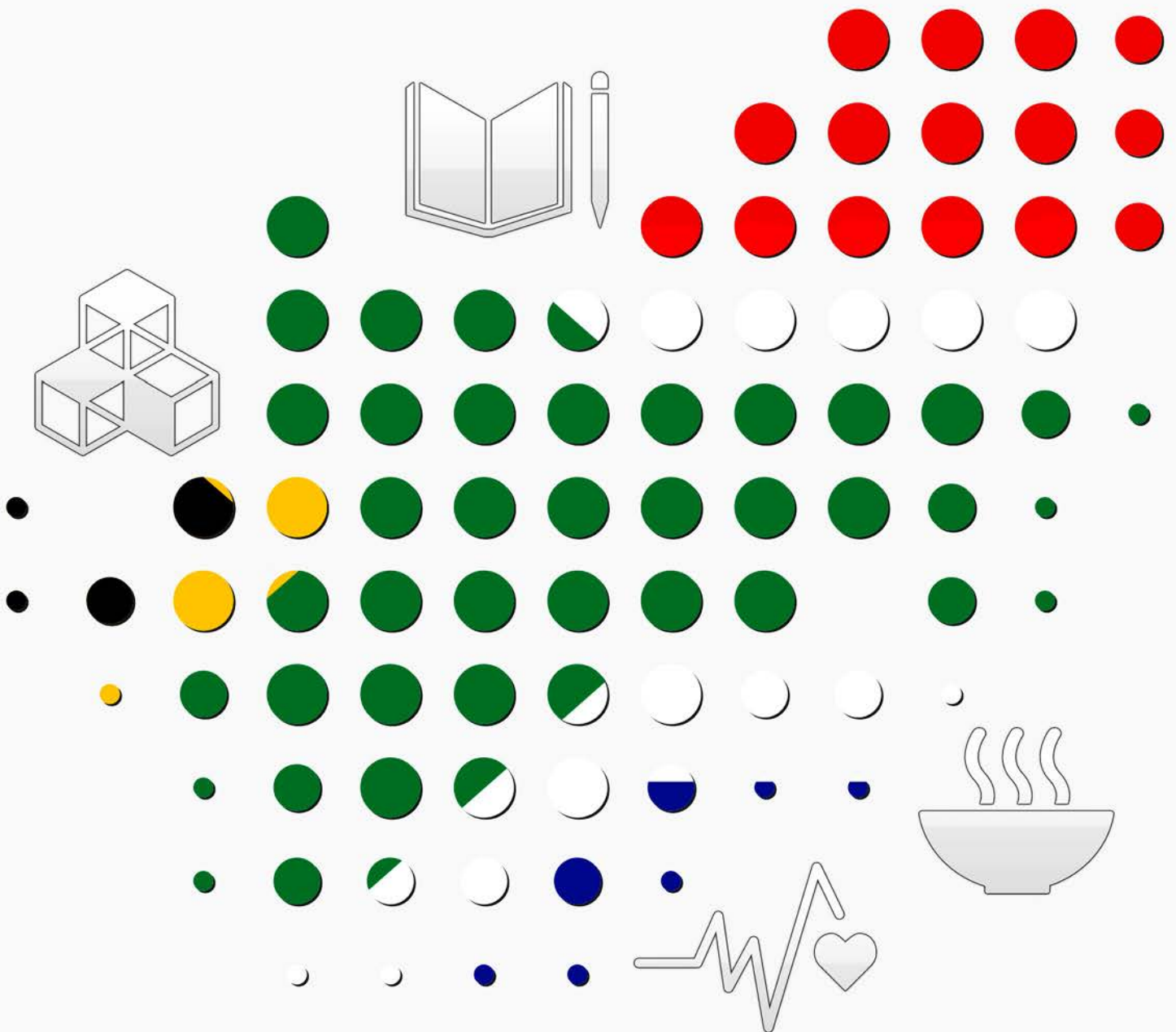


# THE SOUTH AFRICA SDG INVESTOR MAP 2020



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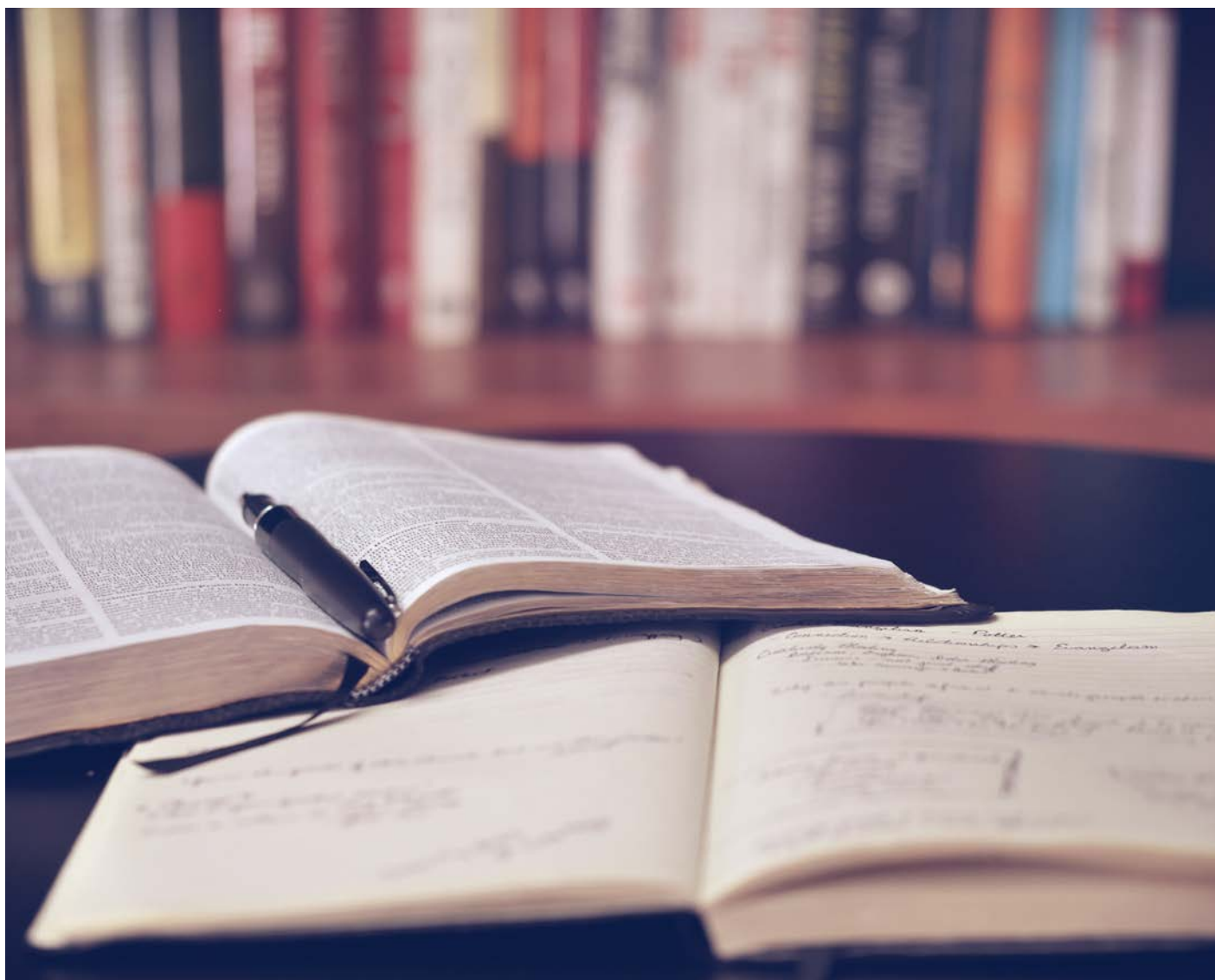
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# ACRONYMS

CET	Continuing Education and Training
ECD	Early Childhood Development
EdTech	Education Technology
GDP	Gross Domestic Product
ICASA	Independent Communications Authority of South Africa
ISFAP	Ikusasa Student Financial Aid Programme
IMP	Impact Management Project
IOA	Investment Opportunity Area
JSE	Johannesburg Stock Exchange
NDP	National Development Plan
PSC	Project Steering Committee
SASB	Sustainability Accounting Standards Board
SDG	Sustainable Development Goal
SME	Small and Medium-Sized Enterprises
TVET	Technical and Vocational Education and Training
UNDP	United Nations Development Programme
WASH	Water, Sanitation and Hygiene



# FOREWORD



*“...in order to achieve the SDGs we need an international financial system that works for all countries. This needs to be combined with scaling up innovations and new financing instruments and approaches. [...] UNDP is firmly committed...to playing a key role in moving [this] agenda forward.” - Administrator Achim Steiner, United Nations Development Programme<sup>1</sup>*

Accelerated investment in the achievement of the Sustainable Development Goals (SDGs) and furthering the implementation of the South Africa National Development Plan is required now, in the wake of the current COVID-19 pandemic, more than ever. Both public and private entities are increasingly recognising this fact in the pursuit of their objectives, be they the quest for profit or for the myriad of possible goals that define their purpose. Investing in the SDGs is not only desirable, but a practical decision as the ambition they represent goes far beyond merely giving us a picture of what a desirable future may look like. By their very nature, the SDGs embody the conditions for a resilient and sustainable future for all. Naturally, the private sector is part and parcel of such a collective endeavour, and should be involved in making sure that the world we find ourselves in in 2030 is one in which nations, communities, individuals, businesses, and the environment are able to flourish.

The COVID-19 pandemic has revealed the many fault lines and areas in which progress has been lagging. Continuing with business as usual will not help to address the reversal of human development that has occurred as a result of the pandemic and, consequently, will witness a steep price for the prospects of attaining the SDGs. While government interventions with the assistance of development partners have been paramount in mitigating the shocks brought about by this unprecedented event, the private sector's role and contributions will be indispensable in rehabilitating and repositioning the economy. Our ambition goes beyond this: We call for the investor community to recognise that now is the moment to strengthen their sustainable investments and decisively contribute to the “Building Back Better” agenda through their renewed commitment and accelerated implementation of the SDGs. This calls for business community adherence to the triple bottom lines objective – achieving profitability in the context of social advancement and environmental quality services.

The South Africa SDG Investor Map devised under the overarching theme of **“Creating access to affordable basic services for all South Africans”** aims precisely at helping investors identify some of these emerging opportunities to achieve the SDGs by offering information on market-specific investment opportunities.

The Investor Map identifies multiplier sectors and investment opportunity areas (IOA) that are aligned with the national development priorities as outlined in the National Development Plan and the Medium-Term Strategic Framework (MTSF). The SDG Investor Map offers investors actionable intelligence and localised insight into sectors and market conditions with significant profitability potential in addition to impact.

As the result of extensive research and stakeholder consultations, the SDG Investor Map identifies four priority investment sectors, namely: infrastructure, education, health care, and agriculture. This is consistent with the strategic priorities of National Development Plan of tackling the triple challenges of poverty, inequality, and unemployment and the UN SDG principles of “Leaving No One Behind” and “Transformative Partnerships” between the public sector, private sector, and civil society. These priority investment sectors are broken down further into 30 investment opportunities that highlight a set of business models which hold the potential to address the needs of majority markets and actively contribute to South Africa's inclusive, sustainable, and resilient development.

The South Africa SDG Investor Map 2020 is one of the first of its kind to be developed on the African continent and is presented at a time when resources for innovative ideas and solutions that advance the achievement of the SDGs are more critical than ever. Its production has been an inspiring and invigorating opportunity to engage with a plethora of pioneering individuals and organisations, all deeply committed to making South Africa more inclusive, just, and sustainable. It is a first step towards strengthening the landscape of sustainable financing in South Africa as we continue to explore avenues of partnership with the investors both within and outside South Africa, government, local communities, industry stakeholders, and changemakers on the ground.

It is my hope that this document will provide information for investment decisions, lead to catalytic field action that truly responds to the principle of “Leaving no One Behind” and generate transformative partnerships among the public, private, and civil society stakeholders. I am also hopeful that this report will provide readers with valuable insights into a truly innovative paradigm that will inspire them to contribute to the advancement of the SDGs and the eventual emergence of a robust SDG investment sector within the South African financial ecosystem. This is critical to address current and post COVID-19 challenges and harness the opportunities for “building back better” called for by the UN Secretary General.

September 2020

Signed



Dr. Ayodele Odusola  
Resident Representative  
United Nations Development Programme South Africa

<sup>1</sup>From his opening statement at the Global Steering Group on Impact Investment on 8 September 2020



# ACKNOWLEDGEMENTS

## EXPERT ADVISORS:

Producing the South Africa SDG Investor Map 2020 was truly a collective effort by stakeholders from across the private and the public sectors. Our sincere appreciation is extended to the members of the Project Steering Committee (PSC), who provided insights over the project period. The PSC was chaired by Dr. Ayodele Odusola and included the following members (in alphabetical order), Anthony Costa, Elias Masilela, Hubert Danso, Lindiwe Nakedi, Mark van Wyk, Martie Janse van Rensburg, Polo Radebe, Robin Toli (represented by Ms. Seema Naran and Mr. Andile Kuzwayo), Sizwe Nxasana, S'ongoba Vuba, and Tshediso Matona.

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## PROJECT COORDINATORS, WRITERS, AND OTHER SUPPORT:

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# EXECUTIVE SUMMARY

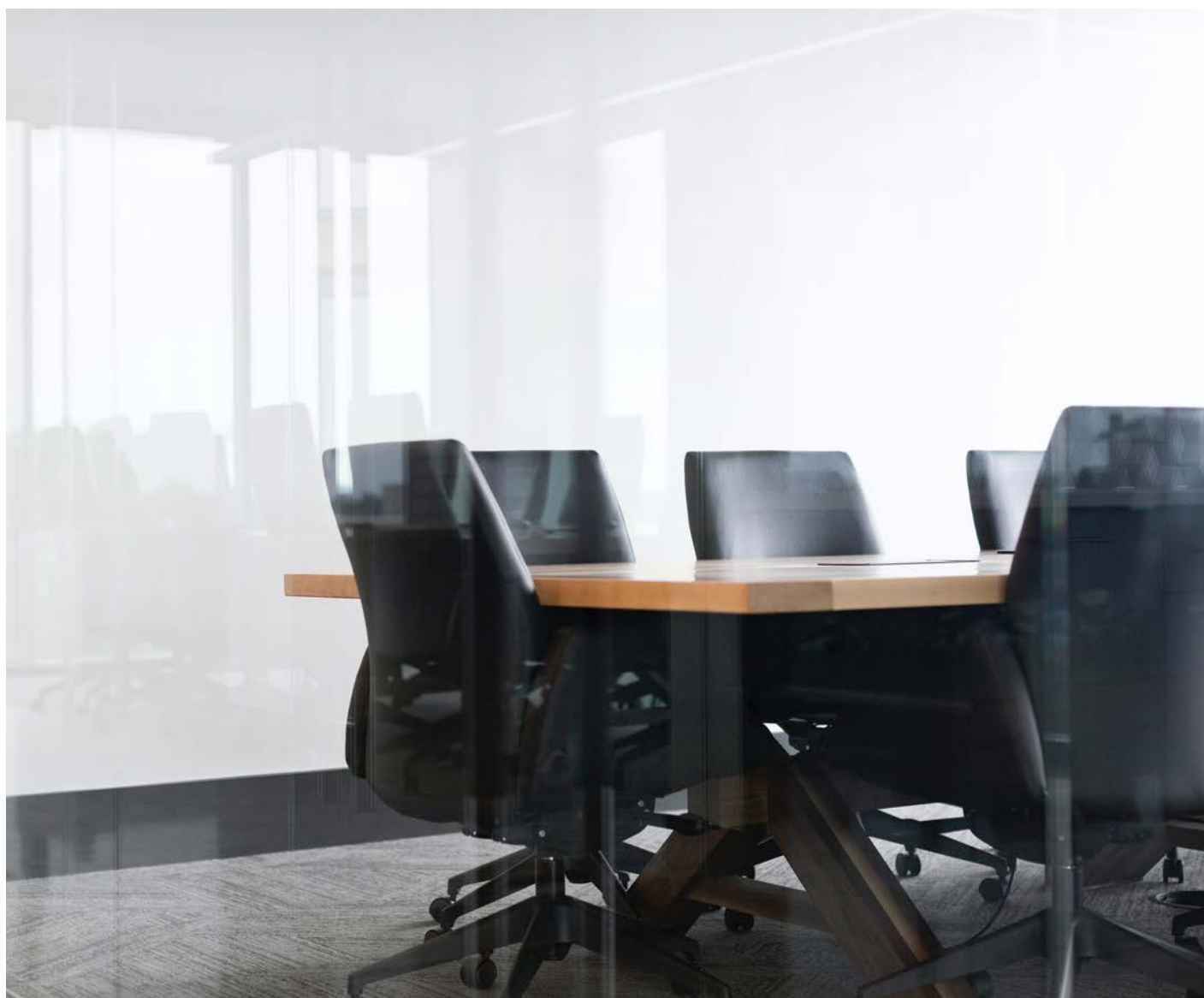
The South Africa SDG Investor Map 2020 is a tool developed by the United Nations Development Programme (UNDP) South Africa Country Office and UNDP SDG Impact, a global programme tasked with developing resources and solutions for accelerating investment towards achieving the United Nations Sustainable Development Goals (SDGs) by 2030. The aim of an SDG Investor Map is to capture market-specific investment opportunities for SDG-aligned capital deployment. The South Africa SDG Investor Map 2020 therefore identifies 30 impact-driven investment opportunities, obtained through close collaboration with local industry stakeholders. The map is also aligned to the South African government's overarching objectives for reducing poverty, inequality, and unemployment, as outlined in the National Development Plan and the recent Economic Reconstruction and Recovery Plan, which was developed in response to the COVID-19 pandemic.

The South Africa SDG Investor Map 2020 is the product of extensive literature review and interviews with key stakeholders from the relevant industries and fields. A Project Steering Committee (PSC) provided general guidance for the research process as well as expert input on the specific research findings to ensure the contextual relevance of the identified investment opportunities.

The outbreak of the COVID-19 pandemic, concurrent with this research study in early 2020, highlighted the need for investments in South Africa's future resilience. Therefore, the 30 investment opportunities are united under the theme of "creating access to affordable basic services for all South Africans" across four sectors: infrastructure, health care, education, and agriculture.

The overview of the investment opportunities areas (IOAs) and the reports on the specific projects within each IOA are accompanied by a capital allocation map, which locates the opportunities across the risk-return spectrum. This demonstrates how an investor might allocate capital to the four priority sectors in South Africa.

Particularly as the COVID-19 pandemic has sensitised more decision-makers in the private and public sectors to the need for sustainable investing – for both recovery and future resilience - the South Africa SDG Investor Map 2020 and this accompanying report are valuable resources for making sustainable investment decisions. Moreover, they represent a concrete step by the UNDP South Africa to mobilise more appropriate financing for the SDGs in South Africa.



# 1. INTRODUCTION

Investing with the aim to achieve the Sustainable Development Goals (SDGs) is gaining momentum in South Africa, as evidenced by both the multiple references made by the President and the Minister of Finance to the importance of impact investing as a strategy in recent years, as well as the creation of the national taskforce [Impact Investing South Africa \(IISA\)](#) in 2018. By extension, investment in projects that focus on impact targets captured by the SDGs is also increasing. However, it will take an estimated US\$ 2.5 trillion of global financing per year to achieve these, which necessitates large-scale private sector mobilisation. The United Nations Development Programme (UNDP) created [SDG Impact](#) to address this financing gap by empowering investors with the resources to achieve the SDGs. One such resource, the SDG Investor Map, is a dynamic tool that contains a range of market-specific investment opportunities for SDG-aligned capital deployment. **This report presents the South African SDG Investor Map: a local quest to identify and highlight SDG impact-driven investment opportunities.**

The map was developed in close collaboration with the local market in order to ensure its long-term relevance and sustainability, and to obtain a diverse portfolio of projects from across the risk-return spectrum.

President Cyril Ramaphosa has placed a high priority on increasing foreign and domestic investment to achieve the government's overarching objectives of reducing poverty, inequality, and unemployment. To do this, greater encouragement of SDG-aligned investments from institutional investors, corporations, and foundations – among other stakeholders – is required. An SDG Investor Map is a valuable resource for achieving this objective as it provides information to investors on the opportunities that align with development priorities at the national and sectoral levels.



SDG investing is 'a branch on the tree of impact investment' (SSIR 2018); Impact investments are made with the intention to generate positive, measurable social and/or environmental impact alongside a financial return. They span the risk return spectrum.

Approach	TRADITIONAL	RESPONSIBLE	SUSTAINABLE	IMPACT DRIVEN	PHILANTHROPY	
Financial goals				Accept disproportionate risk adjusted	Accept partial capital preservation	Accept full loss of capital
Impact goals	Accept all competitive risk-adjusted financial returns					
		Avoid Harm				
			Benefit all stakeholders			
				Contribute to solutions		
	<b>Don't Consider</b> May have significant effects on important negative outcomes for people and the planet	<b>Avoid harm</b> Try to prevent significant effects on important negative outcomes for people and the planet	<b>Benefit</b> Affect Important positive outcomes for various people and the planet	<b>Contribute to solutions</b> Have a significant effect on the important positive outcome(s) for underserved people or the planet		
Intentions	"I am aware of the potential negative impact, but do not try and mitigate it."	"I have regulatory requirements to meet." "I want to behave responsibly"	"I want businesses to have positive effects on the world, and help sustain long term financial performance"	"I want to help tackle climate change" "I want to help tackle the education gap"		

The 'impact economy'

Figure 1 The risk return spectrum of impact finance

(Source: The Global Steering Group for Impact investing (GSG))





**Amidst COVID-19, however, this is how our introduction actually reads:**

The SDG Investor Map was developed at the height of the COVID-19 pandemic in South Africa, which has had devastating impacts on the livelihoods of many in the country. In the second quarter of 2020, when this research was undertaken, Gross Domestic Product (GDP) had declined by 30% and 1 million jobs had been lost.<sup>2</sup> In one of his public addresses, President Ramaphosa emphasized the need for a collaborative approach: “We will – and we must – do whatever it takes to recover from this human, social, and economic crisis”.<sup>3</sup>

Dr Leila Fourie, Group CEO of the Johannesburg Stock Exchange, and Fani Titi, CEO of Investec, two South African members of the UN Global Investment for Sustainable Development (GISD) Alliance who were tasked with mobilising private sector capital for the SDGs, recently argued: *“The pandemic has highlighted the underlying inequalities in our society. More than half of South Africa’s population lack access to piped water in their homes – never mind electricity or safe sanitation.... The COVID-19 lockdown exposes the deeply unequal nature of our society. A person from the affluent suburb of Sandton has very different health and livelihood challenges from one in the neighbouring, densely populated Alexandra township. In this, we are not unique.... But there is hope.*

*We see in public and private sector alike a renewed consciousness and a willingness to respond. This is the time for leaders to step up and take bold action....*

*The government of South Africa has limited fiscal space, so the financial and corporate sector have rallied to assist in putting together a responsive economic package. The urgency of the crisis has eliminated previous procedural hurdles and opened the way for strong collaborative approaches. This gives us hope for even greater partnerships post COVID-19”.<sup>4</sup>*

The SDG Investor Map for South Africa is guided by the overarching theme **Creating access to affordable basic services for all South Africans** in order to deliberately surface investment opportunities that directly respond to challenges brought on by COVID-19. The research focused on four sectors: infrastructure, healthcare, education, and agriculture. Within these sectors, the research team also undertook to investigate cross cutting themes that are of critical importance to South Africa’s inclusive, sustainable, and resilient development: social innovation, mainstreaming digital transformation, skills development, small and medium-sized enterprise (SME) development, gender equality, job creation, youth development, and climate change. Although COVID-19 forced South Africa into one of the strictest lockdowns in the world, this in turn presents an opportunity to imagine the world anew and build towards an economy underpinned by inclusive growth and job creation.

**South Africa has multiple enabling policies for sustainable investing:**

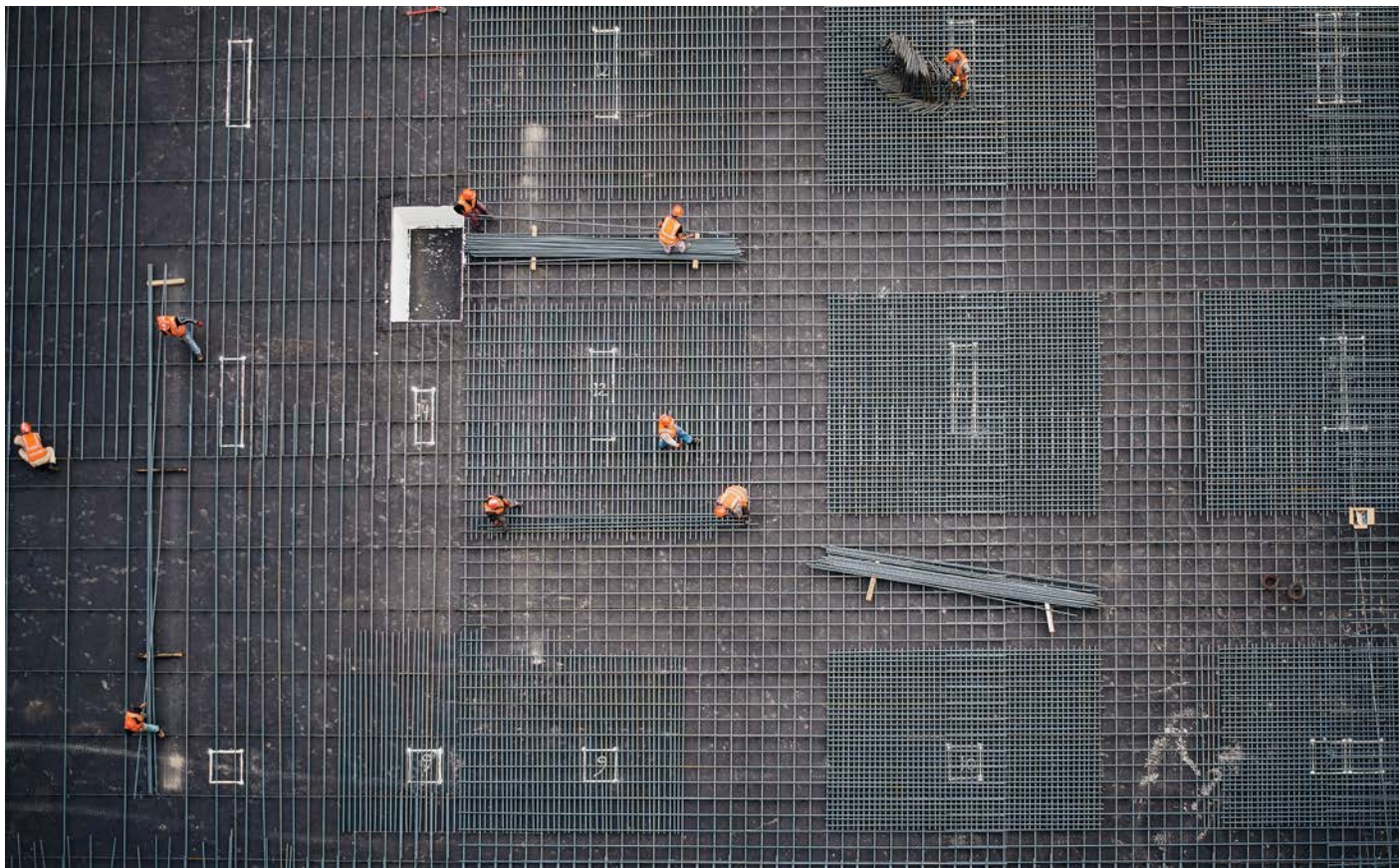
**Regulation 28 to the Pension Funds Act (No. 24 of 1956)** requires retirement funds to consider risks that could impact their investments including environmental, social, and governance risks. It also provides scope for a fund to invest in alternative assets such as private equity, private debt, and project bonds. Allocation in international retirement funds to private markers can be up to 40%, but in South Africa, Regulation 28 has limited the allocation to 15%.

**Section 12J of the Income Tax Act** allows investors to claim the full upfront investment amount for venture capital company (VCC) shares acquired as a deduction from taxable income. The deduction claims can be made from year one, however, if shares are not held for a full five years, the deductions will be subject to recoupment. This tax incentive provides a means to assist the growth of small and medium-sized enterprises with equity financing and should allow VCCs to gain more access to finance and the upfront management and performance fees that they charge.

**Section 37D, introduced into the Income Tax Act in 2016**, is a biodiversity tax incentive that offers landowners a financial reward in return for a conservation commitment by declaring Nature Reserves on privately and communally owned land. It allows landowners to deduct 4% of the value of the land declared as a Nature Reserve or National Park from their taxable income each year for 25 years.

**The Carbon Tax Act (No.15 of 2019)**, effective from 1 June 2019, requires large emitters to report greenhouse gas (GHG) emissions and pay a tax, subject to a number of sectoral adjustments and rebates. The Act has been seen as a contribution to South Africa’s commitment to the Paris Agreement and the regulations were gazetted in November 2019.<sup>27</sup> The intention is to promote a just transition to low-carbon investments as financial institutions consider the risks associated with climate change.

## 2. METHODOLOGY



The South African SDG Investor Map is part of a global initiative by UNDP SDG Impact to map SDG investment opportunities. South Africa is one of the first maps to be concluded, with others completed in Brazil, Armenia, Jordan, and Turkey. Eight additional maps will be completed by the end of 2020, five of which are on the African continent (Nigeria, Uganda, Rwanda, Kenya, and Ghana), thereby contributing to the construction of a rich and diverse SDG investment portfolio for the continent.

As they are finalised, the maps will be uploaded to an online database searchable by SDG, country, timeframe, and sector. To ensure global reach of the maps, replicability and standardisation are key features. The same methodology has therefore been used to develop all the maps, allowing investors to access and compare a broad range of diverse investment opportunities.

While adhering to a standard methodology, the team took steps to ensure the map would be tailored to the local context. This included the **creation of a project steering committee (PSC)**, which convened on monthly basis throughout the research process to discuss the findings, provide insights, validate the focus, ensure alignment with the development priorities of South Africa, and provide overall project strategic guidance. The team also added high-level sectoral maps for allocating capital across SDG verticals in order to invest across the risk-return spectrum in, for instance, infrastructure. This was done in order to complement the demand-side driven business model focus of the SDG Investor Map. Finally, it includes **a specific reporting structure which aims to 'wrap' the investment opportunities** for the market. Each of the sector overviews should therefore be considered as snapshots and not exhaustive research.

Developing an SDG Investor Map in accordance with the UNDP SDG Invest Map methodology requires filtering national priorities to identify 'investment opportunity areas' according to the following process:

- 1. Define the national priority starting point: Distil and compare national development needs and national policy priorities to identify sectors where there is demonstrable political or financial commitment to stimulate development and investment.** The team did an extensive review of 40 national policy and development documents, including the National Development Plan, Medium-Term Strategic Framework, Voluntary National Review, and a number of investment mapping reports.

The most frequently highlighted development needs were synthesised into a long list of sectors that captured both national development needs and policy priorities. These included agriculture; energy; healthcare; education, training, and innovation; building inclusive, safe, and protected communities; climate change and greening SA's economy; water, hygiene, and sanitation; the oceans economy; information and communication technology; and infrastructure development.

Nine initial interviews were conducted to narrow this list to 3-5 priority sectors. Based on these interviews and the policy literature review, the team developed a heat map to cluster the most frequently highlighted needs, which resulted in **a short list of four sectors: infrastructure, healthcare, education, and agriculture**. This short list was then approved by the PSC.

**2. Identify critical subsectors to focus on: Prioritize subsectors where there is a development need and policy/investment momentum.**

The project team, in conjunction with the PSC, selected relevant subsectors in accordance with the developmental needs identified in the policy literature review. In turn, the learnings from an extensive literature review were synthesised and validated with the PSC.

A list of 120 experts from these subsectors were identified for possible subsector interviews. This list was filtered to 25 subsector experts, who were interviewed to uncover and review information related to investment opportunity data and priority regions. These interviews took place throughout the mapping process in order to validate and complement emerging investment opportunity findings.

**3. Identify priority subregions to focus on: Identify the subregions where there is both high development need within each subsector, and strong political or financial momentum to spur potential subsector growth.** The priority subregions were uncovered through the literature review as well as the initial interviews, and were validated with subsector experts and the PSC.

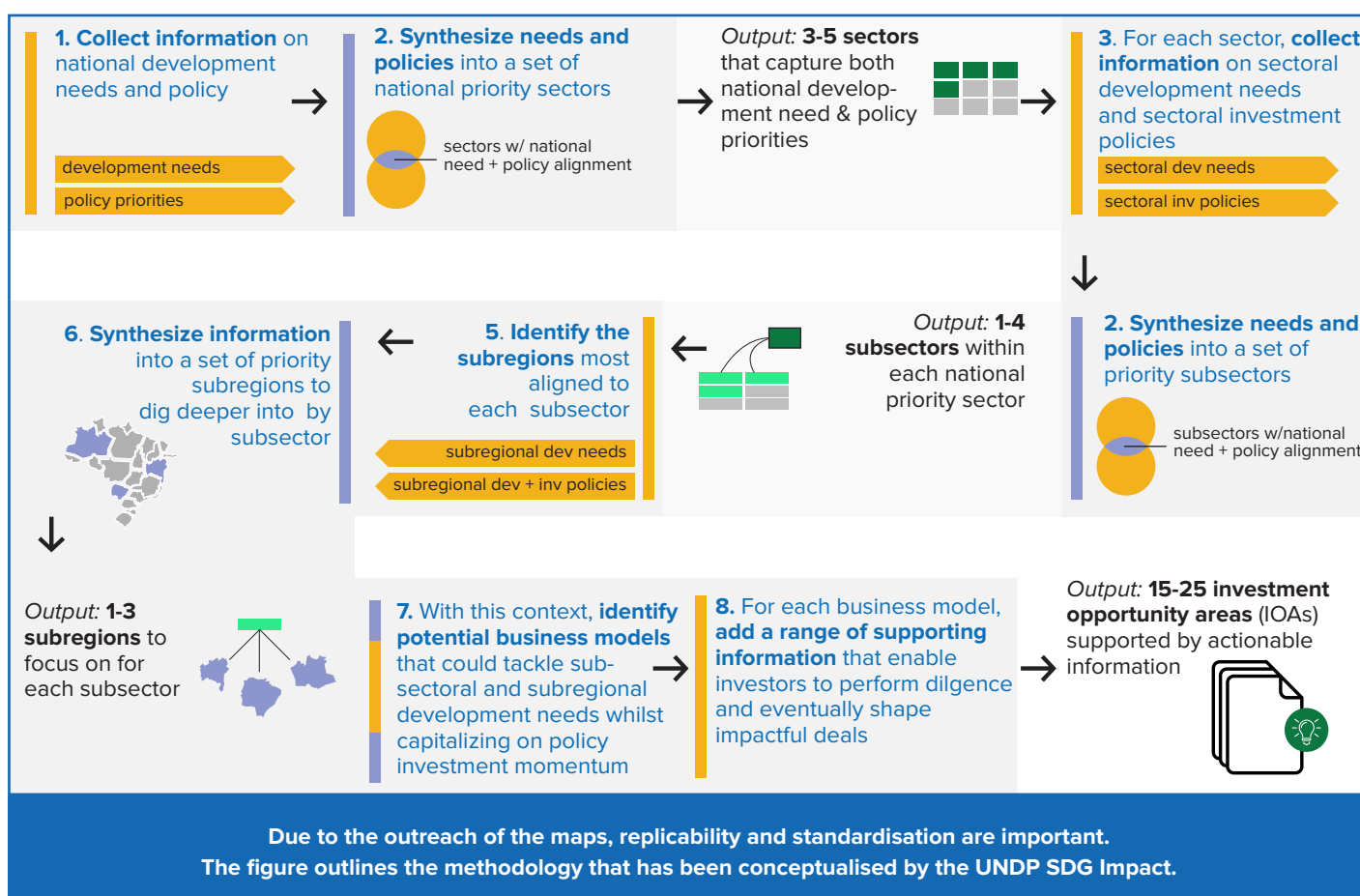
**4. Derive specific 'investment opportunity areas': Highlight impactful business models within priority subsectors and subregions where new capital can facilitate scale, identifying potential 'white spaces' where new business models are most needed.**

A long list of investment opportunity areas (IOA) were identified through the literature review, subsector interviews, and priority subregion interviews. This list was reviewed by the PSC and subsector experts to ultimately narrow the list to 30 IOAs. Data for each IOA were collected through primary interviews and secondary research of over 300 sources.

Impact Project Management (IMP) classifications indicating the type of impact targeted were provided for each investment opportunity. A high-level supply-side map (inspired by the IMP) was developed to indicate the instruments available for matching demand and supply.

The data points relating to IOAs were reviewed by the PSC members and sent on to sector experts. After which the relevant recommendations were implemented by the project team and the investment map was finalised.

While each of the sectors examined in this study could have been the subject of years-long study, the research team has attempted to do them justice over an intensive three-month research period. The maps should, therefore, not be considered an exhaustive investigation of each investment opportunity. Rather, the maps are intended to be used as a dynamic, live tool which will be continually updated to profile new sustainable investment opportunities across South Africa as they arise.





## The Impact Management Project (IMP)

The IMP consensus-driven norms provide a common logic to help enterprises and investors understand their impacts on people, the planet, and the economy so that they may, in turn, reduce the negative and increase the positive.

5 Dimensions: To assess what type of impact an enterprise is having on people, planet, and the economy, data is needed across 5 dimensions: What, Who, How Much, Risk, and Contribution.

ABC Impact Classifications: Depending on what the data show across the 5 dimensions, a single impact can be classified as either Acting to avoid harm, Benefitting stakeholders, or Contributing to solutions. The classification of an enterprise as a whole is the result of the combined classification of each of their individual impacts (see more information here). This report shows the benefit of applying this common logic across economic sectors, asset classes, and enterprises. Specifically, it provides a means for different market actors to communicate impact performance using a consistent language so that they can collectively drive improvements in outcomes for people, the planet, and the economy. Where limited social and environmental data were publicly available, classifications were made with analyst's best judgement of likely impact performance. The IMP encourages more market actors to publicly communicate their impact performance by using the ABC impact classifications, and one way for individual funds to do this is by using a free online platform called the [IMP+ACT Alliance's Impact Classification System](#).

## SDG Impact

**Impact management:** Targeting the gap between high-level principles and impact performance reporting.

- **SDG Impact Standards:** Re-orient practice away from using the SDGs to report current activities differently, and towards using them more strategically to make different decisions. Promote market development by encouraging and authenticating transparency and assurance of practice in order to strengthen impact integrity and build market confidence in SDG-enabling investment.
- **Independent Assurance and Seal:** Independent assurance against the standards will be encouraged and SDG Impact is working with the industry to develop an accreditation system for independent practice assurers. An SDG Impact Seal and the associated governance are being developed, which issuers of SDG bonds, private equity fund managers, and enterprises will be able to apply for. Approval will be based on independent assurance of practice to a pre-determined level.
- **Impact Management Education:** A modular online training course on impact measurement and management is currently in development.

**Investor Intelligence:** Generating country-level data and insights about SDG-enabling investment opportunities. This work targets the gap between the interest in investing in SDGs and the business models that could provide investable opportunities.

- **SDG Investor Maps:** In-depth reports on SDG-enabling investment opportunities and conditions of target markets and sectors.

**Impact Facilitation:** Bringing together UNDP's global project pipeline, development partners, and investor networks to catalyse local solutions.

- **Investor Convenings and Policy Dialogues:** Tapping into networks of policy makers, investors, business, and individuals in order to translate opportunities into action and policy. This work targets the gap between 'business as usual' and creating new combinations of actors and information to encourage investors to enter and navigate new markets.

*SDG Impact 2020<sup>5</sup>*



# 3. SUSTAINABLE INVESTING IN SOUTH AFRICA: A CAPITAL ALLOCATION MAP

Individuals and institutions are increasingly considering the effects of their investments on people and the environment and are therefore seeking capital allocation approaches that reduce negative effects or create positive impact.

In addition to mapping high-impact business models, a high-level capital allocation map across the risk-return spectrum has been developed for each sector. This demonstrates **how an investor might allocate capital to the four priority sectors in South Africa**.

## 3.1 ASSEMBLING THE SUPPLY-SIDE INVESTMENT MAP

A review of domestic supply-side instruments in agriculture, education, healthcare, and infrastructure was performed. The research approach focused on grant or investment vehicles with a significant monetary allocation or strategic focus within the sectors and, in so doing, identified over 80 instruments. Products with undisclosed monetary values or featuring notably generalist or multi-sectoral approaches have been excluded.

The Supply-side Investment Map approximates each instrument's location along two dimensions: impact and risk. Impact is proxied by the primary population expected to benefit from the asset (e.g. high-income versus low-income populations). Risk is estimated by the asset class of the investment instrument, ranging higher risk instruments such as grant funding and venture capital to lower risk opportunities in public or listed markets.

The Impact Management Project (IMP) defines an investment classification approach based on the impact characteristics of investment opportunity and an investor's intended impact contribution. The first component of the IMP's approach considers the impact contribution of instruments and enterprises, which has been applied to the Supply-side Investment Map.

The map approximates the classification of each vehicle into the Act to avoid harm, Benefit stakeholders or Contribute to solutions IMP categories, based on information identified through the desktop review and according to the following logic:

- Act to avoid harm: an investment approach or business model that seeks to avoid harm by committing to safeguard sustainability in operational practices
- Benefit stakeholders: an investment approach or business model that seeks to avoid harm and create some important positive benefit for stakeholders or the planet
- Contribute to solutions: an approach that fulfils the preceding but is likely to achieve a higher degree of positive impacts on people or the planet (e.g. by focusing on opportunities with the potential to disproportionately benefit the underserved or support sustainable solutions)

The mapping approach features inherent limitations, including a reliance on readily accessible public information, a bias towards more specialist instruments as opposed to generalist instruments that cover multiple sectors, and the possibility of double-counting capital amounts where funds also pursue intermediated investments.

Table 1: Summary of reviewed instruments and estimated monetary values per sector

SECTOR	NO. OF INSTRUMENTS	NO. OF INSTRUMENTS BY TYPE	TOTAL VALUE (R'BILLIONS)
Agriculture	18	<ul style="list-style-type: none"> <li>• Grant Funding: 2</li> <li>• Venture Capital/Seed Investment: 3</li> <li>• Private Equity/Debt: 9</li> <li>• Listed: 4</li> </ul>	75.71
Education	18	<ul style="list-style-type: none"> <li>• Grant Funding: 6</li> <li>• Venture Capital/Seed Investment: 4</li> <li>• Private Equity/Debt: 5</li> <li>• Listed: 3</li> </ul>	30.23
Healthcare	10	<ul style="list-style-type: none"> <li>• Grant Funding: 1</li> <li>• Venture Capital/Seed Investment: 0</li> <li>• Private Equity/Debt: 3</li> <li>• Listed: 6</li> </ul>	165.54
Infrastructure	37	<ul style="list-style-type: none"> <li>• Grant Funding: 4</li> <li>• Venture Capital/Seed Investment: 3</li> <li>• Private Equity/Debt: 23</li> <li>• Listed: 7</li> </ul>	166.06
Total	83		437.55

It is also worth noting that the use of the IMP's ABC classification denotes intended or expected impact performance based on publicly available information and may not necessarily represent the actual performance of the instruments shown.





The Supply-side Map is captured in the figures that follow and instruments profiled are listed in Appendix B. An interactive version of this mapping is also available on [www.southafricansdgi.investments](http://www.southafricansdgi.investments).

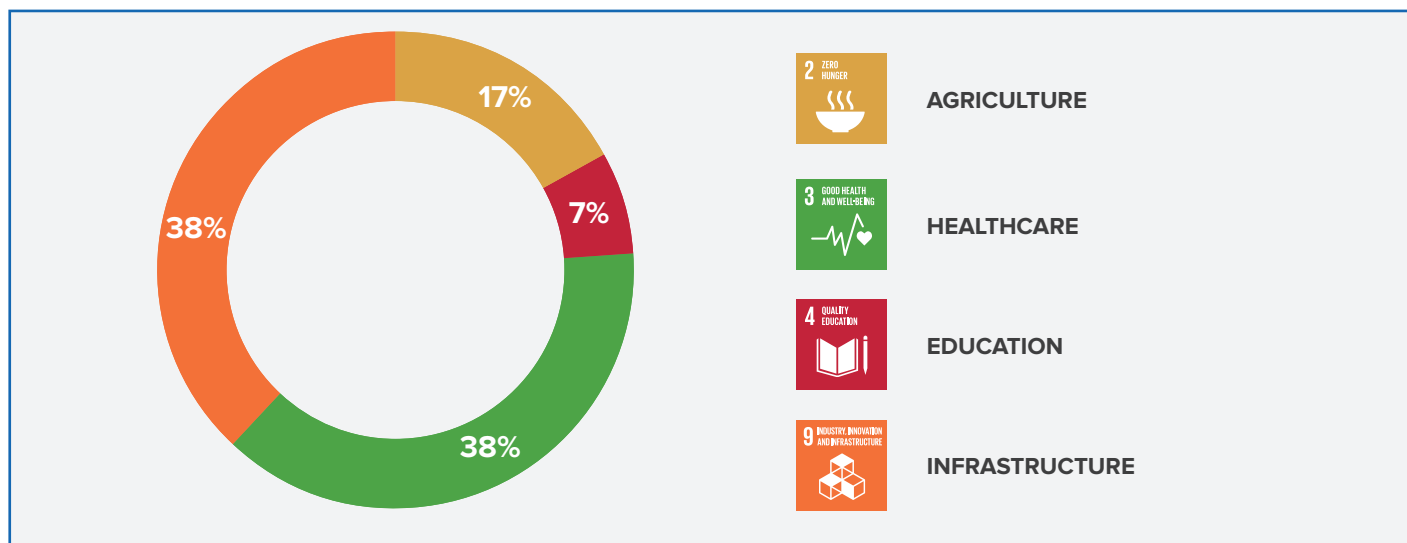
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Click [here](#) to move through interactive supply-side Investment Map that provides an overview of players, impact themes, size, and more. [www.southafricansdg.investments](http://www.southafricansdg.investments)

The mapping enables the following general observations on capital allocation across profiled instruments:

- **Funding is largely concentrated in healthcare and infrastructure:** Infrastructure and healthcare account for over three-quarters of the total investment value across all instruments. This does not necessarily indicate under-investment in agriculture and education. Other considerations such as the larger average size of infrastructure projects, the cross-sectoral relevance of infrastructure, and potentially lower levels of capital demand in agriculture and education are relevant in this case too.

Figure 2: Percentage share of total monetary value



- **Private market and listed instruments dominate with relatively limited representation from grant and early-stage instruments:** Investments structured as private equity or private debt account for 53% of total funds identified. Grant funding is only 5% of total value, but still significantly larger than seed and venture capital, which account for less than 1% of identified funds. This indicates gaps in early-stage investment activity and access to small-enterprise funding across the nation.

Table 2: Distribution of identified monetary values across instrument types

Sector	Grant	Seed/Venture Capital	Private Market	Listed	Total
Agriculture	2.04%	1.59%	86.20%	10.17%	100.00%
Education	40.01%	7.45%	12.73%	39.80%	100.00%
Healthcare	0.59%	0.00%	2.46%	96.95%	100.00%
Infrastructure	1.86%	0.31%	94.75%	3.07%	100.00%
Total	4.05%	0.91%	52.69%	42.36%	100.00%

- **Healthcare instruments are concentrated in listed vehicles, whilst education attracts significant attention from donors:** 97% of funding is concentrated in large, listed firms that provide healthcare and health-related services in South Africa. Although a handful of large listed entities also dominate, 40% of funding is attributable to large, mostly corporate-affiliated foundations with mandates centred on education. However, spending rates for these entities are typically a fraction of overall endowment value and the volume of grants deployed will thus be lower than total available assets.
- **The majority of funding benefits a blend of high- and low-income populations:** 43% of funding is linked to instruments that embrace sustainability criteria, but do not have an overtly development impact orientation. 23% of funding demonstrates a development impact orientation, with 35% tied to instruments that place significant focus on benefitting underserved populations or building markets.



Table 3: Distribution of identified monetary values across impact segments

Sector	Grant	Seed/Venture Capital	Private Market	Listed	Total
Agriculture	12.05%	20.59%	67.36%	100.00%	100.00%
Education	32.16%	21.38%	46.46%	100.00%	100.00%
Healthcare	96.90%	2.46%	0.64%	100.00%	100.00%
Infrastructure	5.04%	43.76%	51.20%	100.00%	100.00%
Total	42.88%	22.58%	34.54%	100.00%	100.00%

The Supply-side Map suggests existing capital leans toward infrastructure-related opportunities and lower-risk instruments. Cultivating and funding early-stage, high-impact enterprises and initiatives will likely benefit these sectors and enhance their development contribution.

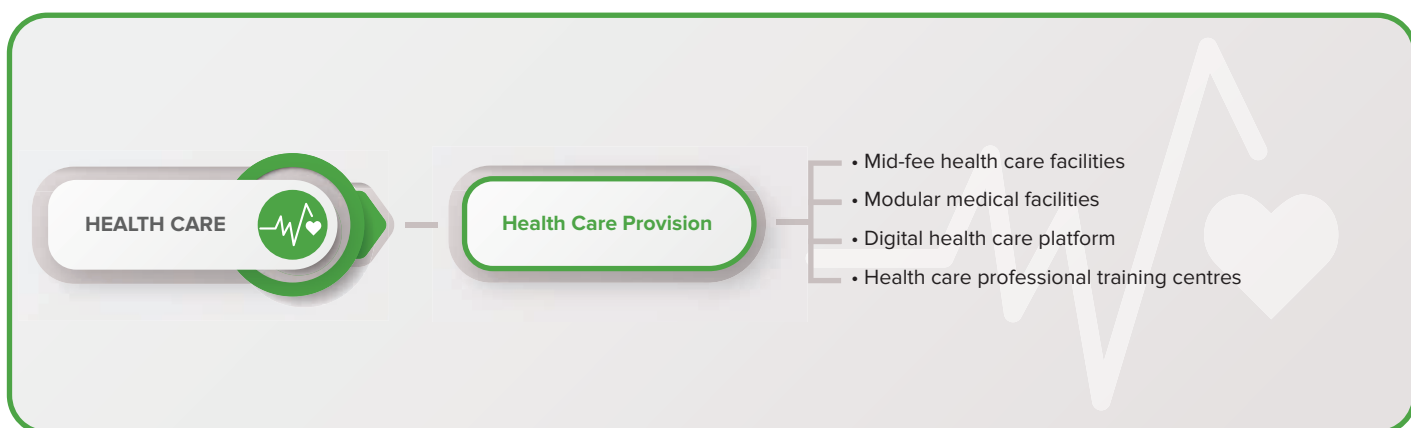
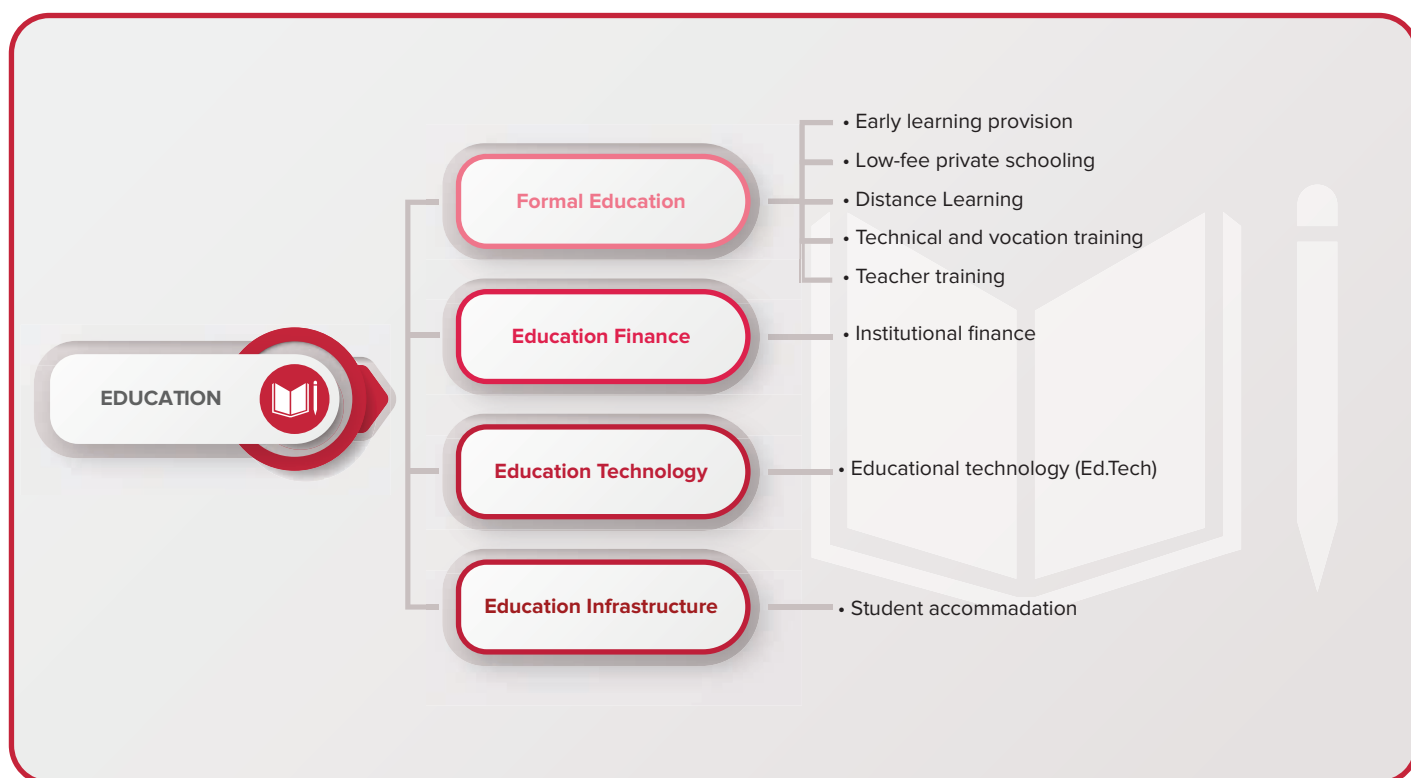


# THE SOUTH AFRICA SDG INVESTOR MAP 2020

The South Africa SDG Investor Map 2020 is made up of 30 investment opportunities across the investment sectors of infrastructure, education, healthcare, and agriculture. As mentioned above, these sectors were specifically selected in order to identify investments that ensure access to affordable basic services for all South Africans. This theme is driven by the “new normal” caused by COVID-19 and the spotlight it placed on the social implications of being the most unequal country in the world. The map therefore intentionally focuses on surfacing opportunities that play a role in the efforts to “build back better”, by providing access to water, sanitation, energy, affordable housing, education, and healthcare.

Below is an overview of the 30 IOAs. Each IOA is expanded over 19 data points, which can be found at the end of each section. All 30 opportunities will also be uploaded to the UNDP SDG Investor Platform, for ease of access by SDG-aligned investors.

In the following sections, the sectors will be dealt with in more detail<sup>b</sup>.



<sup>b</sup>Please note that the return profile range provided is based on the averages of the latest figures reported by RisCura and the Southern African Venture Capital and Private Equity Association where returns are classified in between high (>17.0%), medium (7.4%-17.0%), low (<7.4%) and grant (0%).



## FOOD & BEVERAGE



### Agriculture

- Sustainable energy provision for agricultural production
- Water savings in agro processing
- Converting waste food waste to protein for feedstock
- Shared economy platform for small holder and emerging farmers

## INFRASTRUCTURE



### Water Utilities and Services

- On-site sanitation for facilities in underserved communities
- Dry Sanitation technologies for underserved communities

### Electric utilities and power generators

- Small scale energy access for underserved communities
- Repurposing power stations with sustainable alternatives
- Green hydrogen infrastructure

### Waste Management

- Landfill diversion through waste refuse solutions
- Repurposing builders rubble

### Affordable housing

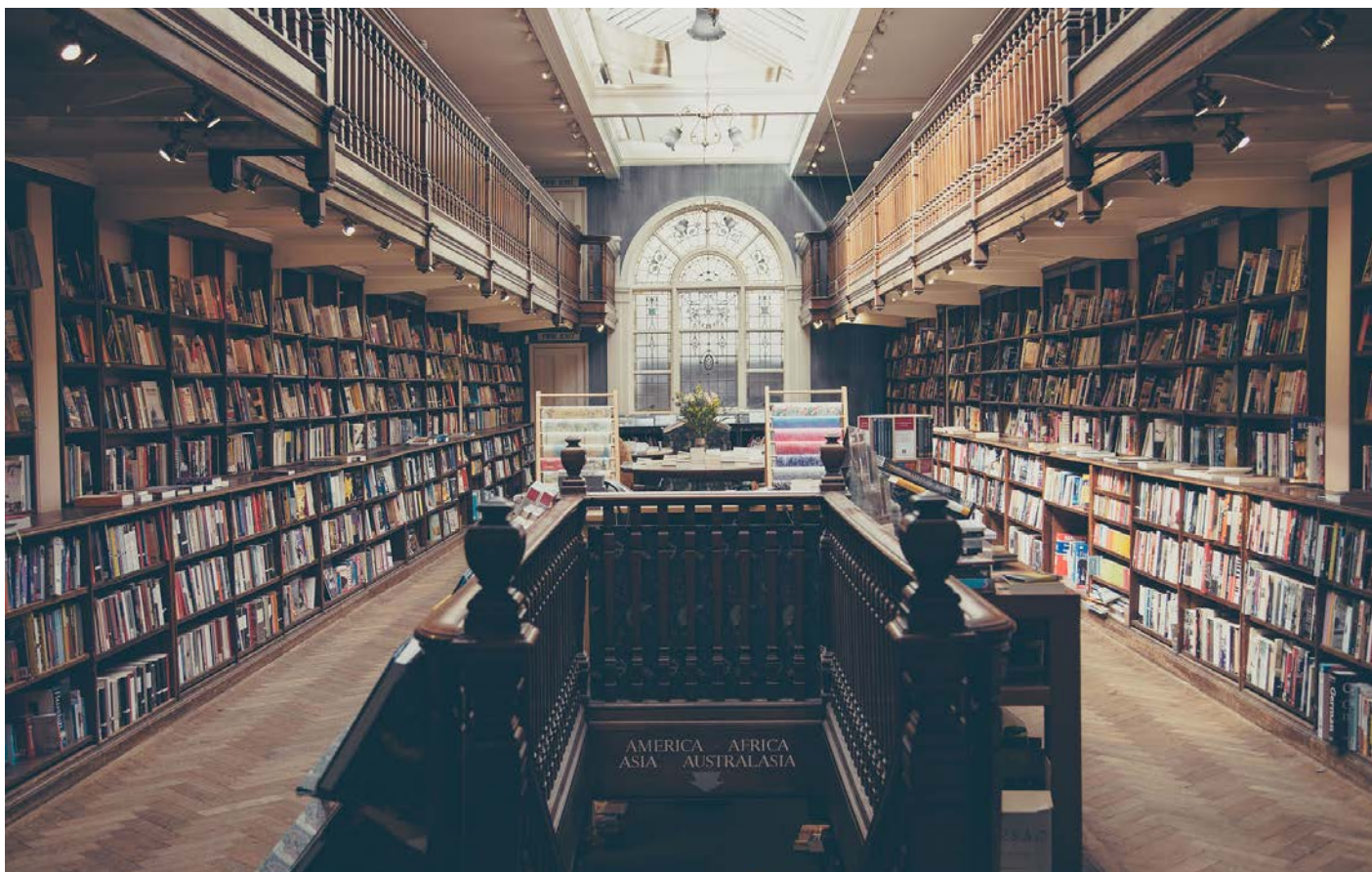
- Affordable housing mini-rises
- Affordable housing finance for the unbanked
- Urban development of low-cost housing
- Refurbishing inner city buildings for affordable housing

### Digital Infrastructure

- Blue-collar task matching platform
- Globally traded services platform
- Off-grid solar WiFi for low-income communities







## 4. SECTOR 1: EDUCATION

### 4.1 WHY EDUCATION?

The education system is a key lever for achieving equal opportunities for all South Africans. The country's Constitution establishes education as a basic right and the National Development Plan sets the goal of ensuring equitable access to quality education and training by 2030.<sup>1</sup>

The post-apartheid era has delivered significant strides in liberalising access to education, with the percentage of children benefitting from education programmes at age 5 increasing from 30.3% in 2002 to 85.3% in 2013. The country comfortably met the Millennium Development Goal for universal primary education and is on track to fulfil the SDG target on universal access to primary school education.<sup>2</sup> Further to this, more adults are attaining secondary education, and the share of young adults without an upper secondary education dropped from 27% to 18% between 2008 and 2018.<sup>3</sup>

Despite progress, the sector is still plagued by significant challenges. South Africa spends 6.2% of GDP on public funding of primary, secondary and non-tertiary post-secondary education,<sup>4</sup> which is historically higher than spending by most Organisation for Economic Co-operation and Development (OECD) countries.<sup>3</sup> However, the South African education system remains one of the most unequal in the world, with the poor less likely to access quality offerings and thus most likely to bear the consequences of poor learning outcomes. Pre-primary education is one area that suffers most from an uneven-

ness in resource provision, thus reducing the gains from early learning in later phases of schooling.<sup>5</sup> Meanwhile, basic education is hampered by challenges of poor infrastructure and an undersupply of qualified teachers. More than three-quarters of children attending Grade 4 cannot read for meaning, which only deepens their relative learning disadvantage as they proceed to higher grade levels.<sup>6</sup> Indeed, although children can expect to complete 9.3 years of pre-primary and basic education before age 18, these years of schooling are only equivalent to 5.1 years when adjusted for the quality of learning.<sup>7</sup>

These uncertain educational foundations impact student progression through the schooling system and their path into tertiary learning. In 2017, the progression rate of Grade 10 learners to Grade 11 was 80.8%, whereas 73.3% of Grade 11 learners progressed to Grade 12.<sup>8</sup> One cohort study estimates that, for every 100 students entering Grade 1, 50-60 will reach Grade 12, 40-50 will pass Grade 12, and only 14 will go on to attend university.<sup>6</sup>

Most of the South African population has an upper secondary or non-tertiary post-secondary qualification as their highest level of education.<sup>7</sup> Individuals with an upper secondary qualification are less likely to be employed than those with a tertiary degree, and so the education sector's low productivity is contributing to a skills deficit and constraining growth across the national economy.<sup>7</sup>

<sup>1</sup>Please note that the return profile range provided is based on the averages of the latest figures reported by RisCura and the Southern African Venture Capital and Private Equity Association where returns are classified in between high (>17.0%), medium (7.4%-17.0%), low (<7.4%) and grant (0%).

Students eligible to enrol in tertiary learning have historically found it cost prohibitive, with over 50% of youth surveyed in 2016 reporting cost as a significant barrier to further learning.<sup>8</sup> Concerted student protests against the cost of higher learning, such as the #FeesMust-Fall movement from 2015-2016, culminated in government commitments to provide free tertiary education to students from households earning up to R350 000 per annum.<sup>7</sup> However, only half of degree-seeking students graduate with a qualification within six years, and at least one-third are unable to secure a tertiary qualification over a decade after their first enrolment.<sup>9</sup>

Removing cost as a barrier to access and progression in tertiary education is only part of the challenge. Further efforts to address gaps in the quality of learning during earlier phases of schooling are needed. Based on interviews and recommendations from the PSC, the subsectors of formal education, education finance, and education technology were selected as IOAs.

**The sector's mandate and objectives are established through legislation and policy documents** including the Children's Act (2005), the National Integrated Early Childhood Development Policy (2015), the National Education Policy Act (1996), the South African Schools Act (1996), Adult Basic Education and Training Act (2000), The Education White Paper 6 on Inclusive Education (2001), Higher Education Act (1997), National Student Financial Aid Scheme Act (1999), FET Colleges Act (2006), General and TVET Quality Assurance Act (2001), and the SAQA Act (1995).

**Cross cutting themes** in the broad sector include:

- **Education and skills development:** Skills development is central to efforts to grow South Africa's labour force productivity and international competitiveness. Interventions in this area can help address structural challenges facing South Africa's economy and ultimately contribute to overall economic growth.<sup>7</sup>
- **Addressing inequality through access to affordable basic services:** Education is a basic right and a central prong in the country's strategy for achieving economic transformation for previously disadvantaged South Africans. Ensuring equitable access to quality education will present positive intergenerational effects on the livelihoods and quality of life for more South Africans.
- **Social innovation:** Challenges securing quality education and related outcomes for underserved populations create scope for individuals and organisations to develop and apply novel approaches that increase access to affordable, quality offerings.
- **Digital transformation:** Digital transformation in education is taking place through Education Technology (EdTech) and blended learning, which have the potential to reduce costs and promote education outcomes across the sector.





## 4.2 BOTTLENECKS TO INVESTING IN EDUCATION

Government is the key purchaser of education services across the country. However, private and for-profit education enterprises have limited opportunities to engage with government as a buyer of services, which impairs their ability to expand access to quality private offerings. Most for-profit initiatives thus face trade-offs between inclusiveness and commercial attractiveness.

Available government subsidy programmes are instead primarily reserved for non-profits. For instance, many South African early learning centres in underserved communities depend on subsidies from the Department of Social Development for sustainability. Even where accessible, government funding can prove administratively cumbersome to access and an inconsistent form of support. One such area is basic education wherein non-profit independent schools can find it challenging to register for subsidies, or else receive them with inconsistent timing, as a fraction of the cost of programme delivery, and with a significant compliance burden attached.<sup>10</sup>

Education provision has also been greatly disrupted by the COVID-19 pandemic, with many learning institutions forced to suspend their offerings or pursue remote learning. The re-opening of schools has proved contentious, as teachers' unions and other stakeholders have been vocal in demanding schools remain closed as the public health emergency endures.

As such, remote learning has taken prominence, especially in tertiary learning. Higher education institutions have acted to ensure students have access to laptops and data, with many digital educational resource platforms being zero-rated by telecommunications providers. Such shifts in programme delivery have presented resource and logistical challenges for the sector, albeit with increased opportunities to embed digital solutions.

Budget reprioritisation in response to the pandemic is further constraining the education sector. The Minister of Finance's updated budget, tabled in late June 2020, reallocated R2.1 billion from Basic Education and R1.7 billion from Higher Education to relief efforts.<sup>11</sup>

This is likely to highlight existing gaps, including infrastructure development in the schools sector where some projects, many of which are already facing delays or cancellation as a result of the pandemic, have been defunded.<sup>12</sup>

New approaches, such as outcomes-based contracting and blended finance, hold promise for alleviating some sector bottlenecks and are already being deployed in the sector through various platforms and instruments.

Similar approaches could enable government to stimulate private sector involvement through results-based funding or scale of for-profit organisations which benefit underserved and vulnerable communities.

Beyond product innovation, effective partnership models enabling the private sector to contribute to government-led initiatives could also be catalytic as they allow private donors and other stakeholders to help seed and sustain models with high impact potential. For example, the Ikusasa Student Financial Aid Programme (ISFAP) (discussed in a subsequent section) is a potential collaboration roadmap and similar approaches could prove beneficial elsewhere in the ecosystem.



Table 2: Case Studies of Finance in Education

ORGANIZATION	SUMMARY
<b>Innovation Edge</b>	Innovation Edge is an impact investor that uses catalytic grants to fund early childhood development (ECD) ideas and initiatives for children ages 0-6 years. The organisation uses a variety of instruments including grants, equity, and convertible debt, and has deployed over R25 million to date. Its approach allows investees to readily access a mix of philanthropic and investment capital, with grant funding enabling enterprises to graduate to commercial funding on the same funding platform. <sup>13</sup>
<b>Early Childhood Development Impact Bond Innovation Fund</b>	The Early Childhood Development Impact Bond Innovation Fund (IBIF) is a three-year, R20.4 million social impact bond that started operating in 2017. The mechanism is working to deliver a set of early childhood development outcomes for the benefit of 3 000 children aged 3-5 in South Africa's Western Cape. Investors are providing working capital to an ECD non-profit and will be repaid – with upside return potential – by the provincial government, depending on (and in proportion to) the early-learning outcomes achieved. <sup>14</sup>
<b>Bonds4Jobs</b>	Bonds4Jobs is a 4-year social impact bond for youth unemployment launched in the Gauteng province in 2018. The mechanism focuses on workforce development/training and job placement, and is seeking to place over 5 000 youth into employment by mid-2022. The total contract value is R308.5 million, drawn from a variety of sources including the SA Jobs Fund, the Gauteng province, and private donors. <sup>15</sup>

## 4.3 INVESTMENT OPPORTUNITIES IN EDUCATION SUBSECTORS

### 4.3.1 FORMAL EDUCATION

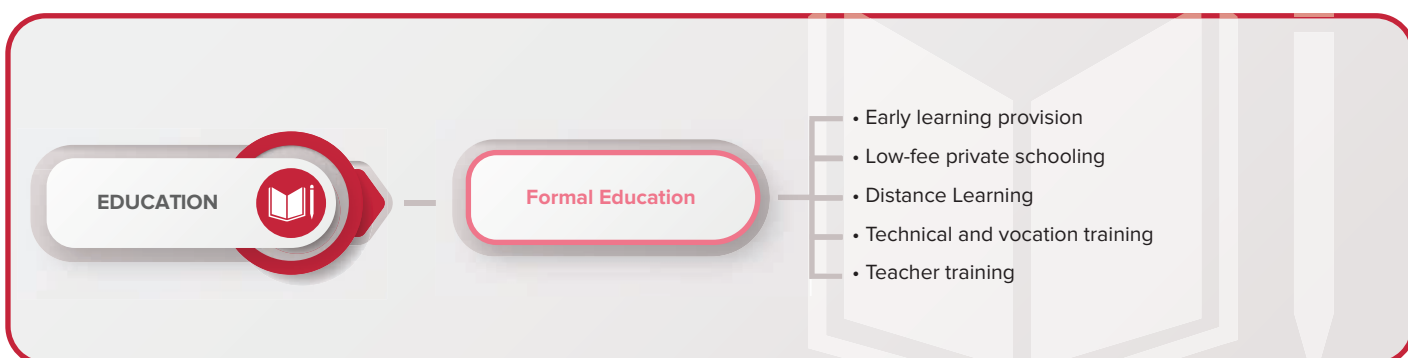


Figure 11: Investment opportunities in the formal education subsector

Access to quality formal education is central to South Africa's transformation agenda. The National Development Plan envisages decent livelihoods and opportunities for all, made possible by equitable access to early childhood development, basic education, and tertiary learning.<sup>16</sup> Investment opportunities in the subsector are driven by the need to support national objectives – by providing affordable private options across the education value chain – and the potential to collaborate with government, philanthropic organisations, and private partners on education solutions.

Two-thirds of the country's children live in the poorest 40% of households<sup>17</sup> and government has long sought to ensure that wealth not be a barrier to quality learning. Consistent with the sector's importance, basic and tertiary education were allocated R262.5 billion and R112.1 billion respectively in the 2019/20 cycle and are projected to attract nearly 23% of overall government expenditure through to 2023.<sup>18</sup>

Although significant strides have been made in broadening access to early learning and basic education, notable gaps remain. At least 13 million students attend basic education nationally<sup>19</sup> and the introduction of no-fee school policies has provided welcome relief, increasing the number of students who do not pay school fees from just 3% in 2006 to 65% in 2014.<sup>20</sup>

By contrast, despite the policy priority attached to the sector, early learning only attracts 1-2% of the total budget for public education.<sup>21</sup> As such, access to basic early care is not widespread, with up to 55% of 0-4 year-olds not attending early childhood development (ECD) facilities.

Ensuring quality across the education system remains elusive as exemplified by assessments of Grade R, or reception year students. Although access in this segment is near universal,<sup>2</sup> a 2014 evaluation established that access had introduced only limited learning gains for children from lower socio-economic backgrounds and improvements in quality were required to unlock its full benefits.<sup>22</sup>

Constraints in areas including infrastructure and access to a qualified and capable teaching force also limit quality in basic education. Although the system reported an aggregate pass rate of 81% in 2019, only 43% of test-takers achieved the necessary scores to attend university.<sup>23</sup> Less than 15% of children entering basic education eventually enter university<sup>6</sup> and less than 6% of South Africans possess a tertiary qualification.<sup>3</sup>

These challenges are well documented, and the private sector has been responding to the quality gap. Private schools accounted for 4.25% of the learner enrolment base in 2014, growing marginally to 4.85% of enrolments in 2019. The number of private schools is on the increase and recent growth in private sector enrolments comfortably outstripped overall enrolment growth across the schools sector.



Table 3: Enrolment Trends in Basic Education, 2014-2019

Type	NO. OF INSTITUTIONS			NO. OF STUDENTS			ENROLMENT SHARE	
	2014	2019	CAGR	2014	2019	CAGR	2014	2019
Public Schools	24 060	23 076	-0.83%	12 117 015	12 408 755	0.48%	95.75%	95.15%
Private Schools	1 681	1 922	2.72%	538 421	632 443	3.27%	4.25%	4.85%
Total	25 741	24 998	-0.58%	12 655 436	13 041 198	0.60%	100.00%	100.00%

Source: Estimated from DBE (2015/2020) - School Realities

A similar picture unfolds in tertiary learning. There are 487 registered tertiary learning institutions in South Africa, 83% of which are private institutions. Private tertiary institutions accounted for 14.6% of the 2.29 million enrolments across the tertiary sector in 2016 and have grown their share of enrolments steadily, increasing from 9.9% in 2011.<sup>8,24</sup>

Table 4: Enrolment in Tertiary Education, 2016

Type	2016	
	No. of Institutions	Total Enrolments
Public Higher Education Institutions	26	975 837
Private Higher Education Institutions	123	167 408
Technical and Vocational Education and Training (TVET) Colleges	50	705 397
Continuing Education and Training (CET) College	9	273 431
Private Colleges	279	168 911
<b>Total</b>	<b>487</b>	<b>2 290 984</b>

Source: Estimated on StatsSA (2019), Higher Education and Skills in South Africa

ECD services are almost universally delivered by private organisations and individual practitioners accessing state subsidies. This includes organisations such as EarlyBird, SmartStart, and GROW Educare Centres, all of whom are implementing innovative models in this area.

Basic education features several established players that offer low- and mid-fee private school options, including Spark Schools, Curro, and ADvTECH. Diversified education groups like ADvTECH and Stadio Holdings host several recognisable tertiary learning brands.





The following table illustrates education organisations and enterprises operating within this opportunity area.

Table 5: Case Studies in Formal Education

ORGANIZATION	SECTOR	SUMMARY
<b>EarlyBird</b>	Early Learning	EarlyBird is a for-profit ECD service provider focusing on delivering childcare services, including through corporate partnerships. The social enterprise operates two brands: Earlybird Educare@Work and Blue Door ECCE. Educare@Work is a higher margin business targeted at large companies and commercial and residential property developers. Blue Door ECCE partners with social housing developers and community-based franchisees to deliver quality ECD to underserved communities. Blue Door ECCE is cross-subsidized by revenue from the higher margin business. <sup>25</sup>
<b>SmartStart</b>	Early Learning	SmartStart is a non-profit working towards providing early learning to one million children ages 3-4 years using a social franchise model. The organisation has trained over 2 000 ECD micro-entrepreneurs serving 22 000 children across South Africa and aims to incubate 51 000 early childhood educators by 2026. SmartStart has created a learning programme with standardised materials, training, and support for franchisees who will train, license, and resource teachers to provide classroom, playgroup, or childminding programming to children in local communities. Micro-entrepreneurs are supported by government stipends and charging modest fees to care providers. <sup>26</sup>
<b>GROW Educare Centres</b>	Early Learning	GROW Educare Centres is a non-profit working to provide quality ECD services in disadvantaged communities using social franchising. GROW seeks to establish financially sustainable and professionally managed ECD Centres that also create quality employment and economic opportunities. The organisation has a focus on women's empowerment and provides curriculum resources, equipment, training and coaching to enable proprietors to manage sustainable centres. GROW has supported 20+ centres across South Africa to date. <sup>27</sup>
<b>SPARK Schools</b>	Early Learning	SPARK Schools is a for-profit organisation that operates a network of affordable South African private schools. SPARK was established in 2012 with the intention of exploring a schooling model that could improve access to quality education for all. The school network has over 10 000 students enrolled across 21 schools in Gauteng and the Western Cape. Fees range from R25 000-35 000 a year <sup>28</sup> and the network utilises a blended learning model, which it credits for cost reductions. <sup>29</sup>
<b>Curro</b>	Basic Education	Curro is a Johannesburg Stock Exchange (JSE) listed education company focused on operating preschools, primary schools, and high schools. Curro believes its independent schools reduce demand on public schools and thus conserve limited government resources. <sup>30</sup> The organisation has 63 000 students across 166 schools and 70 campuses. Its Meridian Schools brand is positioned as an affordable, low- to mid-fee schooling option whilst its Digi-Ed school brand uses a blended learning model to reduce overall cost of delivery. <sup>31,32</sup>
<b>ADvTECH</b>	Basic Education Tertiary Education	ADvTECH is a JSE listed firm and South Africa's largest private education provider. The organisation has a portfolio of 20+ brands spanning basic education, tertiary learning, and resourcing. One of the company's brands is Pinnacle Colleges, a mid-fee private school network comprising 29 schools and serving over 5 000 students. <sup>33</sup>
<b>Stadio Holdings</b>	Tertiary Education	Stadio Holdings is a JSE listed education holding company that houses 6 tertiary education brands representing over 30 000 students. Stadio was established in 2017 and is a spin-off of the tertiary education brands previously owned by Curro. The organisation is seeking to eventually consolidate its education brands under a single tertiary institution and grow to accommodate up to 100 000 students. <sup>34</sup> Their model has an emphasis on distance learning and targets 80% of enrolments through this delivery method. <sup>35</sup>

Private providers are likely to continue to seek out opportunities to deliver affordable, quality learning alternatives to less affluent customer segments. However, the government remains the pre-eminent buyer of education in South Africa and the enablement of the private sector could help increase the affordability of private sector offerings. This could be achieved through subsidies for institutions enrolling students from low-income households or access to government bursaries for trainee-teachers studying at private institutions.

## 4.3.2 EDUCATION INFRASTRUCTURE

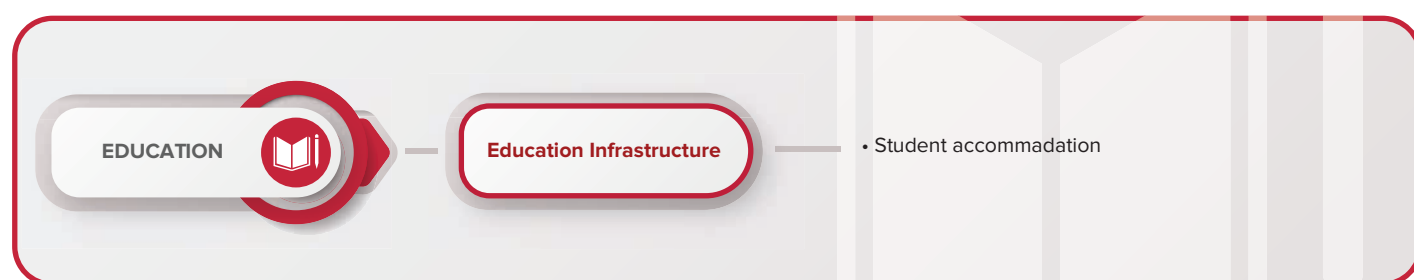


Figure 12 Investment opportunities in the education infrastructure subsector

Poor school infrastructure affects the quality of education and contributes to issues including poor attendance, student drop-out, and teacher turnover.<sup>6</sup> A 2017 survey found that only 59% of public schools met minimum physical infrastructure standards<sup>36</sup> and a large number lacked laboratories, libraries, internet access, and other facilities for learning.<sup>37</sup>

The Uniform Norms and Standards for Public School Infrastructure (2013) established improvement targets including the provision of water and removal of substandard structures, such as mud schools. The state's Accelerated School Infrastructure Delivery Initiative (ASIDI) and the Provincial Schools Build Programme are some of the initiatives in place to deliver on this intent.<sup>1</sup> The government budgeted at least R14.26 billion in 2019/20 to deliver on these targets,<sup>38</sup> aiming to build 50 new schools and provide water to 325 schools and sanitation to 286 schools.<sup>1</sup>

Private school sector growth also features an infrastructure development component. Curro allocated R1 billion to infrastructure development in 2019 and, although small in absolute terms, its infrastructure spending is over 17 times the budgeted per capita expenditure in the public sector.<sup>39</sup>

Accommodation for students in higher education is perhaps the most significant opportunity in education infrastructure. One such estimate puts the number of beds required at up to 500 000, corresponding to as much as R150 billion in new investment.<sup>40</sup>

While demand for student housing is likely to grow as tertiary enrolments continue to increase, build-to-operate models may find it challenging to support new developments for smaller institutions.<sup>41</sup> However, a few emergent models hold promise.

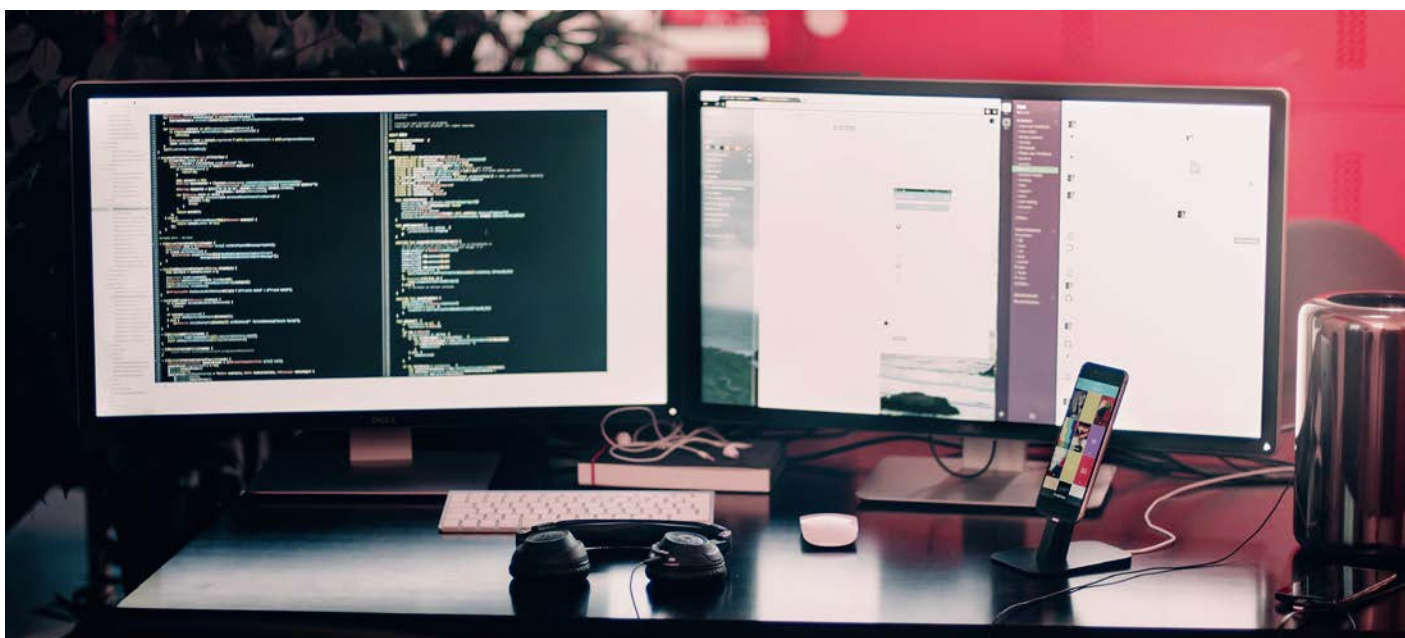
The following table illustrates how a selection of education organisations and enterprises are conducting their operations within this opportunity area.



Table 6: Case Studies in Education Infrastructure

ORGANIZATION	SECTOR	SUMMARY
<b>STAG African</b>	Construction	STAG African is a specialist property developer focused on design, construction, financing, and management of tertiary student accommodation. Its projects include a R390 million, 2 046-bed student accommodation development at the University of Fort Hare and a R40 million, 240-bed development for the University of Walter Sisulu. <sup>42</sup>
<b>Respublica</b>	Build-to-operate	Respublica is a student accommodation firm that develops, owns, and manages its own student housing properties. The company has a portfolio of 10 residences with just over 9 000 beds in Gauteng, Cape Town, and Bloemfontein. <sup>43</sup> Respublica has some of its residences accredited by universities, including the University of Cape Town and University of Pretoria, thus enabling it to access tenants through conventional university-housing placement systems.
<b>Citiq</b>	Build-to-operate	Citiq is a South African student accommodation owner-operator with 3 000 beds and a target of 10 000 new beds by 2023. The firm manages university-accredited student accommodation in Gauteng. Some of its housing offerings are also accredited by the University of Johannesburg and the Tshwane University of Technology. <sup>44</sup>





### 4.3.3 EDUCATION TECHNOLOGY

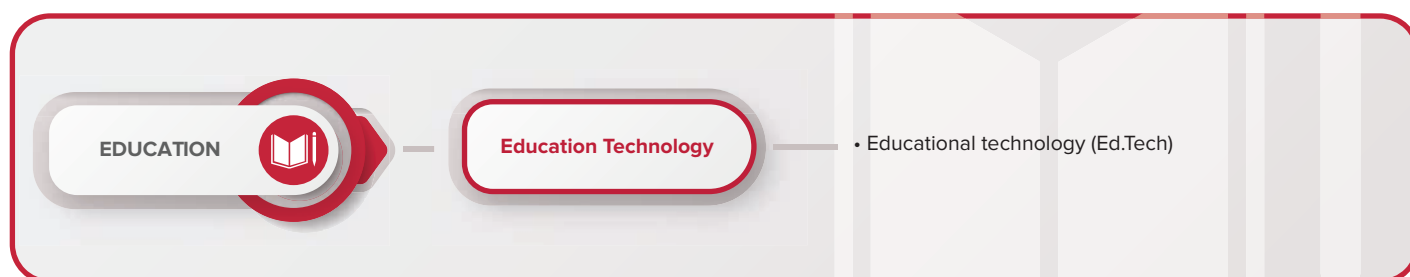


Figure 13: Investment opportunities in the education technology subsector

Investment opportunities in the sector are driven by the potential to enhance learning outcomes across the education value chain, liberalise access, and eliminate cost as a barrier to education.

EdTech has the potential to improve education outcomes. However it can be unclear which initiatives will have a meaningful impact and warrant scaling. Achieving equity across populations is also a concern and existing inequalities are often reflected in the level of access to technology.<sup>45</sup>

EdTech's digital reach faces infrastructure limitations, as only 54% of South Africa's population is connected to the internet<sup>46</sup> with up to 40% possessing basic feature phones.<sup>47</sup> Alternative delivery mechanisms, such as short message service (SMS) on mobile phones, can also prove expensive to deploy in the local telecommunications environment.

Notwithstanding these considerations, the government is interested in improving digital solutions in the education sector to lower the cost of tertiary education. The Minister of Education has previously noted the potential for judicious use of ICT solutions to support learning outcomes<sup>48</sup> and the government is supporting a programme to fast-track the development and distribution of education-related digital content.<sup>1</sup>

However, domestic interest has yet to translate to significant traction for EdTech business models. Uptake and adoption amongst higher and basic education institutions alike has been slow and investment into EdTech relatively fragmented and difficult to size.<sup>49</sup>

Government procurement systems do not appear sufficiently responsive to support the embedding of promising piloted solutions in the broader education, thus complicating the efforts to develop these models into sustainable commercial solutions.

The COVID-19 pandemic has accelerated the adoption of digital tools globally and appears to have also introduced opportunities to embed EdTech into educational institutions in a lasting fashion. Some commentators believe this could help the educational system become more resilient to shocks, whilst reducing costs and improving learning outcomes.<sup>45</sup>

Given the significant quality gaps in South African education, EdTech interventions featuring evidence-based business models that benefit low- to mid-income users are required. However, business-to-business (B2B) approaches may still hold the most promise for scalable, impact-oriented enterprises in the segment. This is due to the fact that profitability for business-to-consumer (B2C) approaches can be limited unless targeted at middle- to upper-class end-users.

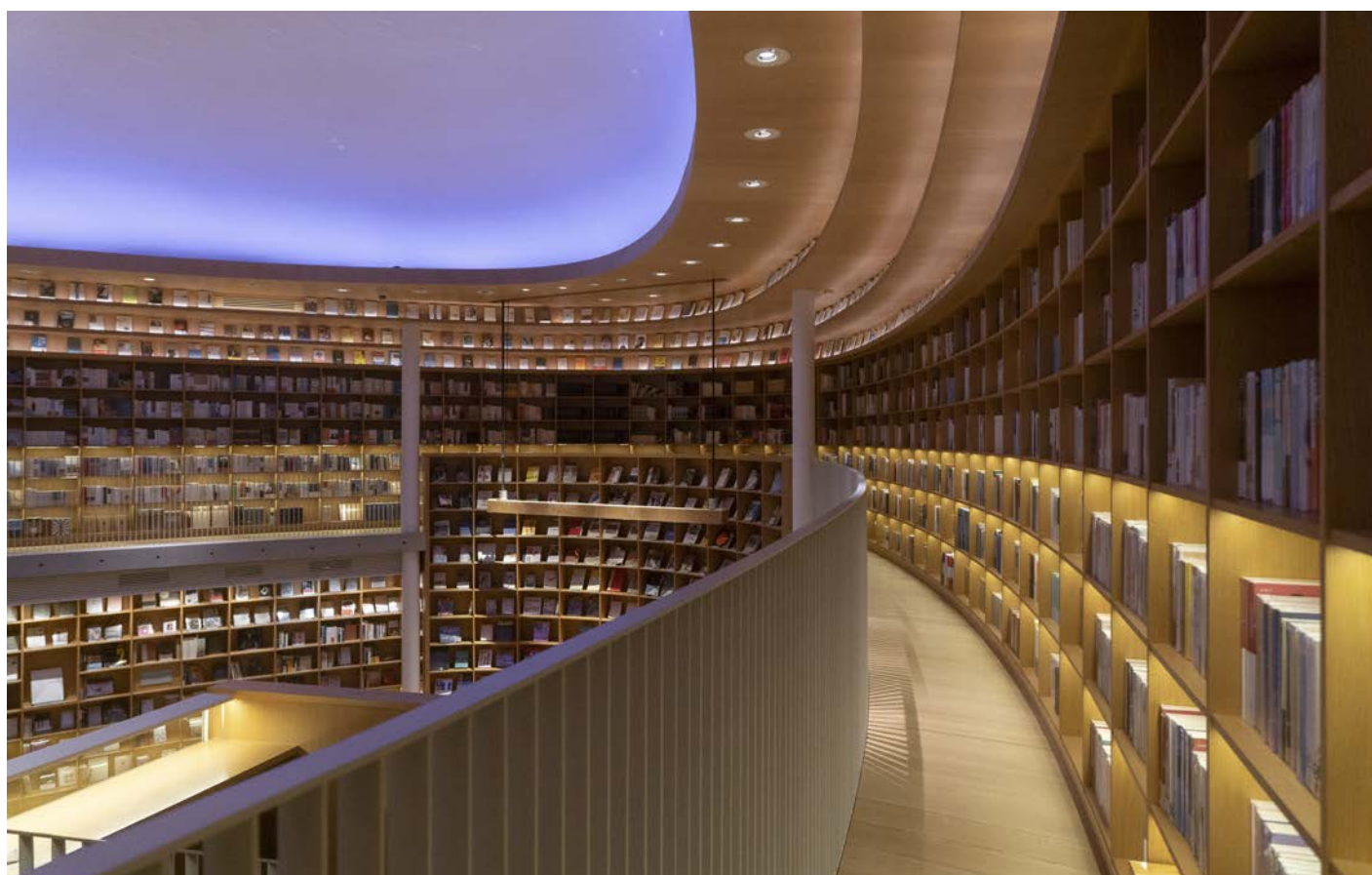
The following table illustrates how a selection of local education organisations and enterprises are conducting their operations within this opportunity area.



The following table illustrates how a selection of local education organisations and enterprises are conducting their operations within this opportunity area.

Table 7: Case Studies in Education Technology

ORGANIZATION	SECTOR	SUMMARY
<b>Siyavula</b>	B2C B2B	Siyavula is a social enterprise offering open-access textbooks in maths and science for students and teachers. Siyavula distributes free textbooks online and operates a machine learning-enabled online learning platform that flexibly adapts maths and science exercises to optimise learning for individual students. <sup>50</sup> At least 30% of its customers live below internationally recognised poverty lines. <sup>51</sup> The DBE has printed and distributed over 10 million copies of Siyavula's open-access textbooks to public schools <sup>52</sup> and been able to produce these textbooks for as little as a quarter of the cost of comparable offerings. <sup>53</sup> Siyavula has lowered production costs in this instance obtaining commercial sponsorships in return for advertising within textbooks. <sup>54</sup>
<b>Injini Edtech Incubator</b>	B2B	<p>Injini EdTech is a specialised EdTech incubator supporting African start-ups with significant potential for impact. The organisation was founded in recognition of technology's potential to scale and leverage expert knowledge, teachers, and programmes, as well as broaden the reach of education programmes.<sup>55</sup> Injini is focused on evidence-based solutions with at least a minimum viable product or prototype in place and seeks to support initiatives with the potential to benefit the underserved.<sup>56</sup></p> <p>Injini's cohort members deliver solutions across the entire education value chain and domestic entities supported include:</p> <ul style="list-style-type: none"> <li>• Trackosaurus, a game-based child development assessment app</li> <li>• Syafunda, an enterprise that builds WiFi hotspots capable of disseminating STEM learning content with no internet connection</li> <li>• Lightbulb, which connects students with experts and online resources</li> <li>• Roundafire, which provides interactive e-storybooks in African languages to promote literacy outcomes</li> <li>• Zaio, a start-up focused on creating and delivering intensive, accredited bootcamps covering web and app development, data science, and data engineering<sup>57</sup></li> </ul>



## 4.3.4 EDUCATION FINANCING

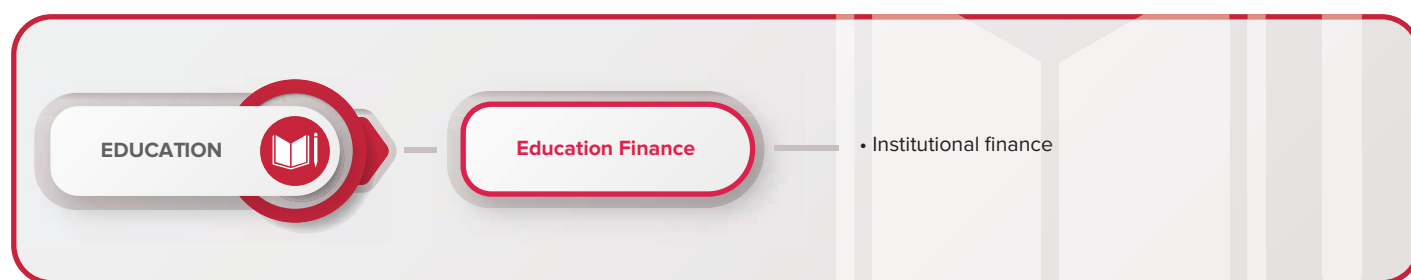


Figure 14: Investment opportunities in the education financing subsector

Education financing opportunities can be broadly delineated into two areas: student finance in tertiary education and institutional finance across the broader education value chain. However, the student financing environment features significant affordability constraints and policy upheaval, creating a greater opportunity for institutional finance.

**Student Finance:** More than two decades after the fall of apartheid, access to tertiary education remains significantly skewed towards individuals from higher socio-economic backgrounds. In 2018, 41% of millennials aged 19-23 from the top 20% of wealthiest households were attending tertiary institutions.<sup>58</sup> However, less than 21% of millennials in the same age bracket from the 60% of poorer South African households were enrolled in tertiary learning.<sup>59</sup>

The #FeesMustFall student protest movement of 2015-2016 confronted the role that cost plays in perpetuating inequities in higher education.<sup>60</sup> In response to these protests, the South African government announced in late 2017 that university tuition fees would be waived for students from households with a combined annual income of R350 000 or less.<sup>7</sup>

Government further supported the creation of the Ikusasa Student Financial Aid Programme (ISFAP), a public-private partnership model for student finance. ISFAP works to disseminate a blend of grants, loan funding, and support to students from “the missing middle”, which are households earning R350 000-R600 000 combined income annually. It specifically focuses on supporting students who are pursuing studies for occupations designated a national priority given the current skills deficit.<sup>61</sup>

These responses notwithstanding, South Africa is expected to struggle to finance the full spectrum of educational needs, with current bank financing models inaccessible for most. The total cost of providing free higher education – including accommodation and other living expenses – was estimated at R60 billion per year (R30 billion of which is tuition).

Historically, banks have provided student financing to the value of R1 billion per year, with just over 100 000 students accessing these loan products.<sup>62</sup> However, bank lending has long been inaccessible for the poorest 80% of students from households lacking the necessary assets or income to stand surety for student loans.<sup>63</sup> One specialist student loan lender disclosed that rates for students from poor and missing middle students could range as high as 23%-30% due to a lack of security and collateral.<sup>62</sup>

Existing challenges with providing affordable financing for students from lower socioeconomic backgrounds coupled with the continuing shift towards the provision of free tertiary education from government are likely to present significant risks for would-be investors in this domain, at least in the short term.

**Institutional Finance:** Private enterprise is seeing growth potential for private education in South Africa. Curro exemplifies this perspective and has undertaken significant expansion in recent years – made possible by raising over R2 billion in the last five years.<sup>64</sup> Funds such as Old Mutual’s Schools Investment Fund<sup>65</sup> and Business Partners’ Education Fund for SMEs<sup>66</sup> are targeted at education. Partnerships also exist: Curro was able to partner with Old Mutual to deliver its affordable schooling brand Meridian Schools.<sup>67</sup>

Investment opportunities in the sector are driven by opportunities that provide a compelling, affordable alternative for private institutions as they seek financing to establish or upgrade learning.





The following table illustrates how a selection of education organisations and enterprises are conducting their operations within this opportunity area.

Table 8: Case Studies in Institutional Finance

ORGANIZATION	SECTOR	SUMMARY
<b>Business Partners</b>	Multiple	Business Partners' Education Fund for SMEs is a R150 million fund providing loans to entrepreneurs who want to address shortcomings in the South African education system. The fund was established after the firm observed a gap in access to finance for establishing education facilities and reported strong demand. Over 50% of the fund value was dispersed across 34 investments within 48 months. Most deployments focused on pre-primary investments, although the fund has also completed several lending agreements with school operators in the primary and secondary schooling phases. <sup>68</sup>
<b>Old Mutual</b>	Primarily Basic Education	Old Mutual's Schools Investment Fund finances the infrastructure and education-related requirements of school operators, with the objective of supporting quality education provision and delivering commercially attractive returns. The fund was established as a 20-year vehicle in 2011 and is the first and largest education impact fund in South Africa. It has fully allocated its initial funding of R1.4 billion. As of 2019, the fund had supported at least 39 schools in enrolling 21 000 students and it aims to enrol over 30 000 students by 2027. <sup>69,65</sup> Old Mutual is now in the process of establishing and capital raising for its second education fund, which has a mandate for both school and tertiary investments.





# EDUCATION

## IOA: Early learning provision

### BUSINESS MODEL

Establish and support quality school or centre-based early childhood development (ECD) services for children aged 2-5 years at price points accessible to the bottom 40% of households.

### POTENTIAL OUTCOMES

High quality ECD for children from lower income households can lead them to achieve test scores that are comparable to those of children from the top half of the wealth distribution on age-appropriate child development assessments later.

### SDG ALIGNMENT

**Direct:** 4

### SDG INDICATORS

- ▶ 4.2.1
- ▶ 4.a.1

### DEVELOPMENT NEED

- ▶ Access to quality ECD care is not universal, with up to 55% of 0-4 year-olds not attending ECD facilities.
- ▶ Pre-primary education suffers from an unevenness in resource provision, which is reducing the potential for early learning to enhance returns in later phases of schooling.
- ▶ South Africa has expanded access to reception year schooling, termed "Grade R", achieving near universal access. However, access has not translated to improved educational outcomes. Thus, improving the quality of Grade R, especially for low-income communities, is a priority.
- ▶ Quality, affordable early learning programmes must be established and scaled up to provide ECD services in low-income communities.

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Education & skills development

### PRIORITY SUBREGIONS

- ▶ Gauteng, Limpopo, Western Cape, Eastern Cape, Free State, Mpumalanga, and North West
- ▶ ECD is a national priority and there is a significant need to grow quality across the country as a whole. However, some locations feature larger child populations and may thus present a combination of significant need by headcount and scale delivery potential.
- ▶ Gauteng has more young children (under 6 years) than any other province. Other provinces with growing young child populations are Mpumalanga, Limpopo, and the Western Cape.
- ▶ Education outcomes across the Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga appear to have benefited less from broadened access to pre-primary education.

### USERS OR BENEFICIARIES

**Direct:** ECD teachers, entrepreneurs, and children and families.  
**Indirect:** local communities, caregivers able to engage in income-generating activities

### MARKET SIZING

- ▶ There are approximately 8 million children aged 6 and under in South Africa, and approximately 60% lack access to affordable, quality ECD.
- ▶ One cost estimate for a scaled, infrastructure-lite, social franchising model serving 1 million children was R2 000 per child per year.

### RETURN PROFILE

Low to medium returns.

### INVESTMENT TIME FRAME

Medium term.

### FINANCIAL ENVIRONMENT

- ▶ Access to government subsidies is possible, if largely restricted to non-profit enterprises.
- ▶ SmartStart Franchises have been able to access R8 000 each annually from the Department of Cooperative Governance & Traditional Affairs (CoGTA) Community Work Program for running playgroups.
- ▶ The Expanded Public Works Program (EPWP) provides some stipends to those providing early learning for more than 15 days per month.
- ▶ Registered ECD centres can access a Department of Social Development (DSD) subsidy calculated per child per day for children 0-4 years (subject to caregiver income level).
- ▶ The Department of Social Development offers programme funding for non-profit organisations.
- ▶ The Department of Education offers subsidies for community-based Grade R facilities registered as independent schools as well as subsidises training expenses and provides stipends for individuals undertaking learnerships.

### REGULATORY ENVIRONMENT

- ▶ The Children's Act (2005) outlines minimum requirements for ECD care, including norms and standards for infrastructure and child safety.
- ▶ Government is in the process of transitioning responsibility for ECD from the Department of Social Development to the Department of Education, a move that may present funding or policy implications once completed.

### PARTNER ENVIRONMENT

**Government:** National and provincial Departments of Basic Education, Departments of Social Development.  
**Donors:** DG Murray Trust, Zenex Foundation, Community Chest, MMI Group, Exxaro, VW Community Trust, National Lotteries Board, Spur Foundation, PetroSA, GrowthPoint Properties  
**Investors:** Innovation Edge, UBS Optimus, Standard Bank Tutuwa Foundation  
**NPOs:** SmartStart, GROW Educare Centres  
**Corporates/Business:** Earlybird

### POLICY ENVIRONMENT

ECD is a national priority programme. Both the National Development Plan (NDP) and the National ECD policy of 2015 emphasize the importance of the sector and the country's commitment to ensuring access to quality care for all.

### OBSTACLES TO SCALE

**Business Model:** Bottom-of-pyramid business model with limited margin potential in levied fees to parents and caregivers  
**Funding:** Access to government subsidies is a significant enabler but funding is not directly accessible to for-profits; accessing government stipends can be administratively cumbersome

### NEGATIVE EXTERNALITIES

N/A

### IMP CLASSIFICATION

**C:** Contributes to Solutions  
The enterprise not only acts to avoid harm, but also generates one or more significant effect(s) on positive outcomes for otherwise underserved people and the planet.  
**What:** Promote cognitive skills, emergent literacy, numeracy, and other measures of child development that are critical to school readiness and future learning success  
**Who:** Children from low-income households that would otherwise be unable to access quality early learning  
**How Much:** Lifetime effects for a potentially significant portion of children aged under 6.



# EDUCATION

## IOA: Low-fee private schooling

### BUSINESS MODEL

Establish or acquire independent, low- to mid-fee private school chains in the primary and secondary education phases.

### DEVELOPMENT NEED

- ▶ Basic education in South Africa is hampered by challenges including poor infrastructure and an undersupply of qualified teachers. More than three-quarters of children attending Grade 4 cannot read for meaning, which deepens their relative learning disadvantage as they proceed to higher grades.
- ▶ Although children can expect to complete 9.3 years of pre-primary and basic education before age 18, these years of schooling are only equivalent to 5.1 years when adjusted for the quality of learning.
- ▶ Grade 12 pass rates for private schools, in comparison to much of the public sector, demonstrate inequities in quality of education. The national Grade 12 pass rate was 81.3% for all South African schools, however the pass rate for South African independent schools, examined through the Independent Examinations Board (IEB) and subject to the same quality assurance standard, was 98.82%.
- ▶ Expanding the independent schooling sector, especially for low-fee schools, can provide child-guardians with more affordable private school options and help address access and quality needs.

### POTENTIAL OUTCOMES

- ▶ The establishment of quality, affordable primary and secondary schools can promote comparable learning outcomes for children drawn from the higher and lower income quintiles.
- ▶ Affordable institutions can help realise a demographic profile of private school enrolments comparable to the national distribution for children of school-going age.

### PRIORITY SUBREGIONS

The Eastern Cape, Northern Cape, Free State, North West, Mpumalanga, and Limpopo regions, which each perform below the national average of 10.4 years of schooling for individuals aged 15-34 years old.

### MARKET SIZING

- ▶ Private schools accounted for 4.25% (538 000 students) of the learner enrolment base in 2014, growing marginally to 4.85% of enrolments (632 000 students) in 2019.
- ▶ SPARK schools, a for-profit, affordable schools chain, charges fees ranging from R25 000-35 000 per annum.

### POLICY ENVIRONMENT

Government recognizes independent schools as “small but important” allies in promoting development within the education sector. However, private, for-profit education enterprises have limited access to government as a buyer of services, impairing their ability to expand access to quality private offerings. Most for-profit initiatives thus face trade-offs between inclusiveness and commercial attractiveness.

### REGULATORY ENVIRONMENT

- ▶ Schools must comply with guidelines set by provincial education departments and be registered with the South African Council for Educators (SACE).
- ▶ Schools must be accredited by Umalusi, the statutory accreditation body.
- ▶ Navigating regulatory requirements to complete registration can be complex, ensuring ongoing compliance is difficult, and sanctions for non-compliance potentially severe.

### OBSTACLES TO SCALE

**Business model:** Two-thirds of the country's children live in the poorest 40% of households and continued school-offering expansion to meet their needs may reach a lower bound affordability threshold that still excludes a significant portion of households.

**Finance:** Access to affordable finance and premises can be a constraint, although there is increasing availability of specialised financing offerings (see Institutional Finance).

**Teacher quality:** Teacher compensation is a high share of school operating budgets and many low-fee schools struggle to provide salaries comparable to public sector schools, especially as the latter feature strong teachers unions. Managing teacher retention and quality can therefore prove challenging.

### SDG ALIGNMENT

**Direct:** 4

### SDG INDICATORS

- ▶ 4.6.1
- ▶ 4.7.1
- ▶ 4.a.1

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Education & skills development

### USERS OR BENEFICIARIES

**Direct:** School operators and entrepreneurs, students  
**Indirect:** Caregivers and local communities

### RETURN PROFILE

Low to medium returns.

### INVESTMENT TIME FRAME

Medium to long term investment.

### PARTNER ENVIRONMENT

**Government:** National and provincial Departments of Basic Education  
**NPOs:** LEAP Science and Maths Schools

**Corporates/Business:** Curro, ADVTECH, PLG Schools, SPARK Schools, Sifiso Learning Group Ltd

**Accreditors/Associations:** Independent Schools Coalition of South Africa, South African Council for Educators

### FINANCIAL ENVIRONMENT

For-profit independent schools are ineligible for government subsidies. However, registered non-profit, independent school operators can access government subsidies, up to 60% of the equivalent cost in public schools. That said, schools can find it challenging to register for subsidies, and may receive them with inconsistent timing, as a fraction of the cost of programme delivery, or with a significant compliance burden attached.

### NEGATIVE EXTERNALITIES

There is a perception in some quarters that the private school sector's cost-based exclusion of poorer South Africans deepen social inequalities, and that funding support for independent private schools should rather be directed towards addressing quality and infrastructure gaps in publicly owned institutions.

### IMP CLASSIFICATION

**B:** Benefit Stakeholders

The enterprise not only acts to avoid harm, but also generates various positive outcomes for people and the planet.

**What:** Provide affordable, quality alternatives to publicly funded education.

**For Who:** Children from the bottom 50% of households by household wealth.

**How Much:** Small- to mid-scale effect considering potential trade-offs between commercial potential, quality and affordability





# EDUCATION

## IOA: Distance learning

### BUSINESS MODEL

Establish or acquire tertiary level distance learning institutions (including online and blended modes of delivery).

#### DEVELOPMENT NEED

- ▶ Distance education accounts for over 40% of the total higher education student headcount in South Africa.
- ▶ Supporting the availability of distance education promotes equitable access to education for all. Distance education plays a significant role in ensuring access for students who are unable or unwilling to attend campus-based education offerings, are non-traditional students, or face other barriers to learning.
- ▶ Distance learning can lower costs per student by distributing the costs of curriculum design, material development, and some teaching expenses across larger numbers of students, and by reducing the dependence on physical infrastructure.

#### SDG ALIGNMENT

**Direct:** 4  
**Indirect:** 10

#### SDG INDICATORS

- ▶ 4.3.1
- ▶ 4.4.1
- ▶ 4.5.1
- ▶ 4.7.1
- ▶ 10.1.1

#### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Education & skills development
- ▶ Social innovation

### POTENTIAL OUTCOMES

Improvement in accessibility, quality, and educational outcomes of distance learning.

### PRIORITY SUBREGIONS

The Eastern Cape, Northern Cape, Free State, North West, Mpumalanga, and Limpopo

- ▶ Each of these regions perform below the national average of 10.4 years of schooling for individuals aged 15-34 years old
- ▶ In 2018, Mpumalanga, Limpopo, and Eastern Cape had the lowest percentage of millennials attending tertiary education institutions (37.2%, 29.3%, and 23.4%, respectively)

### USERS OR BENEFICIARIES

**Direct:** Populations unable to access contact education (e.g. geographically distant, working individuals)

**Indirect:** Education technology firms and service providers offering solutions that complement online and distance learning.

#### RETURN PROFILE

Medium return.

#### INVESTMENT TIME FRAME

Medium term.

#### MARKET SIZING

- ▶ Distance education enrolments account for 33-40% of total higher education enrolments in South Africa.
- ▶ In 2015, South Africa had 4.5 million youth with at least a Grade 10 education. Amongst this population, technical and vocational education and training (TVET) enrolments were fewer than 600 000, while students aged 18-25 enrolled in undergraduate studies at university were fewer than 550 000, leaving millions unserved.

#### POLICY ENVIRONMENT

The Department of Higher Education and Training (DHET) has encouraged universities to expand online and blended learning programmes as a means of broadening access, especially for 'niche' qualifications that may otherwise attract lower enrolments and postgraduate qualifications.

#### PARTNER ENVIRONMENT

**Government:** DHET

**Accreditors:** Council on Higher Education, SAQA, Umalusi

**Corporates/Business:** Stadio Holdings, ADVTECH, Educor Holdings

**Investors:** Old Mutual, Carlyle Group, Investec, Actis

#### FINANCIAL ENVIRONMENT

Private education institutions do not qualify for education subsidies. However, the sector at large has been attracting interest from a range of investors in recent years, including entities such as the Carlyle Group, Investec, and Actis.

#### IMP CLASSIFICATION

**B:** Benefit Stakeholders

The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet.

**What:** Provide affordable, quality alternatives to contact education.

**Who:** Individuals unable to access contact education (e.g. Geographically distant, working individuals).

**How Much:** A potentially significant number of beneficiaries, tempered by the significant number of distance students already served by UNISA

#### REGULATORY ENVIRONMENT

- ▶ Programmes offered by private institutions must be registered with DHET, accredited by the Higher Education Quality Committee (HEQC) of the Council on Higher Education (CHE) and registered on the National Qualification's Framework (NQF) by the South African Qualifications Authority (SAQA)
- ▶ Other guiding legislation for the sector include: The Education White Paper 6 on Inclusive Education (2001), Higher Education Act (1997), National Student Financial Aid Scheme Act (1999), FET Colleges Act (2006), General and TVET Quality Assurance Act (2001), the SAQA Act (1995), and the Policy for the provision of distance education in South African universities in the context of an integrated post-school system (2014).

#### OBSTACLES TO SCALE

**Business model:** Economies of scale may be limited by the increasingly interactive nature of distance education, especially in the case of online learning where providing instructor-student interaction can present notable costs.

**Technology access:** Access to digital learning infrastructure and connectivity is a constraint for both students and instructors. This presents a particular challenge for businesses developing services specifically for individuals from lower socio-economic backgrounds.

**Market:** Government commitments to growing access to free university education for South Africans from poorer households may shrink the addressable market.

#### NEGATIVE EXTERNALITIES

N/A



# EDUCATION

## IOA: Technical and vocational training

### BUSINESS MODEL

Establish or acquire tertiary level technical and vocational training facilities including colleges, adult education centres, and on-the-job learning offerings.

### DEVELOPMENT NEED

- ▶ The government is seeking to increase enrolments in colleges to 2.5 million students by 2030, an increase from around 400 000 in 2012. This plan involves establishing up to 12 new technical and vocational education and training (TVET) colleges by 2030.
- ▶ Government has also called for the introduction of community colleges to serve youth and adults who did not attend school or dropped out, with the aim of enrolling at least 1 million such students by 2030.

### POTENTIAL OUTCOMES

Improvement in accessibility, quality, and educational outcomes of technical and vocational training.

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Education & skills development

### SDG ALIGNMENT

**Direct:** 4  
**Indirect:** 10

### SDG INDICATORS

- ▶ 4.3.1
- ▶ 4.4.1
- ▶ 4.5.1
- ▶ 4.7.1
- ▶ 10.1.1

### PRIORITY SUBREGIONS

- The Eastern Cape, Northern Cape, Free State, North West, Mpumalanga, and Limpopo regions
- ▶ These regions each performed below the national average of 10.4 years of schooling for individuals aged 15-34 years old.
  - ▶ In 2018, Mpumalanga, Limpopo, and Eastern Cape had the lowest percentage of millennials attending tertiary education institutions (37.2%, 29.3%, and 23.4%, respectively).

### RETURN PROFILE

Medium return.

### INVESTMENT TIME FRAME

Medium term.

### USERS OR BENEFICIARIES

**Direct:** Individuals seeking technical and vocational training.

### MARKET SIZING

- ▶ There are 487 registered tertiary learning institutions in South Africa, 83% of which are private institutions. Private tertiary institutions accounted for 14.6% of the 2.29 million enrolments across the tertiary sector in 2016 and have grown their share of enrolments steadily, increasing from 9.9% in 2011.
- ▶ Government is targeting over 2 million new enrolments in the sector by 2030.

### POLICY ENVIRONMENT

Growing TVET and community college enrolments is central to government's strategy for improving access to post-school education and training.

### REGULATORY ENVIRONMENT

- ▶ Programmes offered by private institutions must be registered with the Department of Higher Education and Training (DHET), accredited by the Higher Education Quality Committee (HEQC) of the Council on Higher Education (CHE), and registered on the National Qualification's Framework (NQF) by the South African Qualifications Authority (SAQA)
- ▶ Other guiding legislation for the sector include: The Education White Paper 6 on Inclusive Education (2001), Higher Education Act (1997), National Student Financial Aid Scheme Act (1999), FET Colleges Act (2006), General and TVET Quality Assurance Act (2001), and the SAQA Act (1995).

### FINANCIAL ENVIRONMENT

Private education institutions do not qualify for education subsidies. However, the sector at large has been attracting interest from a range of investors in recent years, including entities such as the Carlyle Group, Investec, and Actis.

### PARTNER ENVIRONMENT

**Government:** DHET  
**Accreditors:** CHE, SAQA, Umalusi  
**Companies:** Stadio Holdings, ADvTECH, Educator Holdings  
**Investors:** Old Mutual, Carlyle Group, Investec, Actis

### OBSTACLES TO SCALE

**Government:** DHET  
**Accreditors:** CHE, SAQA, Umalusi  
**Companies:** Stadio Holdings, ADvTECH, Educator Holdings  
**Investors:** Old Mutual, Carlyle Group, Investec, Actis

### NEGATIVE EXTERNALITIES

N/A

### IMP CLASSIFICATION

B: Benefit Stakeholders

The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet.

**What:** Provide affordable, quality alternatives to contact education.

**Who:** High school graduates, school leavers with Grade 10, adults seeking further education and training

**How Much:** Mid-scale effect considering challenges managing trade-offs between commercial potential, quality, and affordability



# EDUCATION

## IOA: Student accommodation

### BUSINESS MODEL

Real estate development projects and firms focused on creating and operating affordable student housing facilities.

### DEVELOPMENT NEED

The number of beds available to most universities is a fraction of the student population. One estimate puts the number of beds required across the tertiary learning sector at up to 500 000, consistent with investment needs of up to R150 billion.

### POTENTIAL OUTCOMES

Increasing the availability of affordable student accommodation in close proximity to tertiary learning institutions will increase access to education for students.

### SDG ALIGNMENT

**Direct:** 4  
**Indirect:** 13

### SDG INDICATORS

- ▶ 4.3.1
- ▶ 4.5.1

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services.
- ▶ Education & skills development.

### PRIORITY SUBREGIONS

N/A

### USERS OR BENEFICIARIES

**Direct:** Tertiary students attending contact institutions

### RETURN PROFILE

Low to medium return.

### INVESTMENT TIME FRAME

Medium to long term.

### MARKET SIZING

Up to 500 000 beds and investment needs of up to R150 billion

### POLICY ENVIRONMENT

Through the Student Housing Infrastructure Programme, the government is actively working to provide 300 000 beds to 300+ university and technical and vocational education and training (TVET) campuses over a period of ten years.

### REGULATORY ENVIRONMENT

The Higher Education Act: Policy on Minimum Norms and Standards for Student Housing at Public Universities (2015) regulates the provision of on- and off-campus student housing at public universities. Its stipulations apply to all public universities and university-accredited student housing providers.

### PARTNER ENVIRONMENT

**Government:** DHET

**Tertiary Institutions:** 26 Public universities, 50 TVET institutions

**Corporates/Business:** STAG African, Respublica, Citiq, SouthPoint, Pulse Urban Properties

**Investors:** DBSA, European Union, Old Mutual Alternative investments, BusinessPartners, WestBrooke Alternative Asset Management

### FINANCIAL ENVIRONMENT

- ▶ There is potential scope to contract to deliver government commissioned developments through the Student Housing Infrastructure Programme.
- ▶ Student housing has been attracting interest from investors including Old Mutual, WestBrooke Alternative Asset Management, and Business Partners.
- ▶ Student accommodation yields have historically struggled to match comparable levels for listed real estate investment trusts (10%+), posing some challenges to accessing capital markets.

### OBSTACLES TO SCALE

**Costs:** cost of land acquisition

**Policy:** protracted government procurement processes for those seeking to participate in policy-driven infrastructure development programmes

**Regulation:** potential delays due to rezoning, missing title deeds, etc.

### NEGATIVE EXTERNALITIES

N/A

### IMP CLASSIFICATION

**B:** Benefit Stakeholders

The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet.

**What:** Provide quality, affordable student housing in proximity to learning institutions

**Who:** Students at tertiary learning institutions

**How Much:** Mid-scale effect since there is existing momentum in student housing and developments are open to a mixture of students, including those from higher socio-economic backgrounds





# EDUCATION

## IOA: Teacher training

### BUSINESS MODEL

Establish or acquire institutions offering pre- and in-service teacher training programmes.

#### DEVELOPMENT NEED

By 2025, South Africa will require 456 000 teachers in basic education. However, the public education system currently has 410 000 teachers and approximately 15 000 new teachers graduate per year, which is less than the 25 000 required to maintain an effective teacher-pupil ratio. Regardless, the field experiences a net loss of teachers as 18 000 and 22 000 teachers leave the profession every year.

#### POTENTIAL OUTCOMES

A growth of 25 000+ the total number of teachers entering the profession per year will ensure an effective teacher-pupil ratio in basic education.

#### SDG ALIGNMENT

**Direct:** 4

#### SDG INDICATOR

4.c.1.

#### CROSS CUTTING THEME

Education & skills development

#### PRIORITY SUBREGIONS

Northern Cape and Northwest provinces:

- In 2018 these provinces reported learner-teacher ratios below the national average for primary education.
- All provinces, with the exception of the Western and Eastern Cape, reported learner-teacher ratios below the national average for secondary education.

#### USERS OR BENEFICIARIES

**Direct:** Public schools and students

**Indirect:** Caregivers and local communities

### MARKET SIZING

Sufficient enrolment growth to produce an additional 10 000 new teacher graduates per annum.

#### RETURN PROFILE

Medium return.

#### INVESTMENT TIME FRAME

Medium term.

#### REGULATORY ENVIRONMENT

The National Policy Framework for Teacher Education and Development (2006) and Integrated Strategic Planning Framework for Teacher Education and Development in South Africa (2015) establish the government's stance on qualified teachers and provide guidance on training efforts.

#### POLICY ENVIRONMENT

The Department of Basic Education has observed that the number of new teachers currently being produced by private higher education institutions is negligible. The department thus recommended the government explore means of encouraging private higher education institutions to contribute more in producing new teachers.

#### FINANCIAL ENVIRONMENT

N/A

#### PARTNER ENVIRONMENT

**Government:** DHET, Department of Basic Education

**Institutions:** STADIO: Faculty of Education, Centre for Creative Education, SANTS Private Higher Education Institution, Varsity College School of Education, Two Oceans Graduate Institute

**Industry bodies:** Global Teachers Institute

### OBSTACLES TO SCALE

Competition: Teachers who opt to study at public institutions can apply for a R1.5 billion state bursary programme, which may discourage applicants from considering private institutions.

### NEGATIVE EXTERNALITIES

N/A

### IMP CLASSIFICATION

C: Contributes to Solutions

The enterprise not only acts to avoid harm, but also generates one or more significant effect(s) on positive outcomes for otherwise underserved people and the planet.

**What:** Produce qualified and capable teachers

**Who:** The school system at large, with special consideration for public schools

**How Much:** Significant contribution given the number of students and education outcomes each teacher can impact



# EDUCATION

## IOA: Education technology (EdTech)

### BUSINESS MODEL

Technological solutions that reduce education delivery costs, broaden access to content, establish new content delivery approaches and formalise new engagement models for teachers and students

#### DEVELOPMENT NEED

- ▶ South Africa has recorded suboptimal educational outcomes in areas including school readiness for children entering Grade 1; literacy and numeracy performance and grade repetition/dropout in basic education; and access to and completion of higher education.
- ▶ Technology-based solutions targeted across the education value chain may liberalise access by lowering the barrier of cost and introducing innovations that improve learning outcomes.

#### POTENTIAL OUTCOMES

Expedite improvements in access and educational outcomes for education segments that record significant EdTech penetration/uptake.

#### SDG ALIGNMENT

**Direct:** 4

#### SDG INDICATORS

- ▶ 4.3.1
- ▶ 4.4.1
- ▶ 4.7.1

#### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Education & skills development
- ▶ Digital transformation
- ▶ Social Innovation

#### PRIORITY SUBREGION

N/A

#### USERS OR BENEFICIARIES

**Direct:** Students, teachers, and educational operators

#### RETURN PROFILE

Low to medium return.

#### INVESTMENT TIME FRAME

Short to medium term.

#### MARKET SIZING

Injini EdTech incubated 29 startups between 2017 and 2020. Nine of these ventures were from South Africa.

#### POLICY ENVIRONMENT

N/A

#### REGULATORY ENVIRONMENT

N/A

#### FINANCIAL ENVIRONMENT

- ▶ The sector is receiving interest from a mixture of philanthropic and commercial funders including the Omidyar Network and UBS Optimus Foundation.
- ▶ However, domestic interest has yet to translate to significant traction for EdTech business models. Uptake and adaptation amongst higher and basic education institutions alike has been slow and investment into EdTech relatively fragmented and difficult to size.

#### PARTNER ENVIRONMENT

**Incubation:** Injini Edtech, CITI  
**Established Companies:** Siyavula, GetSmarter  
**Investors:** Omidyar Network, UBS Optimus Foundation, Michael Susan Dell Foundation, Elma Foundation, PSG Group, Shuttleworth Foundation

#### OBSTACLES TO SCALE

Technology access: Degree of end-user access to digital infrastructure and devices Industry: Institutional inertia with adopting and embedding digital solutions

#### NEGATIVE EXTERNALITIES

N/A

#### IMP CLASSIFICATION

B: Benefit Stakeholders

The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet.

**What:** Provide technological solutions to enhance learning outcomes

**Who:** Teachers, students, and institutions across the education sector

**How much:** Small- to mid-scale effect considering challenges managing trade-offs between commercial potential, quality, affordability, and the sector's current market traction



# EDUCATION

## IOA: Institutional finance

### BUSINESS MODEL

Provide financing, including infrastructure and working capital, for learning institutions

### DEVELOPMENT NEED

- ▶ Poor school infrastructure affects the quality of education and is a significant barrier to education, contributing to challenges including irregular attendance, student drop-out, and teacher turnover.
- ▶ Access to finance will be required for existing and new education institution operators seeking to address access and quality gaps across the education sector.

### POTENTIAL OUTCOMES

Progressively increasing the number and value of financing facilities with expertise in assessing and funding education institutions will enhance institutional performance.

### SDG ALIGNMENT

**Direct:** 4

### SDG INDICATORS

- ▶ 4.7.1
- ▶ 4.a.1

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Education & skills development

### PRIORITY SUBREGION

N/A

### USERS OR BENEFICIARIES

**Direct:** Schools and facility operators

**Indirect:** Caregivers and local communities provided access to quality schooling

### MARKET SIZING

There are 1922 registered private schools and 402 registered private tertiary institutions in South Africa. 14% of private schools have only registered in the last five years.

### RETURN PROFILE

Medium return.

### INVESTMENT TIME FRAME

Medium to long term.

### POLICY ENVIRONMENT

N/A

### REGULATORY ENVIRONMENT

N/A

### FINANCIAL ENVIRONMENT

N/A

### PARTNER ENVIRONMENT

**Funds:** Old Mutual Schools Investment Fund, Isibaya Fund, Business Partners Education SME Fund, Carlyle Group, Investec, Actis

### OBSTACLES TO SCALE

**Supply:** Supply of bankable projects also addressing the poorest 40% of households.

**Risks:** Establishment risks for greenfield education projects

### NEGATIVE EXTERNALITIES

N/A

### IMP CLASSIFICATION

**B:** Benefit Stakeholders

The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet.

**What:** Provide affordable financing for education institutions

**Who:** Operators of educational institutions and education entrepreneurs

**How Much:** Small- to mid-scale effect considering challenges of managing trade-offs between commercial potential, quality, and affordability



# 5. SECTOR 2: HEALTH CARE

## 5.1 WHY HEALTH CARE?



SDG 3 seeks to ensure health and well-being for all, at every stage of life.<sup>1</sup> South Africa has made notable progress on multiple segments of good health and well-being, but major challenges still remain to achieve the goal by 2030 with a score of 48.7 on SDG 3.<sup>2</sup> The country's progress is still overshadowed by a post-apartheid legacy of inequity. Significant remaining challenges include achieving universal health coverage, value for money spent, and funding requirements.<sup>3</sup> South Africa's 2019 SDG Country Report highlights the social challenges and priority actions that need to take place to achieve SDG 3 (Table 9).

Table 9 Key challenges and priorities to achieve SDG 3

Social challenge	Priority actions	Primary targets
<b>Poverty, high levels of inequality, high unemployment, social exclusion, high burden of disease</b>	Improve access to affordable basic services	3.8: Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all 3.c: Substantially increase health financing and the recruitment, development, training, and retention of the health workforce in developing countries, especially in least developed countries and small island developing states
<b>Unequal access to quality healthcare, need for improved performance on key healthcare indicators</b>	Promote innovative and sustainable health financing Prioritise social determinants of health	
<b>Unequal access to quality healthcare, frontline infrastructure challenges, shortage of medical equipment and medicine</b>	Improve frontline health care services	

Source: Adapted from Sustainable Development Goals Country Report – South Africa (2019)<sup>1</sup>

The National Development Plan aims to achieve healthcare for all where everyone must have access to an equal standard of care regardless of their income.<sup>4</sup> Government's commitment to this is demonstrated by an increase in health expenditure from R18.172 billion in 1995/6 to R184.217 billion in 2016/17.<sup>3</sup> Despite the increase in spending, which represents a relatively high proportion of the GDP at 9% and is 4% higher than the World Health Organisation's recommended spend for a country of its socioeconomic status, vast inequalities still remain. The public healthcare sector accounts for approximately 48% of total healthcare spending but needs to service 84% of the population, while private healthcare accounts for 50% of total spending to serve the remaining 16% of the population.<sup>5</sup> Non-governmental organisations account for the remaining 2% of spending. This puts the annual healthcare spend per capita at approximately 10 times more in the private sector than in the public sector.

To address some of these inequities, the National Development Plan outlines the objective of building a national health insurance system to provide all citizens with access to essential health care by improving the quality of public healthcare and lowering the relative cost of private healthcare.<sup>3</sup> Furthermore, the National Development Plan outlines the need to recruit more professionals in both public and private sectors, improve healthcare systems and give attention to HIV/AIDS healthcare provision.

As highlighted by William Mapham, the founder of mobile healthcare provider Vula, "In SA you either pay in time or you pay in money".<sup>6</sup> The opportunity costs in South Africa are extremely burdensome for the majority of the citizens without health insurance, who are limited to three options if they fall ill:

1. Wait and hope to get better (which leaves many non-communicable diseases untreated);
2. Spend a day trying to access a public health facility and the necessary medicines, if there's an opportunity to see a health care professional; or
3. Visit a traditional healer (also known as a sangoma)<sup>10</sup>.

The need for investment to address the inequalities mentioned above, have been illuminated by COVID-19. Sizwe Nxasana, Founder of the Sifiso Learning Group, indicated that "COVID-19 has amplified inequality and the lack of inclusion, which is apparent in the lack of access to education, water, sanitation, and hygiene (WASH), and food security. COVID-19 has revealed how big the gap actually is; people in the higher income brackets can continue with business as usual due to access to WiFi, and if they get infected, they have easy access to healthcare facilities. People in the lower-income brackets, on the other hand, are experiencing significant difficulties with even their basic needs and accessing fundamental human rights".<sup>19</sup>



## 5.2 BOTTLENECKS TO INVESTING IN HEALTH CARE

Although there is a need to fund innovative models and scale interventions for healthcare delivery, a few bottlenecks in the system need to be overcome first. The bottlenecks applicable to the provision of healthcare solutions to the underserved market include:

**Investment-ready projects:** Outside of pharmaceuticals, there are a limited number of projects that have significant return potential. Many of the projects in the healthcare sector are very reliant on donor funding and extremely difficult to commercialise.<sup>7</sup> Furthermore, the sustainability of these donor-funded projects is often compromised when they are transferred to the public health sector.

**Affordability:** Medical schemes currently remain unaffordable to the majority of South Africans. Although two policy initiatives were tabled to structure a low-cost product (the Low-Income Medical Scheme initiative of 2006 and the LowCost Benefit Option initiative in 2015), they were not implemented. Similarly, tax credits are only applicable to those above the tax threshold. Furthermore, health insurance could offer a less comprehensive but more affordable alternative<sup>8</sup>.

Uncertainty around the implementation of national health insurance might also be leaving investors somewhat hesitant.<sup>9</sup> However, a national health insurance programme could place much more emphasis on mid-fee healthcare, something which has been successfully implemented in countries outside of South Africa. However, the risk remains that the majority of South Africans (84% of the population) who receive free healthcare at present might be resistant to the idea of paying for services previously regarded as free.<sup>9</sup> As such, there is an “uncomfortable tension between free healthcare and expensive healthcare provision” that expands access.<sup>10</sup>

**Market fragmentation:** The health market’s fragmented funding landscape creates inefficiencies that limit the ability of products to provide value, control costs, and align incentives. This further constrains the ability of low-income individuals to access affordable health cover.<sup>8</sup>

**Cost inflation:** Health care cost inflation has been in excess to standard inflation rates. For example, private facility prices have increased at almost double the rate of consumer inflation over the last 10 years<sup>11</sup>. These rises have been driven by increased utilisation of health services, regulation, and fraud - which require risk-management and cost-containment strategies<sup>8</sup>.

**Infrastructure:** There is a need to improve the supply chain, process, equipment, and health information management systems.<sup>3</sup> Similarly, although a national health insurance programme would be a financing mechanism, its core purpose is not focused on the construction of new health facilities to lighten the burden on current infrastructure needs, but rather to provide more affordable and equitable access to the existing health system.<sup>10</sup>

Furthermore, there are underlying competing objectives that are evident in the healthcare sector in South Africa. While the private sector is open to adopting new technology, it is much more difficult to apply new technology in the public sector as there is not a motivation to be differentiated.<sup>10</sup> Similarly, due to the high volume of people who need to be seen, the public sector focuses on limiting specialist visits to essential cases, while private sector specialists can consult to as many as may suit their revenue objectives.

### ECOSYSTEM INITIATIVES IN HEALTH CARE: A SNAPSHOT

Initiative	Summary
<b>MomConnect</b>	This programme was created by the Department of Health to create a coalition of public and private partners to support the development and implementation of mobile maternal and child healthcare services.
<b>Praekelt</b>	Praekelt provide a range of mobile technology solution to improve health and well-being for individuals including medication reminders, diagnosis tech and a solution to empower citizens with correct information around COVID-19.
<b>South African National Blood Service (SANBS)</b>	The SANBS is using drones to collect and deliver blood for transfusions across the country, especially in hard-to-reach rural areas.
<b>Project Last Mile</b>	Project Last Mile is a pioneering cross-sector partnership to ensure the last mile receive life-saving medicines. This initiative supports the growth of public health systems’ capacity in supply chain and marketing, by sharing the expertise and network of the Coca-Cola system.





## 5.3 INVESTMENT OPPORTUNITIES IN HEALTH CARE

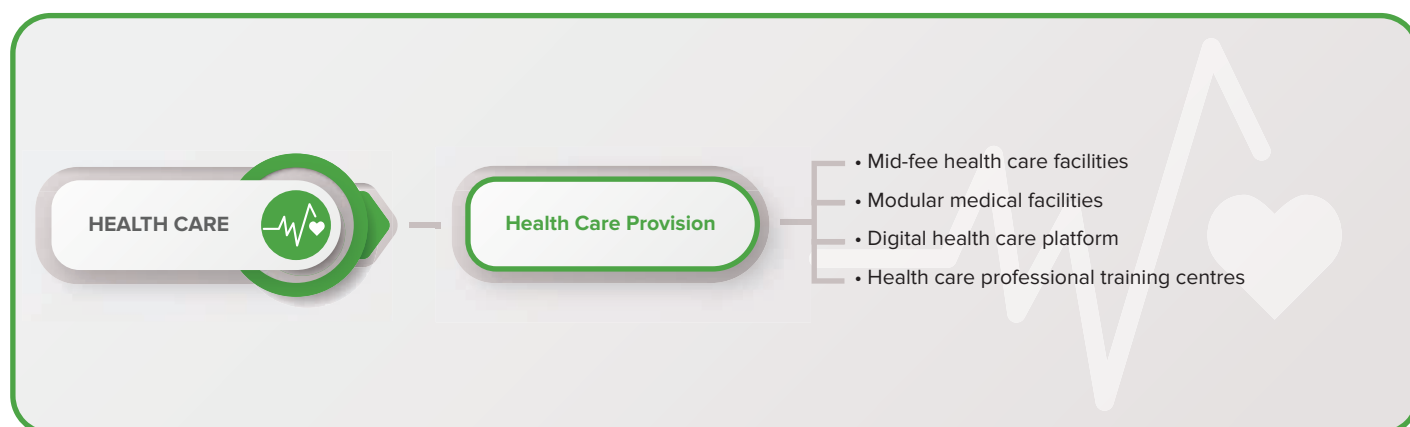


Figure 17: Investment opportunities in the health care provision subsector



Despite progress towards achieving SDG 3, there is a significant need for private sector investment to achieve equitable access to healthcare in South Africa.

**Key drivers** and strengths in the healthcare sector include South Africa's relatively high spend on healthcare as a proportion of GDP, a driver of development in the sector, alongside the country's status as the largest pharmaceutical market on the continent.<sup>5</sup> South Africa also has a strong digital health and life sciences market, supported by strong manufacturing capabilities and research institutions.<sup>16</sup>

Innovation is at the centre of the National Digital Health Strategy, which aims to increase automation, add technologies involving artificial intelligence, introduce efficiencies, and create new opportunities.<sup>16</sup>

South Africa is also focused on scaling high impact mobile health solutions as a community-based intervention for achieving effective universal health coverage.<sup>16</sup> As highlighted by William Mapham, the founder of Vula, "For a long time, people didn't really know what digital health is, but COVID-19 has shone a light on the application and scalability of it."<sup>16</sup> Although most investment in private health has targeted Gauteng, KwaZulu-Natal, and the Western Cape, digital health technologies and more mobile solutions are increasing access to services and skills across the country.<sup>5</sup> Ultimately, collaborative efforts from public and private players will be essential to build cost-effective solutions.<sup>16</sup>

In the next two years, the majority of the population will have access to a smartphone, which will open up further opportunities in eHealth solutions. Universal healthcare can thus be driven through digital health solutions that target low-margin, high-volume strategies or a freemium model.<sup>10</sup>

Private sector investors are becoming increasingly interested in healthcare as the funding environment has developed in sophistication. As Debbie Rogers from Praekelt indicated, “There used to be a feeling that funding had to occur through grants but recently, there is a lot more interest in investment. Increasingly, innovative business models are emerging that are able to reach lower income groups – these are attracting private sector investments.”<sup>9</sup>

**Key legislation, policy and regulation** that investors need to be aware of include the National Health Act, 2003 (Act 61 of 2003), the Bill on National Health Insurance, the National Strategic Plan for HIV, TB, and STIs (NSP), as well as the National Adolescent and Youth Health Policy.

A few of the **cross cutting themes** pertinent to health care include:

- **Access to affordable basic services:** The large majority of South Africans face major barriers when accessing healthcare. Although healthcare is free in the public sector, the opportunity costs – in terms of time and money while waiting to receive a consultation and obtain prescribed medicine – are extremely high. The public healthcare system is overburdened in its effort to serve 84% of the population. Interventions that relieve these burdens in a cost effective way were highlighted throughout the interviews.
- **Social innovation:** Many of the interviewees highlighted innovative business models that have been delivering healthcare services across the country, especially during COVID-19, such as mobile health clinics, Uber delivery of medicine, using robots and video links to provide services to highly contagious patients, and a range of digital solutions.
- **Digital transformation:** Telemedicine and virtual diagnosis is becoming increasingly popular. Interviewees also highlighted the changing regulatory environment that could help facilitate digitalisation of the healthcare sector. Furthermore, there seems to be appetite for this among frontline staff and specialists working in the sector.

- **SME development:** The cross cutting themes discussed above provide major opportunities for SMEs to help develop and drive the transformation of innovation, digitalisation, and access to affordable basic care.



**TRAILBLAZER**

#### EXAMPLES OF TRAILBLAZERS IN HEALTH PROVISION IN SOUTH AFRICA

Organisation	Summary
<b>Vula Mobile</b>	An app that makes it easy to refer patients to specialists. Putting primary health care workers directly in touch with on-call specialists, making the referral process much quicker than by fax or phone <sup>17</sup> .
<b>PeleBox</b>	In South Africa, a patient's experience tends to be one of long waiting times, typically above 3 hours on average. This poses potential adherence barriers, which may lead to poor health outcomes and places a strain on the patients in terms of transport costs and loss of income. Having to take time off work to travel to the clinic is already an inconvenience but, coupled with long queues, this becomes unbearable. This is the core issue that Pelebox is positioned to address. Pelebox Smart Locker reduces the average waiting time from 3 hours to less than 2 minutes. <sup>18</sup>





# HEALTH CARE

## IOA: Mid-fee health care facilities

### BUSINESS MODEL

Invest in the development of mid-fee healthcare clinics that serve middle and low income South African citizens who cannot afford private health insurance and/or finance CAPEX for the development of infrastructure for mid-fee health care facilities.

### DEVELOPMENT NEED

- ▶ Prohibitive costs have made private healthcare too expensive for most South Africans. Consequently, 16% of the population have access to private healthcare, while 84% rely on the public healthcare system. By 2030, the health system should provide quality care to all. However, currently, the public health system cannot meet the demand.
- ▶ One of the significant challenges facing the delivery of healthcare in South Africa is the limited availability and affordability of quality healthcare facilities for vulnerable subgroups such as poor, rural, and black South Africans.
- ▶ There is a large market for mid-fee healthcare facilities in other countries and the opportunity in South Africa is evident. The implementation of National Health Insurance in the coming years should ensure rapid growth in this space.

### POTENTIAL OUTCOMES

Investing in mid-fee healthcare in South Africa has the potential to improve access to primary healthcare in underserved communities, create employment opportunities, increase access to affordable private healthcare, decrease inequality by addressing the challenges of health disparities in South Africa, and reduce the burden on the public healthcare sector.

### SDG ALIGNMENT

**Direct:** 3  
**Indirect:** 5, 8, 10

### SDG INDICATOR

3.8.1

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Social innovation
- ▶ Job creation

### PRIORITY SUBREGIONS

Opportunities exist to provide mid-fee healthcare to South African citizens across the country, especially in areas such as Alexandra, Tembisa, and Soweto.

### USERS OR BENEFICIARIES

**Direct:** South African citizens who cannot afford private healthcare  
**Indirect:** Healthcare providers and the healthcare system

### MARKET SIZING

- ▶ According to a 2013 report by consulting firm Econex, as much as 38% of South Africans turn to private healthcare at some point due to the issues with the public healthcare system, spending more than R140 billion a year.
- ▶ There is an opportunity to provide services to many of the 84% of the population that currently are only able to afford public healthcare.
- ▶ The South African healthcare market is expected to increase at a CAGR of 4.7% to reach a value of US\$37 billion by 2022 and US\$47.1 billion by 2027.

### RETURN PROFILE

Medium to high returns.

### INVESTMENT TIME FRAME

Medium term.

### POLICY ENVIRONMENT

- ▶ The South African government has a constitutional mandate to provide quality healthcare services to all South African citizens.
- ▶ As a response to the poor performance of South Africa's healthcare system and the persistent inequities between subgroups, the government recently released the White Paper on National Health Insurance (NHI), which aims to introduce reforms to improve quality, coverage, and equity. This paper documents the strategy for achieving universal health coverage over the next 14 years.

### REGULATORY ENVIRONMENT

- ▶ South Africa has been implementing major health reforms under the umbrella of the NHI.
- ▶ The Health Act of 1977 has been replaced by the National Health Act, Act 61 of 2003. The Council for Medical Schemes is a statutory body established by the Medical Schemes Act (131 of 1998) to provide regulatory supervision of private health financing through medical schemes.

### PARTNER ENVIRONMENT

**Government:** National Department of Health, Western Cape Department of Health  
**Funders/Investors:** Small Enterprise Finance Agency (SEFA), Development finance institutions, Development Bank of Southern Africa.  
**Corporates/Business:** Qualihealth, UnityHealth, Ambledown Financial Services (Pty) Ltd

### FINANCIAL ENVIRONMENT

- ▶ Common financing mechanisms for healthcare include social insurance, private insurance, medical schemes, user fees (out of pocket), community financing, donations/grants, and venture capital.
- ▶ Fiscal/commercial incentives exist: the African Development Bank Group recently approved US\$10 million equity in Razorite Healthcare Fund for Africa; the Discovery Foundation has invested over R189 million in grants with the aim of investing R300 million toward specialised healthcare services over 20 years.
- ▶ A range of general and sector funding solutions and incentives are available to investors and service companies.
- ▶ Several available databases are: GreenCape Finance Desk database, Green Finance Database, Government funding and incentives database, Finfind database, and AlliedCrowds database.

### OBSTACLES TO SCALE

**Finance:** Access to finance  
**Policy and regulation:** Restrictive legislation in the healthcare sector  
**Industry:** The restrictive nature of the private healthcare sector in South Africa.

### IMP CLASSIFICATION

**B:** Benefit Stakeholders  
**What:** Affordable private healthcare to improve access to primary healthcare  
**Who:** South Africans who cannot afford traditional private healthcare options  
**Risk:** Medium risk

### NEGATIVE EXTERNALITIES

N/A





# HEALTH CARE

## IOA: Modular medical facilities

### BUSINESS MODEL

Establish modular healthcare infrastructure solutions that can be deployed in remote and underserved regions.

#### DEVELOPMENT NEED

- Disparity in healthcare quality across geography and socio-economic groups is a major challenge in South Africa. For the majority of South Africans, quality and affordable healthcare is out of reach. Across the country, people living in peri-urban, rural, and informal settlements have limited access to healthcare services.
- Currently, existing healthcare resources are not located where they are most needed. A National Income Dynamics Survey found that 20% of the lowest income residents lived more than 5 km from the nearest clinic. Even if they are able to access a facility, the opportunity costs of travel, income loss due to time off work, and time taken while visiting the facility are prohibitive.
- Solutions are needed to bridge this gap and bring healthcare facilities to even the most remote communities. Modular infrastructure solutions can promptly address challenges and alleviate the pressure on existing and inefficient supply chains. Warehouse units, clinics, laboratories, and surgical units can be rapidly deployed to remote rural regions to assist health organisations, providers, and NGOs.
- Modular prefabricated solutions are less expensive to build than traditional infrastructure and can also be added to existing structures where needed (e.g. to extend limited storage space or add previously non-existent facilities such as surgical units).

#### POTENTIAL OUTCOMES

The benefits of modular healthcare solutions include increasing the deployment of cost-effective healthcare services in both urban and rural settings, reducing costs, improving access to primary healthcare in rural areas, and increasing job creation.

#### SDG ALIGNMENT

**Direct:** 3  
**Indirect:** 5, 8, 10

#### SDG INDICATOR

3.8.1

#### CROSS CUTTING THEMES

- Addressing inequality through access to affordable basic services
- Social innovation
- Job creation
- SME development

#### USERS OR BENEFICIARIES

**Direct:** South African citizens who are situated far from clinics or hospitals  
**Indirect:** Healthcare providers and the healthcare system

#### MARKET SIZING

- The target market is citizens in the bottom 20% income level.
- In 2016, Unjani clinics had 20 locations with 60 full time staff servicing
- 7 000 patients per month. The organisation aims to open 50 clinics across the country.

#### PRIORITY SUBREGIONS

There are opportunities to serve rural communities across South Africa and a major need for clinics to help fill unmet needs for a range of health services in remote areas within the Eastern Cape, KwaZulu Natal, Limpopo, and Mpumalanga regions.

#### RETURN PROFILE

Grant to low returns.

#### INVESTMENT TIME FRAME

Medium to long term.

### POLICY ENVIRONMENT

- The South African government has a constitutional mandate to provide quality healthcare services to all South African citizens.
- There are either few or no specific programmes in place to cater for the needs of the rural populations where 75% of the people are poor and access to clinics and hospitals is made difficult by distance and lack of transport and money.
- The National Department of Health published a green paper on the implementation of the National Health Insurance Scheme and subsequently pilot sites were established throughout the country to test different methods of delivering healthcare services to communities.
- Other relevant policy documents include the White Paper on National Health Insurance, the National Health Insurance policy document, and the Department of Health strategic plan.

#### FINANCIAL ENVIRONMENT

- Donors are the primary source of funding for modular medical clinics in South Africa (e.g. Unjani and Owethu clinics).
- Both Corporates and NGOs provide financial support for mobile health clinics.
- Funding is also available from the National Department of Health and provincial health departments.
- Fiscal/commercial incentives exist: the Jobs Fund Social Impact Award; the M&G Investing in the Future Health Award; and the M&G Drivers of Change Business Award.

#### PARTNER ENVIRONMENT

**Government:** Department of Health  
**Funders/Investors:** The CIPLA foundation, The Johnson&Johnson Global Citizen Trust, the Johnson&Johnson Family of Businesses, the South African Trust  
**Corporates/Business:** Guardian Newspaper  
**Other key role players:** Centre for Health Market Innovations, Owethu clinics, Unjani clinics, Witkoppen Health and Welfare Centre

#### REGULATORY ENVIRONMENT

- The legislative mandate of the Department of Health is derived from the Constitution and the National Health Act, 61 of 2003
- The Health Act of 1977 has been replaced by the National Health Act, Act 61 of 2003.

#### OBSTACLES TO SCALE

**Finance:** Access to finance  
**Model:** Sustainable transfer to public sector  
**Policy and regulation:** Restrictive legislation in the healthcare sector

#### NEGATIVE EXTERNALITIES

N/A

### IMP CLASSIFICATION

C: Contribute to Solutions

The enterprise not only acts to avoid harm, but also generates one or more significant effect(s) on positive outcomes for otherwise underserved people.

**What:** Modular prefabricated healthcare solutions that improve access to primary healthcare in rural areas

**Who:** South Africans who are situated far from clinics or hospitals

**Risk:** Low risk



# HEALTH CARE

## IOA: Digital healthcare platform

### BUSINESS MODEL

Invest in platforms that provide access to digital healthcare services for South Africans who are situated far from clinics or hospitals

#### DEVELOPMENT NEED

- ▶ Like many developing countries, South Africa faces challenges with providing equitable primary healthcare. There is a very high degree of inequality in the healthcare sector as only 16% of the population have access to private healthcare, while the remaining 84% rely on the public healthcare system to meet their needs. There are many resources available for the private healthcare sector. However, it is important to find solutions for the 84% who rely on the public health system. By 2030, the healthcare system should provide quality care to all. However, the current public healthcare system cannot meet demand.
- ▶ Approximately 43.6% of South Africans live in rural areas, but only 12% of doctors and 19% of nurses work there. Delivering healthcare can be extremely difficult in South Africa due to shortages in resources, poor management, and failures of the system.
- ▶ There are opportunities for addressing these inequalities through technological innovation. Access to healthcare can be unlocked by digital solutions delivered through accessible tools. Within the next two years, the majority of the population will have access to smartphones. Mobile health (mHealth) platforms make it possible to extend the reach of healthcare services to anyone with a smartphone, connecting more people to the health services, information, and care they need.

#### POTENTIAL OUTCOMES

- ▶ Mobile health platforms can be used to support care delivery to low-income communities, making healthcare inclusive, easy to use, and affordable.
- ▶ Digital healthcare platforms have the potential to increase the accessibility and affordability of healthcare, reduce child mortality, improve health records, and increase women empowerment opportunities.

#### SDG ALIGNMENT

**Direct:** 3  
**Indirect:** 5, 10, 12, 13

#### SDG INDICATOR

3.8.1

#### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Digital transformation
- ▶ Social Innovation
- ▶ SME development
- ▶ Gender equality

#### PRIORITY SUBREGIONS

The infrastructure for operating mHealth platforms can be centralised to serve consumers across the country.

#### USERS OR BENEFICIARIES

**Direct:** South African citizens who are situated far from clinics or hospitals  
**Indirect:** Healthcare providers and the healthcare system

#### RETURN PROFILE

Low return.

#### INVESTMENT TIME FRAME

Medium to long term

#### MARKET SIZING

81.7% of the South African population had access to smartphones in 2019 and thus should be able to access a digital health solution if needed. These solutions often have low data usage or use technology that enables data saving processes.

#### REGULATORY ENVIRONMENT

- ▶ The Health Professions Council of South Africa (HPCSA) released the "General Ethical Guidelines for Good Practice in Telemedicine" aimed at governing a number of ethical concerns around the practice of Telemedicine/eHealth/mHealth.
- ▶ A draft of the eHealth National Strategic Objectives is being circulated for comments before release
- ▶ Other guiding legislation includes: National Health Act, Act 61 of 2003, the Electronic Communications Act of 2002, Independent Communications Authority of South Africa Act of 2006, Electronic Communications Act of 2006, the Protection of Personal Information Act of 2013

#### POLICY ENVIRONMENT

South Africa is preparing to launch a national mHealth-enabled programme to increase HIV/AIDS screening. Such projects suggest that mHealth is maturing beyond basic experimentation.

#### FINANCIAL ENVIRONMENT

Some common financing mechanisms for healthcare include social insurance, private insurance, medical schemes, user fees (out of pocket), community financing, donations/grants, and venture capital.

#### PARTNER ENVIRONMENT

**Government:** Western Cape Department of Health, Department of Communications  
**Funders/Investors:** Development funding institutions - Industrial Development Corporation (IDC), Development Bank of Southern Africa (DBSA), National Empowerment Fund (NEF), Public Investment Corporation (PIC)  
**Corporates/Business:** Mobenzi, Cell-Life, Idart, Hello Doctor, Vodacom South Africa, MTN, Zidi™, Just-Tested  
**Other key role players:** AfriTox, GlobalHealth Lab, Umthombo Youth Development Foundation, UCT Centre in ICT for Development, Southern African Regional Programme on Access to Medicines, The MXIT Reach Trust, Praekelt Foundation, Strategic Health Innovation Partnership, World Health Organisation, CellLife, B-Wise, South African Telemedicine Association, MomConnect.

#### OBSTACLES TO SCALE

**Technology access:** There is still a relatively large portion of the population that lacks access to ICT and will therefore struggle to use mobile health solutions.

**Policy and regulation:** Dial-a-doctor services are available globally, but few exist in South Africa due to legal reasons. The political buy-in for mHealth has been relatively low to-date. However, following the COVID pandemic, the government is more willing to help implement new health solutions.

#### IMP CLASSIFICATION

**B:** Benefit Stakeholders  
**What:** digital healthcare platforms that provide access to healthcare services  
**Who:** South Africans who are situated far from clinics or hospitals, healthcare providers  
**Risk:** Medium risk due to strict regulation within the healthcare sector

#### NEGATIVE EXTERNALITIES

N/A



# HEALTH CARE

## IOA: Healthcare professional training centres

### BUSINESS MODEL

Finance private healthcare training centres for mid-level health workers such as radiographers, social workers, emergency service workers, community health workers, and nurses

### DEVELOPMENT NEED

- ▶ A well-trained workforce in the healthcare sector is critical to achieving universal healthcare coverage. South Africa faces challenges in providing equitable primary healthcare as approximately 43.6% of South Africans live in rural areas, but only 12% of doctors and 19% of nurses work there. Overall, South Africa has a critical shortage of healthcare professionals.
- ▶ Increasing the contributions of mid-level healthcare workers (e.g. radiographers, social workers, emergency service workers, community health workers, and nurses) is one way to alleviate the shortage of doctors and nurses. Achieving this objective will require significant new investment in their training.
- ▶ Private hospitals have appealed to the South African Nursing Council (SANC) to allow them to train more nurses, suggesting there is a gap for private healthcare colleges that train mid-level healthcare workers. Investing in healthcare training initiatives (private healthcare colleges) can directly help address the need for healthcare practitioners in the country.

### POTENTIAL OUTCOMES

Increasing training opportunities for mid-level healthcare workers has the potential to decrease human resource shortages, improve healthcare access and equity, reduce healthcare disparities between rural and urban regions, improve the quality of care, increase job creation, and improve skills development.

### SDG ALIGNMENT

**Direct: 3**  
**Indirect: 5, 8**

### SDG INDICATOR

3.c.1

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Job creation

### PRIORITY SUBREGIONS

Investment opportunities exist to develop healthcare training centres across the country, especially in the urban centres of Pretoria, Johannesburg, Cape Town, and Durban.

### USERS OR BENEFICIARIES

**Direct:** Aspiring health care workers  
**Indirect:** Healthcare providers, the healthcare system, and patients

### RETURN PROFILE

Estimated medium to high returns

### INVESTMENT TIME FRAME

Medium term.

### MARKET SIZING

- ▶ South Africa will have a shortage of more than 2 000 doctors and 11 000 nurses by 2020.
- ▶ An additional 12 000 healthcare workers are needed to fight coronavirus.

### POLICY ENVIRONMENT

- ▶ The Health Professions Council of South Africa guides and regulates the health professions in the country in aspects pertaining to registration, education and training, professional conduct and ethical behaviour, ensuring continuous professional development, and fostering compliance with healthcare standards.
- ▶ Human Resource Strategy for the Health Sector (2012/13 – 2016/17)

### REGULATORY ENVIRONMENT

- ▶ The Department of Health derives its mandate from the National Health Act of 2003, which requires that the department provide a framework for a structured and uniform national healthcare system.
- ▶ The SANC sets and maintains standards of nursing education and practice in South Africa.
- ▶ Health Professions Act: Registration and training of interns in medicine
- ▶ Health Professions Act, 1974 (Act No.56 of 1974)

### FINANCIAL ENVIRONMENT

Existing funding mechanisms can be leveraged as follows:

- ▶ The Infrastructure and Efficiency Grant could address infrastructural needs.
- ▶ The Clinical Training Grant should continue to advance quality clinical training, specifically human resources and operational aspects.
- ▶ The imminent allocation of the Health Professional Training and Development Grant to universities provides an opportunity to renegotiate joint health education and services agreements with their teaching platforms and staff establishments.

### PARTNER ENVIRONMENT

**Funders/Investors:** RH Bophelo  
**Corporates/Business:** Netcare, Life Healthcare, Netcare Education  
**NGO/Public:** Youth Employment Service (YES) initiative

### OBSTACLES TO SCALE

**Policy:** Prohibitive policies and systems

### NEGATIVE EXTERNALITIES

N/A

### IMP CLASSIFICATION

B: Benefit Stakeholders

The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people.

**What:** Training and skills development for healthcare practitioners

**Who:** Prospective healthcare practitioners

**Risk:** Low risk



# 6. SECTOR 3: AGRICULTURE (FOOD & BEVERAGE)

## 6.1 WHY AGRICULTURE?



South Africa has made progress in addressing SDG 2, which aims to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture by 2030.<sup>1</sup> In order to fully achieve SDG 2, sustainable and resilient food production, as well as equal access to land, technology, and markets across the agricultural value chain will be required.<sup>2</sup> A 2017 study conducted by StatsSA indicates that there was a decline in the number of households that were vulnerable to hunger from 24.2% in 2002 to 10.4% in 2017.<sup>1</sup> Similarly, the number of individuals who were vulnerable to hunger decreased from 29.3% to 12.1% between 2002 and 2017. However, there were still 3 million households who indicated that they ran out of money to buy food by the end of 2016, of which the large majority (90.8%) were black South Africans. Furthermore, there is a lack of nutritious food, evidenced by the prevalence of underweight children under 5 years-old in South Africa (16% in 2017).<sup>1,2</sup>

Agriculture was highlighted in President Ramaphosa's State of the Nation Address in 2020 as one of the areas with the highest growth potential. The president highlighted his cabinet's aim to prioritise youth, women, people with disabilities, and those who have been farming on communal land and are ready to expand their operations with training and allocation of land.

Similarly, the 2019 South African SDG Country Report identified targets addressing SDG objectives in the food and beverage sector as having the most enabling conditions. Investments in this sector – particularly agriculture – are strongly linked with ending poverty, living dignified lives, and the ability to make the most of educational and economic opportunities.

The sector is also fairly resilient to economic shocks, has high potential for job creation (particularly in emerging and rural farming), has large multipliers due to its extensive links to the rest of the economy, and is important for export-led growth.<sup>4</sup>

The sector has remained relatively protected during COVID-19, with limited job losses and the fast-tracked digital transformation of retail as supply chains have been forced to adopt more agile approaches.<sup>5</sup> Multiple food initiatives have also arisen in response to the pandemic and its negative impact on the poor and needy. Although these initiatives have addressed the short-term impacts of food insecurity with relative success, they highlighted the need for investment in more sustainable projects that support SDG 3. This was stressed by a PSC member when the need to focus on supply chain management in the local economy – particularly in the food sector and other essential services – was highlighted.<sup>6</sup> Furthermore, investment in sustainable agriculture will increasingly play a significant role in securing food sources in responsible ways, adapting to climate change, as well as protecting scarce natural resources for generations to come.<sup>7</sup>

Subsector experts also highlighted the sector as “critical” to the South African economy.<sup>8,9</sup> Others emphasised the sector's ability to “promote inclusivity and food security”.<sup>10,11</sup> However, the need to provide access to markets for the smaller players was highlighted as a significant barrier, which in turn might require South Africans to “rethink and reimagine the current architecture” of the sector and value chain.<sup>12</sup>





## 6.2 BOTTLENECKS TO INVESTING IN AGRICULTURE

Tensions around land reform to address tenure security for black farmers poses a major risk to the growth of the sector.<sup>13</sup> Despite progress since 1994, the land reform project still lags on its target of transferring 30% of commercial farmland.<sup>14</sup> This has resulted in challenges around land redistribution, land restitution, and land tenure rights.<sup>4</sup>

The agriculture sector uses approximately 80% of the country's water supply<sup>1</sup> and the recent droughts had major impacts on the sector. Water availability and inefficient use of some of the existing irrigation systems are two of the largest limiting factors to production.<sup>7</sup> Furthermore, water licencing in South Africa is often complex and lengthy.<sup>25</sup> South Africa's semi-arid conditions, increasing pressures from population growth and climate effects, rising input costs for energy, fertilisers and pesticides all pose risks to investment.<sup>7</sup> Similarly, outbreaks of diseases like listeriosis and foot-and-mouth disease, constrained consumer spending, and the need for reinvestment in logistic infrastructure all pose challenges to the sector.<sup>14</sup>

Although the agriculture sector has been relatively protected from the impacts of COVID-19, it is crucial to be aware of decreasing commodity prices, restrictions on trade ports, halted operations, and liquidity concerns as farmers (especially small-scale farmers) face cash flow constraints.<sup>14</sup>

Additional bottlenecks include:

**Limited access to market:** Small holders and emerging farmers have difficulty to connect to local and global value chains to sell their products. The big commercial farms have longstanding offtake agreements and risk sharing agreements with the retailers, but the smaller player do not<sup>15,8</sup>.

**Lack of collateral:** Small holders and emerging farmers have difficulty connecting to local and global value chains to sell their products. While the big commercial farms have longstanding offtake agreements and risk sharing agreements with the retailers, the smaller players do not.<sup>8, 15</sup>

**Lack of available records:** Small holders and emerging farmers, even those with access through land redistribution, lack land rights and assets to use for security.<sup>15,16</sup>

**Insufficient technical support:** Small holders and emerging farmers need knowledge of why certain processes are undertaken and not just how to follow them. When the skills are in place, it becomes easier to access markets and access to credit often follows<sup>17</sup>.

**Delays in supporting infrastructure:** Investment for upgrades and new water infrastructure projects, as well as in transport infrastructure and logistics networks (including ports and rail), have been delayed.<sup>4</sup>

**Uncertainty around land reform:** Ambiguity around land expropriation without compensation creates uncertainties and risks that are difficult to quantify.<sup>4</sup>





## 6.3 INVESTMENT OPPORTUNITIES IN AGRICULTURE

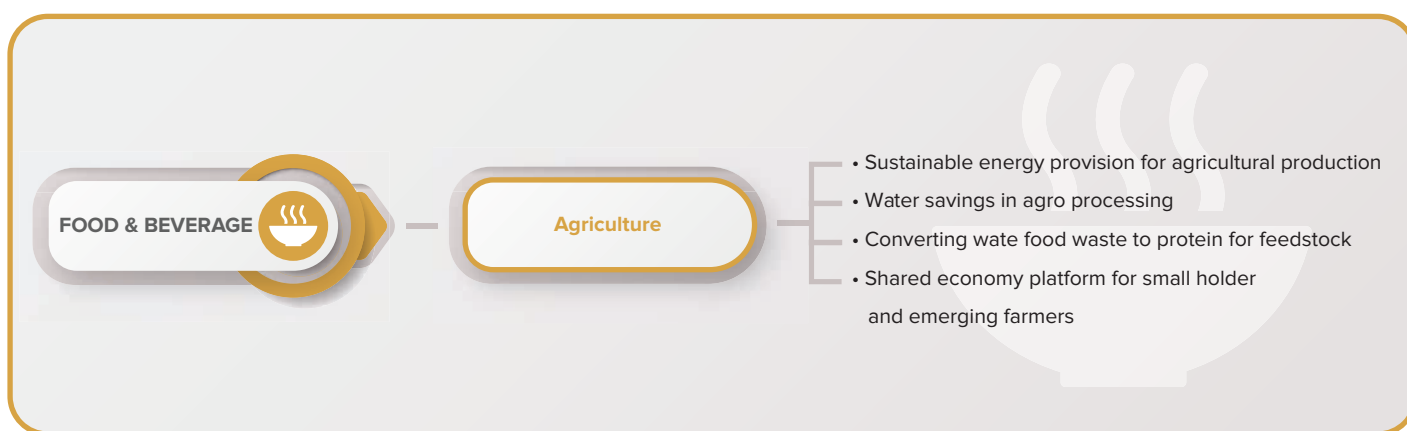


Figure 18: Investment opportunities in the agriculture subsector

The National Development Plan highlights that by 2030, “South Africa’s rural communities must have better opportunities to participate fully in the economic, social, and political life of the country. People should be able to access high-quality basic services that enable them to be well nourished, healthy, and increasingly skilled. Rural economies will be supported by agriculture and, where possible, by mining, tourism, agro processing and fisheries.” This emphasises the ability to access food, rather than its availability as crucial food security at a household and individual level.<sup>7</sup> The National Development Plan also stresses agricultural development through land reform, job creation, and sustainable practices. It calls for investments across the value chain and places emphasis on the importance of small holder farmers. It is key to note that the National Development Plan also stresses the relationships between food security, unemployment, poverty, and inequality.<sup>3</sup>

Food insecurity is highlighted as a cause and a consequence of poverty which often results in malnutrition and stunted growth in children under five years-old.<sup>3</sup> Food security exists when “all people, at all times, have physical and economic access to sufficient, safe, nutritious food to meet their dietary needs and food preferences for an active life”.<sup>19</sup> Food security is made up of three components: affordability, availability, and quality and safety.<sup>4</sup>

It is also important to distinguish between national, community, and household food security as these can vary in different contexts within the same country. Food security exists at the national level when the

country’s production can support its population with the minimum per capita nutritional requirements; at the community level when residents have access to safe, culturally accepted, and adequate nutritional diets that maximise sustainable community self-reliance; and at the household level when families have access to food through production or purchase.<sup>19</sup> South Africa has been food secure at a national level for decades, but at the household level, access to food remains a challenge for many citizens.<sup>18</sup> Government’s strategy to overcome community and household food insecurity in rural areas is to address job creation and promote agricultural activity.<sup>18</sup>

As a key link between people and planet, investments in agriculture can help achieve multiple SDGs.<sup>20</sup> Although primary agriculture only constitutes 2.9% of GDP (2018), the broader value chain is estimated to contribute 12% to GDP.<sup>7</sup> Furthermore, it is significant to the broader development agenda as a driver of employment (9% of the total workforce works in this sector) and future job creation.<sup>4</sup>

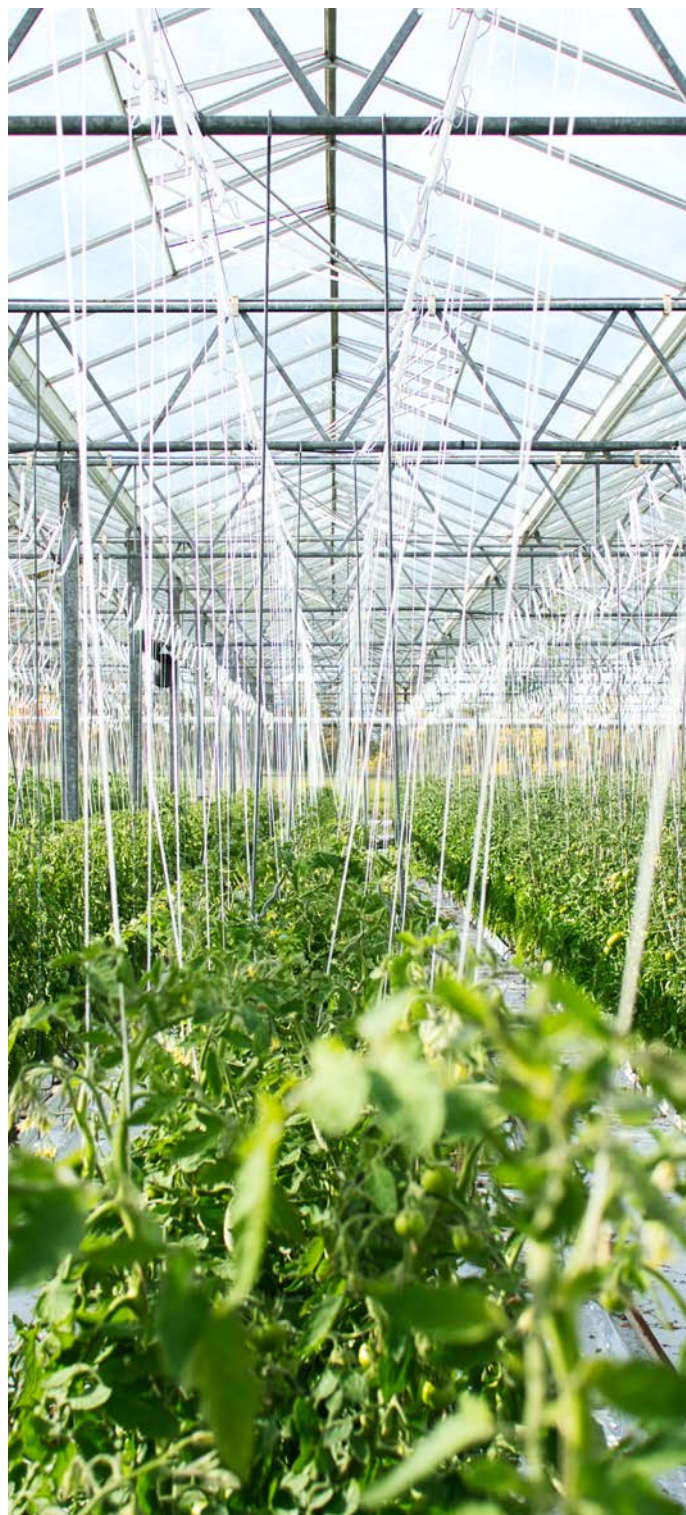
Investment in the agriculture sector is also a catalyst of inclusive socio-economic and infrastructure development, especially in poorer rural areas.<sup>21</sup> Historically, agriculture has supported South Africa through economic shocks as a weaker rand drives exports providing resilience in uncertain times.<sup>4</sup>

**Key drivers:** Agriculture has been one of the fastest growing sectors in South Africa with a 10-year average growth of 3.7% between 2008 and 2017.<sup>22</sup> Its wide range of climatic regions (Mediterranean, subtropical and semi-desert) provide a variety of opportunities in every province.<sup>22</sup> The international movement toward low-carbon and environmentally-friendly practices is driving investment towards sustainable and climate-smart agriculture.<sup>7</sup> Decreasing costs of green technology and other technologies, as well as increasing scarcity of natural resources, have also amplified the move towards sustainable agriculture.<sup>7</sup> Agriculture is at the nexus of multiple systems and the development of this sector is key for poverty eradication, food security, and resilience to natural and human-induced disasters. It is also crucial to climate change adaptation and mitigation efforts.<sup>20</sup>

**South Africa has extensive policies and regulations** that govern the agriculture sector. This includes the National Policy on Food and Nutrition Security, the Integrated Food Security Strategy, the Agricultural Policy Action Plan (2015–2019), the Integrated Growth and Development Plan (2012), and the Strategic Plan for the Department of Agriculture, Forestry and Fisheries (2015–2020).<sup>2</sup> Furthermore, the Conservation of Agricultural Resources Act and the National Environmental Management Act 107 of 1998 (NEMA 1998) are key legislative documents. It is also important to be aware of the Draft Conservation Agriculture Policy (2017) and the Draft Climate Smart Agriculture Framework Policy (2018).<sup>7</sup> Similarly, 2019 updates to the White Paper on South African Land Policy in 1997 and the South African Carbon Tax Act No.15 of 2019 should be noted.

Some of the key cross cutting themes that emerged in agriculture include:

- **Job creation:** The agricultural value chain provides multiple job creation opportunities, especially for low-skilled workers. Access to affordable food: : Food insecurity was prevalent before, and highlighted during, COVID-19. For the sector to be transformed, specific attention needs to be given to providing emerging farmers access to finance and markets.
- **Skills training:** For the emerging farmer market to grow, there is a need for leadership development and skills training in order to ensure high quality and competitive production.
- **Climate change:** There are multiple opportunities within the agricultural value chain to facilitate a just transition to a low-carbon economy.



## TRAILBLAZER

### EXAMPLES OF TRAILBLAZERS IN AGRICULTURE IN SOUTH AFRICA

Organisation	Summary
<b>Inspirafarms</b>	Inspirafarms manufactures solar-powered modular food processing and cold storage technologies. It offers off-grid cold storage units, food processing plants, and off-grid dairy chilling machines <sup>23</sup> .
<b>Aerobotics</b>	Aerobotics use drone imagery and artificial intelligence to assist farmers with early pest and disease detection, orchard management, and problem tree identification. They provided an end-to-end solution that helps famers manage their crops throughout season <sup>24</sup> .







# FOOD & BEVERAGE

## IOA: Sustainable energy provision for agricultural production

### BUSINESS MODEL

Finance renewable energy systems that replace expensive grid electricity in the South African agricultural sector.

#### DEVELOPMENT NEED

- ▶ The agricultural sector in South Africa plays a significant role in food security, job creation, and international investment and exports.
- ▶ In recent years, there has been a significant rise in the cost of energy (electricity and diesel/petrol) and insecurity of supply as state provider Eskom struggles to keep up with the rising demand. At the same time, farmers and agri-businesses are being increasingly pressured by export markets and consumers to reduce carbon emissions and to offer low-carbon agricultural products. The detrimental environmental effects associated with conventional practices are forcing the sector to adopt more sustainable practices to increase its resilience.
- ▶ Several factors driving the movement towards the use of renewable energy in the agriculture sector are rising electricity tariffs, security of energy supply, increasing ability to feed back into the grid, decreasing cost of technology, and the increasing role of corporate social responsibility in sustainable investments in the sector.

#### POTENTIAL OUTCOMES

- ▶ The use of renewable energy in the agricultural sector has the potential to increase access to a reliable and cost-effective source of energy, increase climate smart agriculture, and improve food security.
- ▶ The uptake of renewable energy in agriculture is driven by the opportunity to replace expensive grid electricity (from Eskom) with relatively 'cheap' alternative energy, as well as by the growing ability to connect and feed into the grid. These opportunities are specifically tied to solar photovoltaic (PV) solutions as the decreasing costs of solar panel technology is coinciding with rising input costs for traditional energy sources (particularly electricity and diesel), fertiliser, and pesticides.

#### CROSS CUTTING THEMES

- ▶ Address inequality through access to affordable basic services
- ▶ Climate change
- ▶ Job creation

#### SDG ALIGNMENT

**Direct:** 2, 12  
**Indirect:** 8

#### SDG INDICATORS

- ▶ 2.4.1
- ▶ 12.2.1

#### PRIORITY SUBREGIONS

Farmers in the Western Cape, KwaZulu-Natal, Mpumalanga, Limpopo, and Eastern Cape provinces.

#### USERS OR BENEFICIARIES

**Direct:** the environment  
**Indirect:** farmers, the national power grid, and South African consumers

#### RETURN PROFILE

Estimated medium return.

#### INVESTMENT TIME FRAME

Short to medium term.

#### MARKET SIZING

- ▶ The market for renewable energy in agriculture is estimated to be 90 MW in terms of installed capacity, a market of between R945 million and R1.5 billion in 2019.
- ▶ South Africa was the fastest global grower of solar PV installations in 2017. An estimated 10% of all solar PV installations are in the agricultural sector and the business case is well known to the industry.
- ▶ The total installed small-scale embedded generation (SSEG11) capacity for solar PV in South Africa in 2019 was 900 MWp.

#### POLICY ENVIRONMENT

The Department of Agriculture, Land Reform and Rural Development (DALRRD) and the Department of Environmental, Forestry and Fisheries (DEFF) are national entities responsible for overseeing and supporting the development of the agricultural sector in South Africa. Support by the DALRRD and DEFF is guided by the vision of a sustainable agricultural sector that addresses agricultural policy distortions of the past, with reformative policies that create an enabling agricultural sector for the future.

#### REGULATORY ENVIRONMENT

- ▶ Agriculture in South Africa is regulated at the national level by national legislation and the Department of Agriculture, Forestry and Fisheries. Provincial departments like the Western Cape Department of Agriculture have been established to provide services such as research, development, and support for their agricultural communities.
- ▶ Relevant acts and legislation include: The National Environmental Management Act 107 of 1998 (NEMA 1998), The South African Carbon Tax Act No.15 of 2019, and the Draft Climate Smart Agriculture Framework Policy (2018)

#### FINANCIAL ENVIRONMENT

- ▶ Sustainability initiatives and investments by value chain players: Woolworth's Farming for the Future initiative, Nedbank innovative funding plans, and SSEG tariffs when feeding into the grid (22 of 25 municipalities in the Western Cape province)
- ▶ Relevant tax incentives: 12L Tax Incentive under the Income Tax Act No. 58 of 1962 (Income Tax Act)
- ▶ Several available databases are: GreenCape Finance Desk database, Green Finance Database, Government funding and incentives database, Finfind database, AlliedCrowds database.

#### PARTNER ENVIRONMENT

**Financiers/Investors:** Development Finance Institutions (DFI), InvestSA One Stop Shop, Wesgro  
**Corporates/Business:** All Power, All Solar Renewable Energy Solutions, Fountain Green Energy, Genesis Eco-energy, JLinx, Power Africa and SBS Solar  
**NGO/Public:** Wide Fund for Nature (WWF), Blue North's Confronting Climate Change (CCC), Western Cape Department of Agriculture's, South African National Energy Development Institute (SANEDI), GreenCape, South African Renewable Energy Business Incubator, South African Renewable Energy Technology Centre, Department of Trade and Industry, Technology Innovation Agency

#### OBSTACLES TO SCALE

**Costs:** The high capital cost of transitioning to renewable energy has restricted growth in the past. However, the decreasing costs of solar panels are enabling it to scale.  
**Consumer education:** Scepticism and lack of understanding about what energy services companies can offer through their funding models.

#### NEGATIVE EXTERNALITIES

N/A

#### IMP CLASSIFICATION

**B:** Benefit Stakeholders  
The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet.  
**What:** Sustainable energy technologies in the agrifood sector  
**Who:** South African farmers in the agrifood sector  
**Risk:** Low risk



# FOOD & BEVERAGE

## IOA: Water savings in agroprocessing

### BUSINESS MODEL

- Ensure water security in agro-processing by:
- ▶ Retrofitting water supply and distribution infrastructure at end-user facilities
  - ▶ Reducing water usage through process improvements and equipment upgrades
  - ▶ Introducing wastewater effluent reuse systems (which treatment of the final effluent for on-site reuse, typically for non-product contact purposes) with or without energy recovery (biogas) for water savings

### SDG ALIGNMENT

**Direct:** 2, 6  
**Indirect:** 7, 12

### SDG INDICATORS

- ▶ 2.4.1
- ▶ 6.3.1
- ▶ 6.4.1
- ▶ 6.4.2

### CROSS CUTTING THEMES

- ▶ Climate change
- ▶ Job creation

### POTENTIAL OUTCOMES

- ▶ New water processing methods create cost savings for the agro-processing industry through increased water savings and increased energy recovery through the treatment processes that capture and use biogases.
- ▶ These processes lead to increased environmental benefits through sustainable water management practices in the agro-processing industry and improved climate smart agriculture.
- ▶ Increased sustainability of the sector and environment also result in increased job creation and security potential.

### DEVELOPMENT NEED

- ▶ South Africa's water sector is and will continue to be under pressure due to its high dependence on strained fresh water sources, increasing consumer demand, an under-capacitated national Department of Water and Sanitation, and rising pollution levels.
- ▶ The agro-processing industry is heavily reliant on water with estimated annual usage of 130 million k. Many major agro-processing companies are situated in municipalities facing current and future water supply risks.
- ▶ The major driving force for better water management processes in agro-processing are the increasing pressure to meet or exceed environmental standards, tightening wastewater regulations, increasing water stress, and the risk of brand damage if local communities are affected by their wastewater.
- ▶ The industry also employs over 200 000 people whose jobs are at risk when there is restricted water supply, as proven by the effects of the 2016/2017 drought.
- ▶ Processes for wastewater effluent reuse have been slowly gaining traction internationally as the food and beverage sector is increasingly seeing the benefits of creating value from wastewater. The water footprint of large agro-processing plants can be significantly reduced by treating the water to irrigation standards, which, in some cases, does not even require reverse osmosis. Treated water can then be used for irrigation or non-product contact reuse, which does not need to meet potable standards. This significantly simplifies the process treatment train and subsequent costs.

### USERS OR BENEFICIARIES

**Direct:** Agro-processing industry (by mitigating business continuity risk through water security), the environment (specifically fresh water sources and the surrounding ecosystem)  
**Indirect:** local communities employed by the industry

### PRIORITY SUBREGIONS

The main agro-processing areas in South Africa are situated in Gauteng, Western Cape, KwaZulu Natal (especially eThekweni), some parts of the Eastern Cape (Nelson Mandela Bay & Kou Kamma), and parts of Limpopo.

### RETURN PROFILE

Variable returns (highly dependent on cost of water)

### INVESTMENT TIME FRAME

Short to medium term.

### MARKET SIZING

Total realisable investment in water technologies in key agro-processing sub-sectors in South Africa is estimated at R6 billion over the next four to six years.

### PARTNER ENVIRONMENT

- ▶ The major investors in the sector in 2015 consisted of Tiger Brands, Pioneer Foods Group, AVI Ltd, Oceana Group, RCL Foods, Tongaat Hulett, Rhodes Food Group, Astral Foods, and Clover Industries.
- ▶ Financial support in the agro-processing sub-sector is also provided by DTIC, Industrial Development Corporation's (IDC) Agro-Processing and Agriculture Strategic Business Unit, Land Bank, and agricultural finance by large commercial banks
- ▶ Water users' associations
- ▶ Emerging catchment management agencies
- ▶ Sector associations engaged in advocacy on standards and requirements

### REGULATORY ENVIRONMENT

- ▶ Wastewater discharge regulations and charges are often a driver for investment as companies that discharge wastewater into the municipal sewer system require a licence that stipulates compliance with discharge standards.
- ▶ Water quality discharge limits need to be considered for brine discharged into the municipal sewer system.
- ▶ Liquids and saline wastes will no longer be processed at landfills from August 2019 and 2021, respectively.
- ▶ Forthcoming regulations for diverting organic waste from landfills will result in further treatment of sludge or organic loads in wastewater.

### POLICY ENVIRONMENT

- ▶ National Water Policy and Water Services Act are the key legislative documents that outline the management of water resources and the delivery of water services. These documents are strategically implemented through the National Water Resource Strategy and the Strategic Framework for Water Services.
- ▶ The National Water and Sanitation Master Plan was developed to outline the water resource management and water services delivery to ensure economic growth and social development.
- ▶ The 2017 amendment to Schedule 2 of the Electricity Regulation Act provides a framework for municipalities to develop their own electricity generation (including biogas).

### FINANCIAL ENVIRONMENT

- ▶ There are a number of financing organisations that finance water projects. However, these are typically larger projects.
- ▶ Most large companies finance water projects off balance sheet or access existing lines of credit (effectively unsecured), and prioritise projects with a payback period of less than three years.
- ▶ SMEs often do not have the necessary capital or capacity to procure finance for water-specific projects.

### OBSTACLES TO SCALE

**Business model:** there is a poor business case in some municipalities where low water tariffs result in long payback periods Operational complexity  
**Key resources:** Limited access to information on best practices, locally validated technologies, and capital for SMEs  
**Public safety:** the health risks related to treating wastewater and the impact on public perception  
**Regulation:** Licensing and permitting of wastewater treatment and reuse

### NEGATIVE EXTERNALITIES

- ▶ There are health concerns over contaminants that are not currently monitored under the SANS 241 water quality standard that could pass through to consumers through wastewater reuse in agro-processing.
- ▶ The treatment of effluent through reverse osmosis results in highly concentrated brine which can be difficult and expensive to dispose of legally.

### IMP CLASSIFICATION

A: Act to avoid harm  
**What:** Water savings is a positive outcome that can be achieved by providing sustainable waterefficiency solutions that reduce water usage in a water-intensive industry.  
**Who:** Agro-processing enterprises and surrounding communities  
**Risk:** High risk



# FOOD & BEVERAGE

## IOA: Converting food waste to protein for feedstock

### BUSINESS MODEL

Finance biotechnologies that produce proteins for livestock/animal feed from food waste.

#### DEVELOPMENT NEED

- ▶ 30% of all food produced globally is wasted. In South Africa, 10 million tonnes of food go to waste every year. This equates to a third of the 31 million tonnes produced annually in South Africa. CSIR has valued this loss at R61.5 billion.
- ▶ There is a growing concern for the inadequacies of solid waste management in developing countries. Organic waste produces harmful greenhouse gases (CO<sub>2</sub> and methane) and consequently has a negative impact on the environment. A growing population, scarce water and land resources, and declining natural fish stocks further exacerbate the need to find sustainable waste management solutions.
- ▶ Traditional methods of producing proteins for feedstock in the agriculture sector, such as using fishmeal, are unsustainable. These methods put strain on scarce water and land resources, and declining natural fish stocks. New sustainable sources of complete protein can help reduce organic waste and minimise the negative environmental impacts associated with it.
- ▶ Increasing demand for protein as a feedstock in the agricultural sector has made it challenging to match supply and demand. The Food and Agriculture Organization of the United Nations estimates that commercial feed production will need to increase by 70% by 2050 to meet the growing demand for protein.

#### POTENTIAL OUTCOMES

- ▶ Using food waste as a protein source for animal feed in the agricultural sector can close the loop in food production. This investment opportunity has the potential to provide an environmentally beneficial alternative for food waste by creating sustainable, high-quality agriculture feed ingredients.
- ▶ Investments are required to set up zone wide infrastructure for waste recovery and recycling. Investments in waste management infrastructure will help facilitate the beneficiation of organic waste.
- ▶ Using food waste as a protein source for animal feed has the potential to: improve feed self-sufficiency, reduce the environmental burden from food waste, divert large volumes of organic waste from landfills, minimise the negative environmental impacts associated landfilling waste, increase climate smart agriculture, and offset fish meal as an unsustainable ingredient in aquaculture, livestock, and pet feeds.

#### CROSS CUTTING THEMES

- ▶ Climate change
- ▶ SME development
- ▶ Job creation

#### SDG ALIGNMENT

**Direct:** 2, 11, 12  
**Indirect:** 8, 13, 14, 15

#### SDG INDICATORS

- ▶ 2.4.1
- ▶ 11.6.1
- ▶ 12.3.1

#### PRIORITY SUBREGIONS

Waste-to-protein opportunities exist in all metros, particularly in the Western Cape and Gauteng provinces.

#### USERS OR BENEFICIARIES

**Direct:** Farmers  
**Indirect:** Municipalities (by addressing waste management problems), the environment (by reducing greenhouse gases and offsetting fish meal as an unsustainable ingredient in aquaculture, livestock, and pet feeds)

#### MARKET SIZING

- ▶ The waste economy contributed R24.3 billion to the South African GDP in 2016. It provided 36 000 formal jobs and supported 80 000 informal jobs/livelihoods. A further R11.5 billion can be unlocked per year through waste diversion.
- ▶ In 2017, the waste-to-protein agri market was worth over USD 114 billion. Aquafeed is predicted to grow by a factor of 2.5 in just eight years to nearly USD 290 billion in 2026.

#### RETURN PROFILE

Estimated medium return.

#### INVESTMENT TIME FRAME

Short term: Less than 5 years.

#### REGULATORY ENVIRONMENT

Any waste investments must ensure that activities such as waste storage, recycling or recovery, treatment, and/or disposal are licenced as per NEMWA's listed activities. The City of Cape Town's by-law (as amended) requires that any person intending to perform waste sorting, recycling, or reuse or recovery activities must be accredited before commencing activities.

#### POLICY ENVIRONMENT

- ▶ National Environmental Management: Waste Act (No. 59 of 2008).
- ▶ New and changing national and provincial legislation and regulations are set to unlock a number of key waste streams, notably organics, plastics, and e-waste. These changes will also help to simplify rules and procedures for alternative waste treatment technologies and activities, as well as unlock funds and feedstocks for the private sector.
- ▶ Chapter 5 of the NDP, as well as Outcome 10 of the Medium Term strategic Framework include objectives for absolute reductions in the total volume of waste disposed to landfills each year.

#### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa  
**Corporates/Business:** Inseco, AgriProtein  
**NGO/Public:** GreenCape, Institute of Waste Management of Southern Africa, Organics Recycling Association of South Africa, Bill & Melinda Gates Foundation

#### FINANCIAL ENVIRONMENT

Subsidies in the form of grants can also provide financial incentives for the improvement of various aspects of solid waste management, including research and development. Potential sources of funding include The Green Outcomes Fund, grant / green funding, and USAID's Development Innovation Ventures.

#### OBSTACLES TO SCALE

**Legislation:** An extensive legislative framework has made it challenging for the public and private sector to remain compliant and competitive in a local and global market, and drive waste away from landfills toward reuse, recycling, and recovery.  
**Regulation:** The sector is waiting on numerous regulatory changes, which has slowed the growth of the sector. Restrictive legislation has influenced implementation of waste recycling programmes. However, changing economic and legislative conditions are expected to drive investment in the future.

#### NEGATIVE EXTERNALITIES

**Direct:** Reduced demand for traditional protein-based animal feeds will have a negative effect on those businesses.  
**Indirect:** Stockpiling organic waste may pollute the environment if not managed properly. Organic waste may also produce strong odours.

#### IMP CLASSIFICATION

C: Contributes to solutions  
**What:** A positive outcome is likely to be achieved by diverting waste to landfill and creating a sustainable feedstock solution.  
**Who:** Local municipalities, the environment, and agriculture  
**Risk:** Medium risk



# FOOD & BEVERAGE

## IOA: Shared economy platform for smallholder and emerging farmers

### BUSINESS MODEL

Invest in a technology solution for sharing of infrastructure and equipment between smallholder and emerging farmers, with potential opportunities for providing financing services for CAPEX.

### SDG ALIGNMENT

**Direct:** 2, 9  
**Indirect:** 8, 12, 13

### SDG INDICATORS

► 2.4.1  
► 9.3.1

### DEVELOPMENT NEED

- Access to finance is extremely difficult for smallholder and emerging farmers without proven track records. South Africa's banks are more risk averse than others in Africa.
- Smallholder farmers (small farms that are labour-intensive) and emerging farmers (that are participating in the market and have intentions to produce and sell more produce) lack collateral as they do not have strong balance sheets or cash.
- Access to the market is a major challenge as well. Smallholder and emerging farmers struggle to connect to local and global value chains to sell their products. Ideally, there should be more emphasis on connecting commercial and emerging farmers. There is a willingness in South Africa to do this, but the correct infrastructure and incentives are not in place.
- The cost of infrastructure and equipment is expensive and out of reach for many smallholder and emerging farmers.
- The adoption of digital agritechologies can unlock significant value in this sector. However, a collaborative effort by all stakeholders will be required to achieve this.

### POTENTIAL OUTCOMES

- Digital technologies are creating new opportunities to integrate smallholders and emerging farmers into the digital agrifood system. This can address many of the key challenges facing the sector, including high input costs, declining productivity, and low access to information and credit.
- Technology platforms that facilitate the sharing of infrastructure and equipment between South African smallholder and emerging farmers could unlock economies of scale and opportunities to create shared value.
- Collaborative platforms that provide access to infrastructure and equipment, as well as markets, have the potential to transform smallholder farmers into more commercially viable enterprises.
- A technology solution for smallholder and emerging farmers has the potential to increase production and efficiency through access to the latest technology, equipment, and infrastructure; improve access to market; improve supply chain sustainability and traceability; create credit track records for farmers; create cost savings; and create a cooperative to facilitate the integration of smallholder and emerging farmers into the broader value chain.

### CROSS CUTTING THEMES

- Addressing inequality through access to affordable basic services
- Digital transformation
- Climate change
- Job creation

### RETURN PROFILE

High return.

### INVESTMENT TIME FRAME

Medium to long term.

### MARKET SIZING

- South Africa has a smallholder sector of 2 million farmers, which is dominated by black producers.
- Accenture and the World Economic Forum estimate that the adoption of digital technologies will create R671 billion in value for the South African agriculture sector, consumers, and society between now and 2026.

### USERS OR BENEFICIARIES

**Direct:** Small holder and emerging farmers  
**Indirect:** the environment

### PRIORITY SUBREGIONS

Opportunities in every province, but the main agro-processing areas in South Africa are situated in Gauteng, Western Cape, KwaZulu Natal, the Eastern Cape, and parts of Limpopo.

### POLICY ENVIRONMENT

- The Department of Agriculture, Land Reform and Rural Development and the Department of Environmental, Forestry and Fisheries are national entities responsible for overseeing and supporting the development of the agricultural sector in South Africa. Agro-processing Policy supports the entry and growth of competitive, rural-based, and small- and medium-scale agro-processors in the local and global agriculture, forestry, and fisheries value chains.
- The Department of Agriculture, Forestry and Fisheries' ICT plan aims to enhance, build, or acquire business systems to improve service delivery.
- The government has also designed policies and enacted legislation that promote sustainable resource use and collaboration.

### REGULATORY ENVIRONMENT

- Agriculture in South Africa is regulated at the national level by national legislation and the Department of Agriculture, Forestry and Fisheries. Provincial departments like the Western Cape Department of Agriculture have been established to provide services such as research, development, and support for their agricultural communities.
- Relevant acts and legislation include: The National Environmental Management Act 107 of 1998 (NEMA 1998), the South African Carbon Tax Act No.15 of 2019, and Draft Climate Smart Agriculture Framework Policy (2018).

### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa, World Bank, IBM Food Trust, Land Bank, Microsoft South Africa, Nedbank  
**Corporates/Business:** Grain SA, Anheuser-Busch InBev, HSBC, Mars, Bext360, BANQU, Trustee Farm, Hello Tractor, CSS Logistics, Linebooker  
**NGO/Public:** GreenCape, Department of Trade and Industry, Western Cape Department of Agriculture and the Department of Agriculture, Forestry and Fisheries.

### FINANCIAL ENVIRONMENT

- Initiatives and investments by value chain players: Woolworth's Farming for the Future initiative, Nedbank innovative funding plans, Microsoft South Africa's agritech initiative
- A range of general and sector-funding solutions and incentives are available to investors, manufacturers and service companies. Several available databases are: GreenCape Finance Desk database, Green Finance
- Database, Government funding and incentives database, Funding database, AlliedCrowds database

### NEGATIVE EXTERNALITIES

Access to technologies to use these systems may prove to be a barrier for some farmers. Technical know how is a huge change in developing smallholder farms.

### IMP CLASSIFICATION

**C:** Contributes to solutions  
The enterprise not only acts to avoid harm, but also generates various effects on positive outcomes for people and the planet.  
**What:** Invest in a technology solution for enabling infrastructure for smallholder/emerging farmers  
**Who:** Smallholder and emerging farmers, the environment, and the broader agricultural supply chain  
**Risk:** Medium risk

### OBSTACLES TO SCALE

**Technology:** A nascent technology. The ability to digitize supply chains has only recently been identified.



# 7. SECTOR 4: INFRASTRUCTURE

## 7.1 WHY INFRASTRUCTURE?

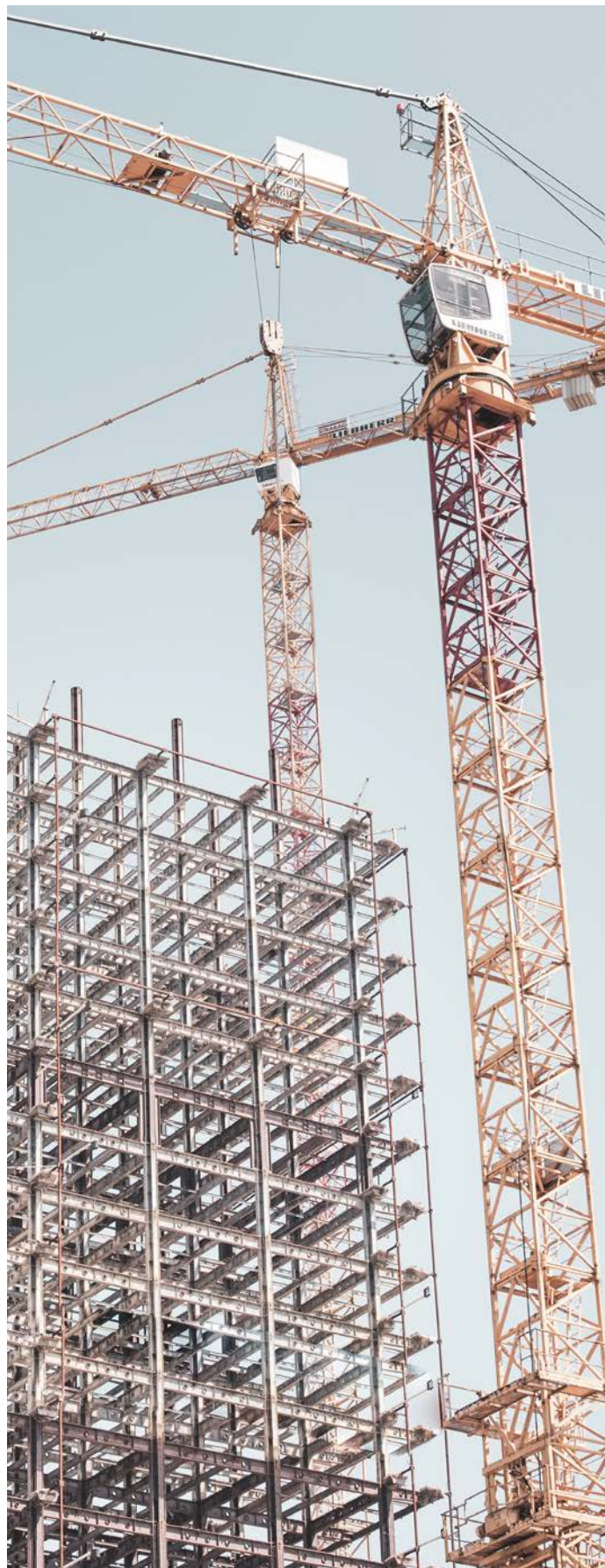
The Sustainability Development Report 2019 indicates that South Africa faces significant challenges to achieving SDG 9 (industry, innovation, and infrastructure) with a score of 45.0, which, although moderately increasing, will not be enough to attain the goal by 2030. Similarly, scores of 48.7 on SDG 3 (good health and well-being), 67.0 on SDG 6 (clean water and sanitation), 79.0 on SDG 7 (affordable and clean energy), and 77.9 on SDG 11 (sustainable cities and communities) all reflect that significant challenges remain before the country can achieve the relevant goals concerning infrastructure by 2030.<sup>1</sup>

In June 2011, the National Planning Committee identified nine primary challenges that have slowed progress since 1994. Four of the nine challenges have infrastructure development needs and implications, namely: the public health system cannot meet demand or sustain quality; the economy is unsustainably resource-intensive; spatial divides hobble inclusive development; and infrastructure is poorly located, inadequate, and undermaintained. These challenges were used to frame the critical issues addressed in the National Development Plan. This plan therefore requires the broad development of infrastructure.<sup>2</sup>

By 2050, the South African population is projected to increase by 23.6 million people, with the highest growth rates predicted in the major cities. The remaining three metropolitan municipalities are predicted to experience medium population growth. **A rapidly increasing population, coupled with urbanisation, will place significant pressure on already strained infrastructure.** However, this also creates scope for urban planning to create more sustainable and resilient cities and towns.<sup>3</sup>

President Ramaphosa's investment drive to mobilise US\$100 billion for national priority sectors indicates a desire to partner with the private sector to support a higher growth trajectory in South Africa. The key areas in the provision of affordable and quality infrastructure that have been identified in this drive are energy, water, transport and logistics, and data and ICT sectors.<sup>4</sup> Similarly, the Sustainable Infrastructure Development Symposium South Africa – organised by the Investment and Infrastructure Office within the Presidency – was created to explore partnerships between the public and private sectors, as well as investment opportunities in infrastructure where they seek to create a US\$20.5 billion infrastructure fund.<sup>5</sup>

The full impact of COVID-19 on the infrastructure sector is yet to be quantified, but given the high fixed costs, high levels of debt, and low cash reserves, the sector may face a liquidity crisis.<sup>6</sup> Construction was restricted during lockdown and sharp contractions of fixed investment can be expected as firms reconsider or postpone capital project implementation.<sup>7</sup> Furthermore, projects exposed to foreign currency face the risk of exchange rate fluctuations and further uncertainty if not previously hedged.<sup>6</sup>



## 7.2 BOTTLENECKS TO INVESTING IN INFRASTRUCTURE

As the infrastructure investing opportunities illustrate, multiple research projects, government initiatives, and funding schemes are currently being put in place in order to accelerate infrastructure development. There is increasingly a shared sense across the industry that the private and public sector are coming together to solve some of the country's structural issues, thus moving past more siloed ways of operating. These programmes are trying to address some of the following bottlenecks:

**Public-private partnerships:** Infrastructure investments are often heavily influenced by regulation and policy constraints due to government's constitutional mandate to provide social infrastructure, which might have deterred private sector engagement in the past.

Previously, delays in new regulation, policy, and legislation have created long lead times, which have often proven costly for service providers. However, the impacts of COVID-19 have demonstrated how the right incentive structures have decreased lead times, thus creating more activity in the market.

**Investments and funding schemes:** Not surprisingly, the issue of access to finance was brought up consistently by interviewees. Mergence Investment Manager Mark van Wyk said that the most significant finance issue is "access to development funding for early stage companies that need long-term sustainable capital, as the venture capital market in SA is still very small".<sup>54</sup> This notion that the South African investment market is quite risk averse, and somewhat conservative, was echoed by multiple other market players. While there is capital available in the country, the risk appetite tends to sway towards later-stage investments, which is arguably driving SMEs towards bootstrapping, grants, or government funding schemes, such as the Small Enterprise Development Agency. According to interviewees, the government is increasingly interested in closing the gaps for hybrid funding through, for instance, blended finance structures.

As is evident from some of the infrastructure subsectors, such as water and waste, the mismatch between the capital available and the capital needed is also prominent at the project preparation stage, thus jeopardizing the development of a **pipeline of investment-ready deals**. Hence, a call was raised for more catalytic finance to close this gap.

It was highlighted often that the lion's share of the investments needed to drive the infrastructure sector forward **must be largely mobilised locally**. This is mostly driven by the fact that the cash flows are rand-based, which makes hedging the currency risk of infrastructure projects challenging.

Interviewees reported that while there are significant opportunities in the infrastructure sector, most will likely require some level of blended finance, which requires the sector to expand the target audience beyond institutional investors. Such a structure would likely be comprised of three blocks: 1) a base consisting of government finance,

2) a middle based on the implementation of the infrastructure fund, and 3) a top block consisting of private sector financing, potentially including different elements of guarantee structures. The Development Bank of Southern Africa (DBSA), in collaboration with private sector players, has been building a blended finance concept where public sector capital will be able to remove some of the risk for private investors.<sup>42</sup>





## ECOSYSTEM INITIATIVES IN INFRASTRUCTURE: A SNAPSHOT

Initiative name	Description
<b>17Africa: A Blueprint for an SDG Intermediary</b>	17Africa's open source blueprint introduces a new type of buy side intermediary that meets investors where they are while incorporating their non-financial objectives into the investment decision making process, using the framework of the SDGs <sup>8</sup> .
<b>The World Bank and DBSA: Beyond the Gap South Africa</b>	This is a research project aiming to quantify SA's 2030 infrastructure SDG funding needs (focused on WASH, transport, power, education, and health). The research focuses on how countries can afford the infrastructure they need while still protecting the planet. <sup>9</sup>
<b>Developing a Green Finance Taxonomy</b>	The National Business Initiative is undertaking the development of a South African Green Finance Taxonomy which is supported by the IFC through the Green Bond Market Development Programme in partnership with Swiss State Secretariat for Economic Affairs (SECO), Swedish International Development Cooperation Agency (SIDA), and the IFC-facilitated Sustainable Banking Network. <sup>10</sup>
<b>Partnering for the Sustainable Development Goals</b>	The National Business Initiative has developed a methodology to promote collaboration between sectors to achieve the SDGs and guide businesses on how to align their strategies to the SDGs. This methodology has been designed in collaboration with the Confederation of Danish Industry and is being piloted with the Banking Association of South Africa (BASA) and with Sasol. <sup>11</sup>
<b>Sustainable Infrastructure Development and Finance Facility (SIDAFF)</b>	SIDAFF is developing a sustainable green finance programme to help address funding shortfalls from development finance institutions and private investments in South Africa with regards to meeting the SDGs, with a specific focus on local government infrastructure. <sup>12</sup>
<b>InvestSA</b>	InvestSA is a division of the South African Department of Trade, Industry, and Competition which supports investors exploring opportunities in South Africa by assisting with information, facilitation, and aftercare. It provides one-stop-shops to streamline the process of setting up a business. <sup>13</sup>
<b>Public Private Growth Initiative (PPGI)</b>	The PPGI is a voluntary initiative focuses on enabling, facilitating, and driving actions to implement sector-developed growth plans. Sectors use their own approaches to determine plans and identify catalytic mega-projects for immediate implementation. The PPGI then helps to identify barriers to these plans and works with government to unblock them. <sup>14</sup>
<b>Sustainable Infrastructure Development Symposium South Africa (SIDSSA)</b>	The symposium, hosted on 23 June 2020, provided a platform to explore partnerships between the public and private sectors with investment opportunities in infrastructure, progress discussion on regulatory and policy reforms, and innovative funding models for infrastructure. See the Gazette with published projects <a href="#">here</a> . <sup>15</sup>
<b>JSE involvement in Global Investors for Sustainable Development Alliance (GISD)</b>	GISD is looking at obstacles to investing in the SDGs. The JSE is supporting three working groups that address investable tools and instruments, obstacles to investing in the SDGs in emerging markets, and the development of taxonomies and standardised platforms. <sup>16</sup>



# 7.3 INVESTMENT OPPORTUNITIES IN INFRASTRUCTURE SUBSECTORS

## 7.3.1 WATER UTILITIES & SERVICES

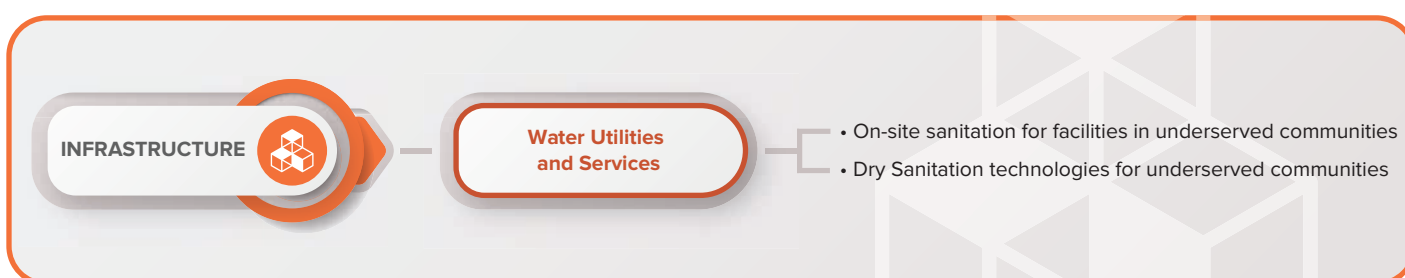


Figure 7. Investment opportunities in the water utilities & services subsector

Investments to achieve the WASH SDGs are complex, as water is not only essential to life, but also to socio-economic development. As highlighted by a senior member of the DBSA, although the South African government's constitutional mandate to provide access to WASH services has historically made it difficult for private sector investment, COVID-19 has highlighted the inequalities related to access to WASH.<sup>53</sup> This highlights the social investment opportunities that could create greater equality as the country emerges from the COVID-19 lockdown.



The drought of 2015/16 exemplified South Africa's water risk and the ways water insecurity impacts livelihood, health, and the growth and development of the local economy. The demand for water in South Africa is not evenly distributed, with some of the major demand centres located far from available water sources.<sup>17</sup> The Sustainable Development Report 2019 scores South Africa at 67.0 on SDG 6 (clean water and sanitation), with "significant challenges remaining".<sup>18</sup>

South Africa's water industry is under-capacitated and needs more than R900 billion over the next 10 years to meet water and wastewater infrastructure maintenance, refurbishment, upgrading, and development requirements. Only 56% of these costs will be covered by National government's budget.<sup>19</sup>

South Africa is a semi-arid country that is highly dependent on fresh-water sources. However, the country could face a 17% gap between supply and demand of water by 2030 due to climate change, population growth, and insufficient and old infrastructure.<sup>2</sup> Data from the UN's Food and Agriculture Organization (FAO) shows that as of 2017, South Africa's water stress level was at 62% (a sharp rise from 40% in 2000).<sup>3</sup> This indicates a decreasing amount of freshwater and renewable water resources. Furthermore, in 2016, only 58% of South Africa's water bodies met water quality objectives. This implies that over 40% of South Africa's water bodies do not meet water quality standards, due to some form of pollution or river catchment destruction.<sup>19</sup>

**The key drivers** of opportunities include securing sufficient water supply for operations, regulatory compliance with water restrictions and wastewater discharge limits, and cost-reflective water tariffs in the National Water and Sanitation Masterplan Volume 1 (2019).<sup>19</sup>

**Barriers to investment** include capacity constraints, revenue collection challenges, ability to access funding, and lengthy and complex processes for the authorisation and licensing of water projects.<sup>19</sup> According to Raldo Kruger of GreenCape, "there is also limited grant funding for large water infrastructure projects which results in these grants being awarded to projects with the lowest CAPEX requirements."<sup>35</sup> This has arguably prevented the adoption of new technology in water-related projects because of the higher associated costs.

As such, there is a gap in funding between traditional and new technology implementation in WASH-related infrastructure. Similarly, the pipeline of projects is limited due to the scarcity of funding available for project preparation. Added to this, there is already a backlog of provision of critical water infrastructure projects and COVID-19 is likely to further delay investments.<sup>34</sup> Arguably, the subsector needs private sector players to finance project preparation that will allow for the development of investment-ready initiatives. These initiatives could provide better rates for municipalities and also be financed through secondary markets instruments like green bonds.

**Key local legislation** investors need to be aware of include: the National Water Act (36 of 1998), the National Water and Sanitation Masterplan (2019), the Water Services Act (108 of 1997), the National Environmental Management Act (107 of 1998), the National Environmental Management: Integrated Coastal Management Act (24 of 2008), the National Environmental Management: Air Quality Act (39 of 2004), the Industrial Policy Action Plan, and the South African National Standard for Drinking Water (SANS 241: 2015).

Two of the most prominent **cross cutting themes** that emerged in relation to water utilities and services were:

**Social innovation:** Given that government is mandated to provide access to WASH, there has been limited leeway for private sector provision except through municipal structures. There are signs of increasing openness from some municipalities to private sector involvement, but evidence of innovations with commercial opportunities (like Sanergy in Kenya) have yet to be realised in South Africa. Solutions could be found in social innovations that address needs that municipal services cannot reach or would take a significant amount of time to reach.<sup>35</sup>

**Job creation:** The water sector's capacity to create jobs varies according to the scale of the projects, but in general has slightly lower job creation potential than other sectors. However, if a broader economic perspective is taken, access to water enables job creation in most sectors where, without it, economic activity could not take place.<sup>35</sup>

## ECOSYSTEM INITIATIVES IN THE WATER SECTOR: A SNAPSHOT

Initiative	Summary
<b>UNIDO</b>	In partnership with UNIDO, GreenCape has created a Municipal Grading system that assesses the ability of municipalities to implement energy efficiency projects at wastewater treatment works. The grading system assesses senior municipal staff management, financial skills and capacity, municipal water department technical skills and capacity, and the overall financial standing and credit rating of municipality. The grading system can be found here. <sup>20</sup>
<b>City of Cape Town New Technology Platform</b>	This platform was established to gain an understanding of innovative water technologies in the market and provides opportunities for companies to present their products and services to government in a fair manner. <sup>19</sup>





## 7.3.2 ELECTRIC UTILITIES & POWER GENERATORS<sup>c</sup>

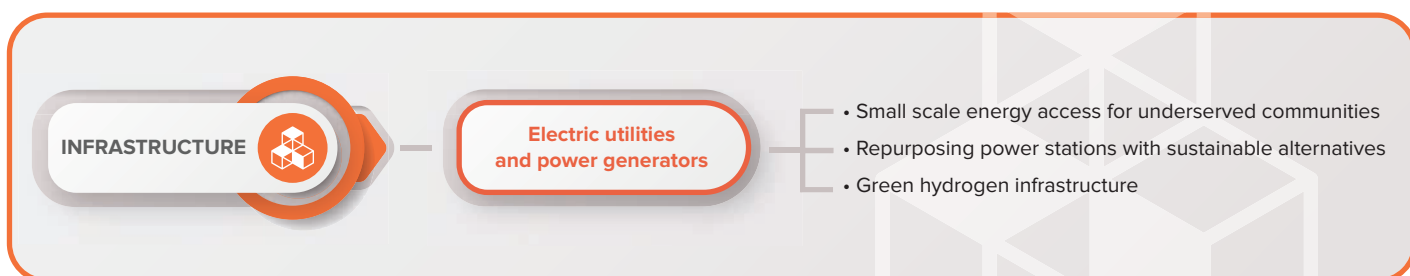


Figure 8: Investment opportunities in the electric utilities & power generators subsector

Energy generation and distribution is essential for national development as it is the force that powers business, manufacturing, and delivery of goods and services. The NDP envisages a sector that promotes economic growth and development through investment in energy infrastructure.<sup>21</sup> The aim of the plan is that by 2030 there will be enough supply of electricity and fuel to capacitate economic activity without disruption. Furthermore, the NDP envisions equitable access to 95% of the population to grid or off-grid electricity at affordable rates that are also environmentally sustainable.<sup>22</sup> Although 87% of the population have access to electricity in 2020, many cannot afford to pay for it.<sup>51</sup>

<sup>c</sup>Renewable energy is a separate Sustainability Accounting Standards Board classification and thus is not covered in the SDG Investor Map

South Africa's single operator model in the electricity market is dominated by the state-owned entity Eskom, which is responsible for generation and transmission.<sup>23</sup> The country's energy sector is reliant on coal, which contributed around 69% of the total primary energy supply in 2016 and represents more than 90% of the country's total electricity net output.<sup>21</sup> However, dependence on this single operator and coal has decreased over the last 10 years due to the rise of new technologies.

SDG 7 (affordable and clean energy) aims to ensure access to affordable, reliable, sustainable, and modern energy for all. Although access to electricity has improved and the use of renewables has increased, substantial challenges remain in connecting underserved areas and ensuring affordable access to the poor.<sup>24</sup> The Sustainable Development Report 2019 highlights that there are significant challenges remaining for South Africa to achieve SDG 7, for which its current score is 79.0.<sup>18</sup>

**The key drivers** behind the investment need include the challenges of current energy infrastructure (limited supply, high cost), together with the growth of the decentralised small-scale embedded generation (SSEG) and energy storage markets. This has created scope for the transformation of the country's monopolistic energy sector to a more distributed model of energy generation.<sup>23</sup> Other key drivers of opportunities include rising energy prices, falling costs of renewable energy technologies such as rooftop solar PV, supportive energy policies and regulations from local and national government, and innovative energy financing programmes and incentives.<sup>23</sup>

**Key barriers** revolve around regulation and contractual obligations where uncertainties around policy and contractual processes have stunted further investment.<sup>23</sup> Eskom's reduced cash flow following the hard lockdown implemented to manage the spread of COVID-19 will also have serious implications for the sector.

However, the down time did allow the power supplier to perform much needed maintenance. In spite of this, South Africa resumed rolling blackouts (load-shedding) in later stages of the national lockdown. Unpredictable tariff increases for commercial and industrial users also poses a barrier to investment decision makers.<sup>34</sup>

**Key legislation** investors need to be aware of include: the Electricity Regulation Act 4 of 2006 as amended by the Electricity Regulation Amendment Act 28 of 2007 (ERA), the National Energy Act 34 of 2008, the National Energy Efficiency Strategy (NEES) [2005, 2008, post 2015], the Energy Mandatory Reporting 2015, Carbon Taxes 2019, the White Paper on Energy Policy of 1998, the Integrated Energy Plan (IEP) 2010, and the Integrated Resource Plan (IRP) 2019.

**Cross cutting themes** that emerged relating to electric utilities and power generators include:

**Access to affordable basic services:** Many citizens in South Africa have access to electricity but struggle to afford it. The alternatives, such as paraffin and candles, are also expensive over the long term, but those who cannot afford grid power have no other choice.<sup>51</sup>

**Climate change:** There are good climate-smart options at the utility scale, as well as off-grid technologies, that can make a meaningful contribution towards combatting climate change. These include repurposing old, dirty power with hydrogen alternatives, using renewable energy and energy efficiency technology, and integrating smart grids and meters.<sup>51</sup>

**Job creation:** The energy services market holds opportunities for employment at various levels.<sup>23</sup>





## 7.3.3 WASTE MANAGEMENT



Figure 9: Investment opportunities for the waste management subsector

South Africa's national waste management strategy prioritises the curtailing of waste generation through prevention, reduction, recycling, and reuse.<sup>24</sup> The waste economy contributed approximately R24.3 billion to the South African economy and provided 36 000 formal jobs and 80 000 informal jobs.<sup>25</sup> With landfills reaching capacity (22 of 25 of the municipalities in the Western Cape will run out of space within five years), interventions that diversify waste management strategies and promote broader-based circular economy initiatives are needed.<sup>25</sup>

Progress in the waste sector has slowed in 2019/20 due to numerous changes to regulatory frameworks that took time to be updated and published.<sup>25</sup> A lack of recent data has also plagued the general understanding of the sector, but it is predicted that by 2023, R11.5 billion per year could be generated by diverting up to 20 million tonnes of waste.<sup>25</sup>

The National Development Plan includes targets to reduce the total volume of waste disposed to landfills each year, increase waste recycling, and increase the development of green products and services to address South Africa's waste challenges.<sup>25</sup> Opportunities are available on both the supply and demand side to secure economically viable recyclable materials and increase demand for recycled products.<sup>26</sup> There is also a strong drive to promote innovative programmes to develop waste-to-energy solutions, as well as an intensified focus on the circular economy and reduction of plastic use by government.<sup>24</sup>






**Key drivers** include the growth in private sector investments, increased effort to eliminate pollution, and the broader update of alternative waste treatment solutions. Furthermore, public pressure and a growing understanding of the impact of waste and investment potential has also drawn attention to the sector.<sup>25</sup> The diminishing capacity and rising gate fee costs of landfills are creating opportunities for private sector players. In addition, government is driving material recovery initiatives by taxing virgin packaging.<sup>36</sup>

**The barriers** include the difficulty in extracting value from municipal solid waste, the absence of processes for separation at source, and delays to updates in regulations.<sup>25</sup> An area of major risk for small-scale entities in the waste sector revolves around licensing. Operators must obtain a license linked to their lease, which can take up to eight months to acquire. However, the licenses are specific to a piece of land, which means that if the lease expires or the operator is forced to move, they would need to obtain a new license.<sup>36</sup>

**Key legislation** investors need to be aware of include: the National Environmental Management Act (107 of 1998), the National Environmental Management: Waste Act (Act 59 of 2008), the National Environmental Management Air Quality Act (Act 39 of 2004), and Municipal waste management by-laws. As mentioned, there are several regulations in discussion which are yet to be released to the public. A forthcoming update to the National Waste Management Strategy is also due.

Some of the most prominent **cross cutting themes** that emerged in relation to waste management were:

- **Job creation:** The waste sector provides thousands of jobs to the formal and informal sector in South Africa. Although the use of incineration and other technologies has its benefits, the job creation potential is low and the process loses some valuable elements that could be recycled. For this reason, it is more beneficial for South Africa to focus on developing a circular economy that has greater job creation potential.<sup>36</sup>
- **SME development:** There has been an underinvestment in SMEs that has stunted the growth of the waste sector. This is especially true for medium-sized businesses as private investors have focused on larger corporates and government grants have targeted small-scale businesses. Waste collection and recovery is also saturated by large corporates in South Africa. However, there could be opportunities for SMEs to provide food waste services.
- **Social innovation:** Most waste pickers operate in the informal economy, by picking waste off landfills, which poses a risk for the pickers as well as the landfills. Alternatively, waste pickers gather from waste bins and sell to buy-back centres. There is room for inclusive business models in the waste sector, for instance, by integrating the informal sector into waste collection schemes.<sup>36</sup>



**TRAILBLAZER**

**Ywaste**, is an example of an SME trailblazer in the waste sector. Their services include waste management consulting, package waste separation, food grade bin rentals, electronic data capturing, and safety disposal certificates. Ywaste also offers on- and off-site services for composting and training in the use of Food Waste Management technology.<sup>37</sup>

ECOSYSTEM INITIATIVES IN WASTE: A SNAPSHOT

Initiative	Summary
SA Plastics Pact	The SA Plastics Pact aims to stimulate innovation, dialogue, and collaboration to unlock barriers to circularity, create new business models, and generate job opportunities. The South African Plastics Pact has designed processes to use and reuse plastics, as well as implement locally tailored solutions towards a circular economy for plastic. <sup>38</sup>
Green Building Council of South Africa's Net Zero Waste Certification	The Green Building Council of South Africa launched a net zero waste certification which can be applied to new and existing buildings. The certification covers construction and operational elements related to waste reduction, reuse, recovery, and diversion. <sup>25</sup>



# 7.3.4 AFFORDABLE HOUSING

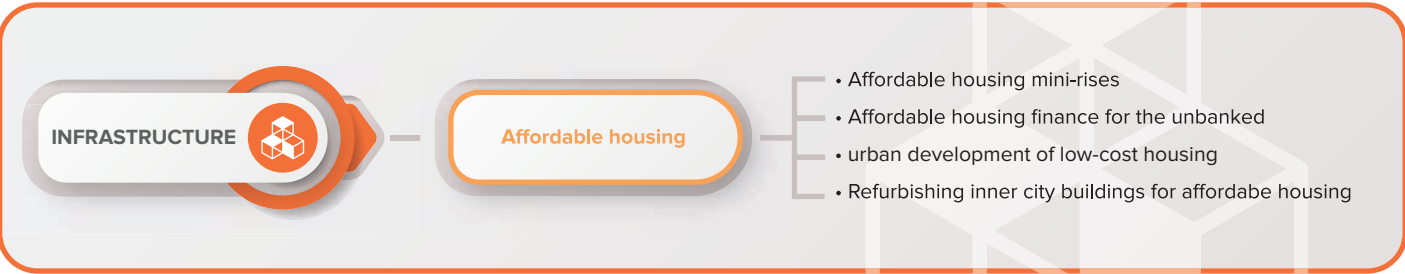
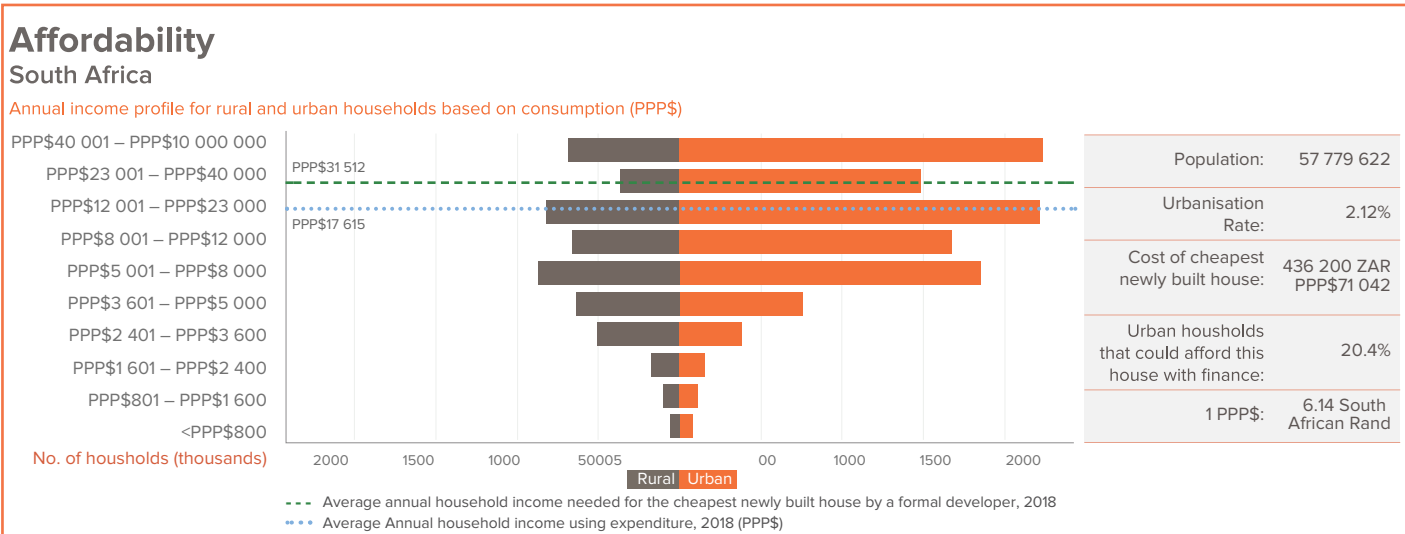


Figure 10: Investment opportunities in the affordable housing subsector

Since 1994, the South African Government has made a concerted effort to address inequalities in the housing sector evidenced by a third of the total residential housing market fully subsidized by the fiscus<sup>15</sup>. However, urbanisation over this period in South Africa has put pressure on the supply and affordability of housing<sup>28</sup>.



The overall cost of a standard 46m<sup>2</sup> house is estimated as R400 000. However, a household earning R10 000 a month gross income would only be able to afford a house valued at R285 917. Thus, the cheapest newly built housing is unaffordable for many households. In 2018 a person earning R1 879 to R4 238 a month could afford a maximum possible purchase price of R131 758. (CAHF, 2020).



The cheapest houses available are estimated to cost R400 000, where a household would need to earn around R18 000 per month to afford a mortgage. Most subsidised housing is focused on the market that earns less than R3 500.<sup>28</sup> Consequently, there is a financing gap for this missing middle, resulting in the growth of informal settlements and backyard dwellings.

To reduce the short-term effects of poverty, the National Development Plan promotes “mixed housing strategies and more compact urban development to aid with access to services”.<sup>26</sup> Strategies to improve the social context of human settlements are also prioritised in the National Development Plan, with goals of upgrading informal settlements and closing supply gaps in the housing market. This is achieved by improving the standard of living through low-income housing delivery in good urban locations with access to service delivery. It is estimated that in 2019 there was a building backlog of 2.9 million houses in South Africa.<sup>27</sup>

**Key drivers** include substantial demand for affordable housing for low-income markets, growth of up to 16.3% of low-income properties in 2019 (in contrast to the falling prices of the general property market), and an evolving government strategy that is increasingly moving towards private sector partnerships to invest in affordable housing environments.<sup>27</sup>

Only 20% of South Africans can afford the cheapest newly built house. Thus, any investor wishing to operate at scale in the South African housing market should operate in the affordable market. Simply put, “the top slice is too thin”, as interviewee Rob McGaffin said.<sup>55</sup> According to multiple affordable housing experts, the affordable market often outcompetes the commercial market in return percentages.

The business model is mainly driven by two groups. The first is home-owner developers building 2-4 rental units per site in order to house family and to supplement income through rent as a once-off exercise. The second is entrepreneurial developers building 8-12 rental units per site. While limited work has been done on the financing of these developments, experts indicate that households are able to leverage their current properties by extending their home loans. However, there does not appear to be a common thread in how the entrepreneurial developers access finance. This could be a combination of personal loans, credit cards, or even through tenants themselves, by letting them move in at a reduced rent prior to the development being finalised.

**Key barriers** include complexities arising from land reform policies, municipal spatial development constraints, adverse effects of rezoning, delays in the distribution of title deeds, and the absorption of affordable houses into the middle-income market due to a lack of supply. Interviewees anticipate an increased need for private sector investment post-COVID-19 due to potential budget constraints from government.

Developers often struggle to sell new houses to the lower-income market. This is largely driven by the fact that the target group for these developments does not have sufficient income to service the mortgages.

Not only do they lack equity (100% mortgage), but they are also outside of the subsidy range. According to Kecia Rust of CAHF, “Supply has decreased, and mortgage lending has stagnated since 2008 as the market is only focusing on newly built, where there is a need for a resale market.”<sup>56</sup>

A proposed solution could be to bring recipients of the Reconstruction and Development Programme on the housing ladder by ensuring all houses older than eight years can be sold (for less than R350 000), enabling the seller to buy into the low-cost housing in urban developments, and others to buy a house below R350 000.

**Key legislation** investors need to be aware of include: the Housing Act (No. 107 of 1997), Breaking New Ground (2004), the National Housing Code (2009), Housing White Paper (1994), the Social Housing Act (No. 16 of 2008), the Rental Housing Act (No. 50 of 1999), the Water Services Act (No. 108 of 1997), the National Environmental Management: Waste Act (No. 59 of 2008), the Municipal Systems Act (No. 32 of 2000), and the Spatial Planning and Land Use Management Act (2013).

Two of the most prominent **cross cutting themes** that emerged in relation to affordable housing were:

**Social innovation:** Interviewees argued that the housing market should increasingly focus on the creation of the housing ladder in order to achieve affordable housing for the majority of South Africans. For example, a person sells a shack for R10 000 and uses that as equity to buy a better home. Someone earning R5 000 can get approval for a R125 000 property over 20 years or earn R7 500 a month over 10 years. In other words, the investment opportunity is around the gap financing in the resale market. Additionally, the implications of COVID-19 on the future of work remains to be seen. It might be that more office buildings will become vacant or empty, as companies decrease office capacity due to employees increasingly choosing to work from home. Ultimately, this will create opportunities for affordable housing and especially the business model of the Trust for Urban Housing Finance (TUHF), which focuses on repurposing locations for low-income rental housing.

**Technology:** Technology is increasingly being used in the affordable housing space to perform functions such as registering title deeds. Title deeds have been a significant issue for the government as it has built over 3 million houses through the Reconstruction and Development Programme since 1994.<sup>56</sup> But CAHF’s analysis of the deeds office data indicates that only 1.9 million of these properties have been registered. A partnership between CAHF, 71point4, and SESO Global has set up the first blockchain-based property registry in South Africa. The registry will create a record of who owns which house, as well as facilitate records, sales, and transfers, which integrate with third parties such as mortgage lenders.





## EXAMPLES OF TRAILBLAZERS IN AFFORDABLE HOUSING IN SOUTH AFRICA

Organisation	Sector	Summary
Chartwell	Infrastructure (Real Estate)	Chartwell offers a range of home loan (20 year home loan) and rent to buy (3 years of renting followed by a 22-year home loan) finance products that make home ownership affordable for low-income South African consumers <sup>39</sup>
TUHF	Infrastructure (Real Estate)	TUHF provides access to finance for entrepreneurs to purchase, and subsequently convert or refurbish buildings in the inner cities of South Africa to affordable residential units. They also provide support, guidance and risk management for the entrepreneurs that receive finance through them. TUHF also provides bridging finance which covers short term loans up to 6 months to enable entrepreneurs to cover temporary costs <sup>40</sup> .
Bitprop	Infrastructure (Real Estate)	Bitprop creates assets and income streams for underdeveloped markets by enabling investment into backyard rental property at a macro scale. Bitprop builds rental units in low-income areas that provide landlords with an asset and source of income. Rental income is shared until the investment is returned, and then the landlord earns all rental income. Bitprop also helps to secure title deeds and manage rental income for their clients <sup>41</sup> .



## 7.3.5 DIGITAL INFRASTRUCTURE

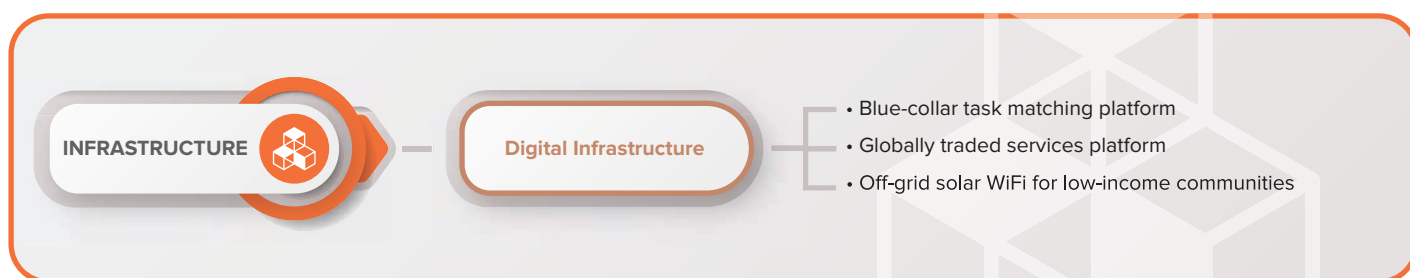


Figure 11: Investment opportunities in the digital infrastructure subsector

The outbreak of COVID-19 has highlighted the need for sectors to embed technology into the delivery of goods and services. Modern society operates on the backbone of communication networks. The NDP also mandates that government develop a national e-strategy, stating: “a widespread broadband communication system will underpin a dynamic and connected vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous”. In his State of the Nation Address in February 2020, President Ramaphosa commented that “the digital economy will increasingly become a driver of growth and creator of employment”.<sup>29</sup>



**Key drivers** include indications that digital technologies could unlock over R5 trillion in value for industry and society as well as create 4 million jobs in the next decade by implementing initiatives across nine industries and five governmental services.<sup>30</sup> Jobs in the digital economy are usually associated with high-skilled work, but there are also opportunities to scale low-skill domestic jobs such as blue-collar task matching, transport and logistics, food preparation and delivery, and tourism.<sup>30,31</sup> A senior executive at DBSA emphasized the broad recognition that initiatives driving affordable access to the internet are needed to develop the economy.<sup>39</sup>

**Key barriers** relating to digital infrastructure include the limited pipeline of investment-ready projects that can absorb significant amounts of capital.<sup>43</sup> There is a missing middle of projects that venture capital funders can invest in. Similarly, consumer demand is impacted by multiple constraints in providing access to the digital economy. Only 64.7% of households had access to internet via a connection at home, workplace, place of study, or internet café.<sup>32</sup> Regarding access to internet at a broader level, South Africa's 3G and 4G population coverage sits at 99.5% and 76.7%, respectively.<sup>31</sup> However, only 81.7% of the population had access to smartphones in 2019.

In a country where over 49% of the population lived below the upper bound of the poverty line in 2014/15, the data costs for entry-level, small-size prepaid bundles are high compared to global peer countries.<sup>52</sup> This issue has been at the centre of the Competition Commission's recent Data Services Market Enquiry.<sup>31</sup> Other barriers include outdated and complex regulation as well as policy uncertainty that has prevented the Independent Communications Authority of South Africa (ICASA) from auctioning high demand spectrum.<sup>22,34</sup>

The COVID-19 pandemic has highlighted vast inequalities in access to the digital economy in South Africa.<sup>44</sup> It has highlighted the need to further the digital agenda in the country and to utilise technology to create a sophisticated, competitive market in the global arena.<sup>45</sup> The demand for data has increased significantly during COVID-19, which has put significant strain on existing network infrastructure. Furthermore, the need for technological interventions in multiple sectors such as healthcare and education has been demonstrated during the crisis. A member of South Africa's Public-Private Growth Initiative highlighted the need for a digital transformation fund that could provide tech start-ups with the necessary capital and assistance needed to develop their business models.



## TRAILBLAZER

### EXAMPLES OF TRAILBLAZERS IN DIGITAL INFRASTRUCTURE IN SOUTH AFRICA

Initiative	Sector	Summary
<b>JobJack</b>	<b>Digital</b>	JobJack is a marketplace for entry-level positions, a platform connecting employers and relevant job seekers <sup>47</sup> .
<b>Kandua</b>	<b>Digital</b>	Kandua is an online home services marketplace that connects home service providers to the people who need them <sup>48</sup> .
<b>Fix Forward</b>	<b>Digital</b>	Fix Forward is a social enterprise aimed at creating opportunities for contractors from lower income areas. The platform connects contractors with consumers <sup>49</sup> .
<b>SweepSouth</b>	<b>Digital</b>	SweepSouth provides an online platform where clients are able to gain easy access to reliable and trusted cleaners, gardeners, and outdoor workers trained in sanitisation <sup>50</sup> .





**Key legislation** investors need to be aware of include: the Telecommunications Amendment Act (2001) and the ICASA Act (2000), The Electronic Communications Act (2005), National Broadband Policy: ‘SA Connect’, National Integrated ICT Policy White Paper, the Electronic Communications Amendment Bill, the Digital Development Fund Bill, the ICT Sector Commission and Tribunal Bill, and the Electronic Communications and Transactions Amendment Bill. Key regulations investors need to be aware of include: Electronic Communications Network Service and Electronic Communications Services licences, as well as spectrum licences issued by ICASA.



**Cross cutting themes** that emerged relating to digital infrastructure included:

**Access to affordable basic services:** Although many South Africans have access to the internet through their phones, the data costs are often prohibitively expensive. Alternative business models using advertisement revenue have been used to provide access to free WiFi in low-income communities.<sup>50,51</sup>

**Job creation:** As South Africa develops as a provider of globally traded services through its digital platforms, employment opportunities will increase.<sup>43</sup>

**Education and skills development:** Access to digital infrastructure has opened up opportunities for skills development and education. During the COVID-19 lockdown, much of the education content was zero-rated by service providers, which allowed much of the population access to materials for free through digital platforms. Similarly, EdTech is increasingly providing access to a broader base of the population.

ECOSYSTEM INITIATIVES IN DIGITAL INFRASTRUCTURE: A SNAPSHOT

Initiative	Summary
DBSA Dlabs	Three years ago, the DBSA started looking at the impact that technology will have on delivering services as social infrastructure. The result was the creation of DLabs which is designed to focus on providing youth with access to technical skills. The DBSA has partnered with multiple organisations including RLabs, Safehub, Wits, UCT, and Microsoft. <sup>39</sup>
GreenCape - Free Wi-Fi hotspots	GreenCape is rolling out fast, free WiFi to communities in need. The promotion of innovation and partnership focused on improved conditions, service delivery, and well-being will change the current lack of infrastructure in these areas into an opportunity for empowerment. <sup>50</sup>





# INFRASTRUCTURE

## IOA: On-site sanitation for facilities in underserved communities

### BUSINESS MODEL

Provide self-sufficient private sanitation plants adjacent to or embedded into areas where social housing, hospitals, and schools are outside the network of a wastewater treatment system.

### DEVELOPMENT NEED

- ▶ According to the 2019 SDG report, ahead of 2030, South Africa must deliberate on how to provide safely managed sanitation facilities to underserved areas that are both water-smart and sustainable.
- ▶ Only 73.1% of South Africans have access to at least basic sanitation services. Self-sufficient private sanitation plants (off-grid/decentralised sanitation solutions) have the potential to provide sustainable sanitation to millions of South Africans who live outside the network of wastewater treatment systems and consequently still lack basic sanitation services.
- ▶ The current waterborne sanitation infrastructure system is unsustainable considering that South Africa is a water-scarce country and water scarcity is likely to increase as a consequence of climate variability.
- ▶ It is estimated that ~R90 billion per year of investment is needed in water and sanitation infrastructure over the next 10 years. Public funding gaps provide an opportunity for the private sector to finance water and sanitation projects to achieve access to adequate and equitable sanitation and hygiene for all South Africans.

### POTENTIAL OUTCOMES

Self-sufficient private sanitation plants could help strengthen basic service delivery and meet social needs, support economic growth, and increase access to sanitation services for the underserved population.

#### SDG ALIGNMENT

**Direct:** 1, 6  
**Indirect:** 9, 10, 11

#### SDG INDICATORS

- ▶ 1.4.1
- ▶ 6.2.1

#### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Social innovation

#### PRIORITY SUBREGIONS

The Western Cape, Mpumalanga, Limpopo, and Gauteng regions.

#### USERS OR BENEFICIARIES

- ▶ **Direct:** People staying in social housing, hospitals, and schools who will directly benefit from the self-sufficient private sanitation plants; local municipalities that are under immense pressure to provide sanitation services to citizens living outside the network of wastewater treatment systems
- ▶ **Indirect:** the environment (self-sufficient private sanitation plants use less water)

#### RETURN PROFILE

Low to medium returns.

#### INVESTMENT TIME FRAME

Short-term.

#### MARKET SIZING

South Africa's population experienced substantial growth between 1994 and 2020, increasing from 40 to 59.62 million, leading to a greater number of households that need to be serviced. According to the SDG country report, in 2017, 83% of the national population had access to improved sanitation facilities as compared to the 80% of the population in 2015. While this was an improvement, it is estimated that approximately 16 million South Africans still do not have access to adequate sanitation facilities.

#### POLICY ENVIRONMENT

- ▶ The 2019 National Water and Sanitation Master Plan Volume 1 encourages private sector financing for municipal infrastructure.
- ▶ The National Infrastructure Plan is a 10-year plan that aims to address the estimated backlog to supply 2.1 million households with basic sanitation. In line with the National Infrastructure Plan and national policies, local municipalities endeavor to prioritise the provision of basic water and sanitation to all citizens in their jurisdiction.

#### REGULATORY ENVIRONMENT

- ▶ Water services and sanitation in South Africa are governed and regulated by the Department of Water and
- ▶ Sanitation and the Strategic Framework on Water Services (SFWS) (2003)
- ▶ The Water Services Act, 1997 (Act No. 108 of 1997)
- ▶ The National Water Act
- ▶ Municipal Finance Management Act
- ▶ Municipal Services Act
- ▶ Preferential public procurement framework

#### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa, GAIA Infrastructure Capital  
**Corporates/Businesses:** Sanitech, Water and Sanitation Services South Africa (Pty) Ltd, Enviro Options  
**NGO/public:** GreenCape, The Gates Foundation, Mvula Trust, Tsogang Rural Development Agency cc, BORDA, UKZN

#### FINANCIAL ENVIRONMENT

- ▶ The government subsidy scheme for the provision of basic water and sanitation services.
- ▶ Key grants include the equitable share, MIG, RBIG, and new Water Services Development Grant

#### OBSTACLES TO SCALE

**Commercialisation:** Traditionally, it has been a municipal mandate to provide water, sanitation, and hygiene services, so there has been little leeway for private sector provision except through the municipal structures. This has limited commercialisations in the past.  
**Finance:** access to funding  
**Operational issues:** capacity constraints, procurement processes, and revenue collection

#### IMP CLASSIFICATION

**C:** Contributes to solutions  
**What:** The outcome is likely to be positive and important as it increases access to sanitation infrastructure.  
**Who:** underserved South African citizens living without access to basic sanitation  
**Risk:** low risk

#### NEGATIVE EXTERNALITIES

**Indirect:** the environmental impact of the sanitation system, water wastage



# INFRASTRUCTURE

## IOA: Dry sanitation technologies for underserved communities

### BUSINESS MODEL

Provide self-sufficient dry sanitation technologies (dry onsite toilets) for peri-urban and informal settlements that are outside networks of wastewater treatment systems.

#### POTENTIAL OUTCOMES

- The beneficiation of waste collected from dry sanitation toilets turns its collection and processing into a business opportunity. The waste collected from these toilets can be composted and used as manure for agriculture, bringing economic benefits. Alternatively, it can be converted into drinking water, electricity, and pathogen-free ash.
- This solution has the potential to increase safe and equitable access to decent sanitation, reduce demand for valuable water sources, create climate-smart solutions, create opportunities within the circular economy, and increase access to resources such as water, electricity, and bricks.

#### DEVELOPMENT NEED

- The ongoing drought in the Western Cape has been well documented and towards the end of 2019, the Eastern Cape and Northern Cape were also declared disaster areas by the national government due to the ongoing droughts in these provinces. These droughts have given a new urgency to the discussion on sustainable and water saving sanitation solutions. By 2050, many parts of South Africa are expected to be vulnerable to water supply risks.
- The issue of water security has far reaching consequences across the entire economy of South Africa. More efficient use and management of water are critical to addressing the growing demand for water, threats to water security, as well as the increasing frequency and severity of droughts and floods resulting from climate change.
- According to the 2019 SDG report, ahead of 2030, South Africa must deliberate on how to provide safely managed sanitation facilities to underserved areas that are both water-smart and sustainable. The current waterborne sanitation infrastructure system is unsustainable, considering that South Africa is a water-scarce country and water scarcity is likely to increase as a consequence of climate variability. Failure to provide an adequate and functional sanitation can lead to disastrous impacts on the health and social wellbeing of communities, the environment, and the economy of the country.
- Dry sanitation toilets, which do not rely on water to function, offer one solution to creating sustainable sanitation service for more South Africans.

#### PRIORITY SUBREGIONS

Potential investment regions include the Western Cape, Eastern Cape, and Northern Cape provinces.

#### SDG ALIGNMENT

**Direct:** 1, 6  
**Indirect:** 9, 13

#### SDG INDICATORS

- 1.4.1
- 6.2.1

#### CROSS CUTTING THEMES

- Addressing inequality challenges through access to affordable basic services
- Climate change
- Social innovation

#### USERS OR BENEFICIARIES

**Direct:** People who require access to sanitation systems, local municipalities that are struggling to provide sanitation services to people living outside networks of wastewater treatment systems  
**Indirect:** the environment

#### RETURN PROFILE

Low to medium returns.

#### INVESTMENT TIME FRAME

Long term.

### MARKET SIZING

In 2017, 83% of the national population had access to improved sanitation facilities, which means that between 9-10 million people still needed access to sanitation services. There are still millions of South Africans living in informal settlements who don't have adequate access to proper toilets.

#### REGULATORY ENVIRONMENT

- Water services and sanitation in South Africa are governed and regulated by the Department of Water and Sanitation. The National Water Act and the Water Services Act form the overarching legal framework for water and sanitation.
- The Strategic Framework on Water Services (SFWS) (2003)
- Municipal Finance Management Act
- Municipal Services Act

#### POLICY ENVIRONMENT

- The National Water and Sanitation Master Plan Volume 1 (2019)
- The National Sanitation Policy

### FINANCIAL ENVIRONMENT

**Grants and subsidies:** The South African government has a subsidy scheme for the provision of basic water and sanitation services. As set out in South Africa's National Development Plan, the government has committed to invest 10% of the GDP in three key areas: transport, energy, and water. Key grants include the equitable share, MIG, RBIG, and new Water Services Development Grant.

#### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa, GAIA Infrastructure Capital, Acumen, Novastar, and Eleos  
**Corporates/Businesses:** EcoSan, EnviroLoo, Enviro Options, Dow, SAP  
**NGO/public:** GreenCape, Non-Water Sanitation South Africa, NGO BIOI, The Gates Foundation, Tsogang Rural Development Agency cc and Sanergy, BORDA, UKZN

#### OBSTACLES TO SCALE

**Finance:** access to funding  
**Operational issues:** capacity constraints, procurement processes, and revenue collection

### IMP CLASSIFICATION

**C:** Contributes to solutions  
**What:** The outcome is likely to be positive and important because this investment could assist in providing sustainable sanitation solutions that reduce water usage.  
**Who:** Underserved citizens living in remote areas, drought-affected areas, or informal settlements without access to running water and sanitation infrastructure  
**Risk:** Medium risk





# INFRASTRUCTURE

## IOA: Landfill diversion through waste reuse solutions

### BUSINESS MODEL

Invest in landfill diversion solutions for organic and liquid waste such as closed-loop waste-to-energy systems.

### DEVELOPMENT NEED

- ▶ South Africans generate roughly 54.2 million tonnes of general (municipal, commercial, and industrial) waste per year. According to the CSIR, 90% of South Africa's waste is disposed of in landfills and about 40% of all waste going to landfills is organic. Only 10% is recycled or recovered for other uses.
- ▶ Municipalities throughout South Africa are facing crises of solid waste disposal and management. As the population grows, land becomes scarce and landfill sites fill up quicker. The Institute of Waste Management of Southern Africa (IWMSA) indicates that most major cities and local municipalities across South Africa have very little space left in their landfills. The resultant effect is increasing pressure on waste management resources and the environment.
- ▶ If not managed effectively, this waste problem may cause degradation of invaluable land resources, human health hazards, and long-term environmental impacts. As landfill airspace dwindles and becomes a scarce commodity, the cost of waste disposal continues to increase significantly.
- ▶ The business case for landfill diversion is increasing, as it becomes increasingly difficult and expensive to dump waste in landfills.

### POTENTIAL OUTCOMES

Diverting waste from landfills promotes sustainable waste management and consequently has the potential to reduce the burden on municipalities, promote business and job creation, reduce the impact of waste on the environment, and provide green infrastructure investment opportunities.

### USERS OR BENEFICIARIES

**Direct:** local communities (by creating jobs), municipalities (by reducing the pressure to address waste management problems)  
**Indirect:** the environment (by reducing greenhouse gases)

### PRIORITY SUBREGIONS

The opportunities for landfill diversion are all in the metro regions. Specific regions that have been identified due to their attractive investment potential include the Cape Town and Johannesburg metros.

### RETURN PROFILE

High return.

### INVESTMENT TIME FRAME

Short to medium term.

### POLICY ENVIRONMENT

- ▶ Applicable frameworks include: the National Development Plan 2030 (2012); the Provincial Spatial Development Framework (2014), The Western Cape Green Economy Strategy Framework (2013), the Provincial Strategic Plan 2014 - 2019, the Climate Change Response Strategy (2014), the Western Cape Integrated Waste Management Plan 2017 – 2022, the National Environmental Management: Waste Act 59 of 2008, the 2011 National Waste Management Strategy
- ▶ Bans on certain waste to landfill (liquid and organic waste) will divert waste from landfills, promote reuse, and open up more business opportunities in the waste management sector.

### REGULATORY ENVIRONMENT

- Waste legislation places significant financial and concomitant environmental consequences on municipalities to be compliant:
- ▶ The National Pricing Strategy for Waste Management, 2016 (GN. No. 904)
  - ▶ The requirements of the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEMWA)
  - ▶ National Waste Management Strategy, 2011
  - ▶ The National Domestic Waste Collection Standards, 2011 (GN No. 21)
  - ▶ Investors and businesses developing/expanding waste initiatives require a waste management licence
  - ▶ Section 76 to Section 78 of the Municipal Systems Act (32 of 2000) outline the key steps needed before municipalities are able to partner with the private sector

### OBSTACLES TO SCALE

**Policy and regulation:** The sector is waiting on numerous regulatory changes, which has slowed the growth of the sector. The implementation of waste recycling programmes has been influenced by restrictive legislation. However, the changing economic and legislative conditions are expected to drive investment in the future. An extensive legislative framework has made it challenging for the public and private sector to remain compliant and competitive in local and global markets.

**Processes:** short procurement durations, difficult procurement / tender process

### SDG ALIGNMENT

**Direct:** 11, 12  
**Indirect:** 7, 8, 9, 13

### SDG INDICATORS

▶ 1.6.1  
▶ 11.6.2  
▶ 12.5.1

### CROSS CUTTING THEME

▶ Climate change  
▶ Job creation

### MARKET SIZING

- ▶ There are waste management opportunities opened up by industry changes at provincial and national level. Currently, South Africa's combined market value of municipal solid waste and commercial and industrial organics is estimated between R86 million and R162 million. At a municipal level, the Cape Town metropolitan area offers investors an attractive investment opportunity with an estimated market value of between R61 and R115 million.
- ▶ The landfilling of the organic waste cost the commercial and industrial sector R138 million and R39 million, respectively, in disposal overheads in 2019. In 2017, the then national Department of Environmental Affairs (DEA) undertook Operation Phakisa: Chemicals and Waste Economy. It identified initiatives to divert 20 million tonnes of waste from landfills. If realised, these initiatives were estimated to unlock an additional R11.5 billion per year to help create 45 000 direct and 82 000 indirect jobs, and 4 300 small, medium, and micro-sized enterprises.

### FINANCIAL ENVIRONMENT

Grants and subsidies for landfill diversion are provided from the Municipal Infrastructure Grant, the Green Fund, and the Grant for Social Services.

### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa  
**Corporates/Business:** Verda, Okran, Agriprotein, Athlone integrated waste management facility, SA Waste Holdings, Earth Probiotic, Ibert Zandam, New Horizons Energy (Pty) Ltd, Interwaste, Zero to Landfill Organics, Global Energy, Organic Matters, Waste-Mart, WastePlan, Tnergy (Pty) Ltd, Ywaste, Interwaste Environmental Solutions, Smart Waste, Waste Plan (Pty)  
**NGO/Public:** GreenCape, Institute of Waste Management of Southern Africa, Organics Recycling Association of South Africa

### IMP CLASSIFICATION

C: Contributes to solutions

**What:** The outcome is likely to be positive and important as it will unlock development opportunities within the waste management sector, divert waste from landfills, and promote job creation and sustainability.  
**Who:** Local municipalities struggling with waste management problems, the environment, and SMEs that use the waste being diverted from landfills (such as biogas from solid organic waste)  
**Risk:** Medium risk

### NEGATIVE EXTERNALITIES

**Direct:** Job losses at landfill sites and existing waste management handlers due to decreased use of landfills.  
**Indirect:** Adverse effects existing industries and businesses (e.g. remanufacturing plants that use recycled waste compete with traditional manufacturers and recycled products are generally cheaper than new products). If not managed properly, processes may pollute the environment.



# INFRASTRUCTURE

## IOA: Repurposing builders' rubble

### BUSINESS MODEL

Scale-up the application of builders' rubble as a secondary construction material and road-building material and for manufactured building sand from rubble.

#### DEVELOPMENT NEED

- ▶ In 2017, an estimated 5.36 million tonnes of builders' rubble were generated in South Africa. However, according to the GreenCape Market Intelligence Report, in the Western Cape alone, the figure may be as high as 8.7 million in 2017 and 9.0 million in 2018.
- ▶ In South Africa, builders' rubble is usually landfilled in spite of its potential for reuse. However, landfilling rubble is associated with increased financial and environmental costs due to decreasing municipal landfill airspace, increasing costs to dump building material in landfills, and high logistical costs to transport material.
- ▶ The Carbon Tax Act has created a negative impact on the business case for virgin material in road building, creating an opportunity for repurposing builders' rubble as construction material.

#### SDG ALIGNMENT

- ▶ **Direct:** 12
- ▶ **Indirect:** 8, 9, 13

#### SDG INDICATORS

- ▶ 2.2.1
- ▶ 12.5.1

#### CROSS CUTTING THEMES

- ▶ Climate change
- ▶ Job creation
- ▶ SME development

### POTENTIAL OUTCOMES

- ▶ The diversion of builders' rubble from landfills and repurposing of it as a secondary construction material has the potential to divert save valuable landfill airspace, provide environmental benefits by establishing a circular economy, decrease illegal dumping, increase cost savings in road building and landfill operations, and increase job opportunities.
- ▶ Based on the survey of six major crushers in Cape Town, there is an average of 9.7 jobs created per 1 000 m<sup>3</sup> of builders' rubble processed.

#### PRIORITY SUBREGIONS

Metros with high construction outputs such as Johannesburg, Cape Town, and Ekurhuleni.

#### USERS OR BENEFICIARIES

**Direct:** rubble crushing companies, demolition and construction companies

#### RETURN PROFILE

Information regarding the IRR for repurposing builders' rubble is not available.

#### MARKET SIZING

It has been estimated that 25% of rubble entering the CoCT landfills may be suitable for use in road construction. The Western Cape generates up to 9 million tonnes of builders' rubble annually and the market value is estimated at R48 million per year.

#### INVESTMENT TIME FRAME

Short term.

### POLICY ENVIRONMENT

- ▶ Builders' rubble is one of the 20 focus areas of Operation Phakisa.
- ▶ National Roads Policy
- ▶ Carbon Tax Act

#### REGULATORY ENVIRONMENT

- ▶ Crushing companies need to be accredited through the Solid Waste Department as a waste management service provider.
- ▶ The development of guidelines for the application of secondary materials in roads was initiated by a resolution of the Road Pavement Forum in May 2016
- ▶ The National Environmental Management: Waste Act (no. 59 of 2008)

#### FINANCIAL ENVIRONMENT

- ▶ Opportunities include upcoming crushing tenders in the Cape Town and Stellenbosch municipalities. The Stellenbosch municipality is also likely to publish a new crushing tender at its Devon Valley Landfill in 2020.
- ▶ The City of Cape Town will be publishing a new builders' rubble crushing tender in the third quarter of 2020, following the first tender cycle of three years.
- ▶ The Saldanha Bay municipality is in the planning phase for a rubble crushing tender at municipal sites..

### PARTNER ENVIRONMENT

**Investors:** The Development Bank of Southern Africa

**Corporates/Business:** Mott MacDonald

**NGO/Public:** GreenCape, local municipalities with builders' rubble crushing plans (e.g. Stellenbosch), Solid Waste Department, City of Cape Town and Western Cape government, Department of Environmental Affairs and Development Planning, Department of Economic Development and Tourism

#### OBSTACLES TO SCALE

**Industry standards:** The absence of specifications for road building aggregate, including secondary materials, is a challenge further exacerbated by the reluctance of engineers to specify alternative materials. Construction companies cite lack of specifications and reluctance on the part of government to include secondary materials, as the main stumbling blocks for industry.

**Operations:** The key to market growth is ensuring the quality of material available, which must start with proper sorting of waste at the source, followed by subjecting crushing operations to strict quality controls.

#### IMP CLASSIFICATION

B: Benefits stakeholders

**What:** The outcome is likely to be positive and important as it unlocks development opportunities within the waste management sector, diverts waste from landfills, and promotes job creation and sustainability.

**Who:** local municipalities struggling with waste management, the environment, SMEs that use builders' rubble as inputs

**Risk:** Medium risk (Potential impact of changing government regulations and strict standards and regulations that waste management companies must adhere to with penalties and fines for non compliance).

### NEGATIVE EXTERNALITIES

**Direct:** N/A



# INFRASTRUCTURE

## IOA: Affordable housing mini-rises

### BUSINESS MODEL

Invest in the development of affordable mini-rises (two-story walk-ups)

### POTENTIAL OUTCOMES

Investing in the development of affordable mini-rises has the potential to increase access to affordable solutions that address the national housing crisis (through the development of gap housing), stimulate local economic growth and job creation (local contractors and laborers are to be used to build the units), empower female entrepreneurs, and decrease inequality.

### SDG ALIGNMENT

**Direct:** 1, 11  
**Indirect:** 4, 9, 10

### SDG INDICATORS

▶ 1.4.1  
▶ 11.11

### CROSS CUTTING THEME

- ▶ Addressing inequality through access to affordable basic services
- ▶ Job creation

### RETURN PROFILE

Medium return.

### INVESTMENT TIME FRAME

Both short term (<5 years) and medium/Long term options (5-15 years) exist

### DEVELOPMENT NEED

- ▶ In South Africa, nearly 1.5 million families live in informal settlements, half of which are in the eight metropolitan cities. Based on data from Stats SA, it is estimated that there are over 300 000 households living in informal dwellings in the Western Cape alone. Of these households, approximately 40% are living in backyard informal dwellings and 60% in informal settlements.
- ▶ It is now a national priority to respond systematically to the increasing rate of urbanisation. The National Development Plan (NDP) aims to eliminate poverty and reduce inequality by 2030. To reduce the effects of poverty in the short term, the NDP promotes mixed housing strategies and more compact urban development. The goal is to improve standards of living through low-income housing delivery in good urban locations.
- ▶ Mini-rises (two-story walk-ups) present an opportunity to provide affordable, compact housing in urban areas.

### PRIORITY SUBREGIONS

There are opportunities for investing in the development of low-cost housing in all of the main urban centres: Pretoria, Johannesburg, Cape Town, and Durban.

### USERS OR BENEFICIARIES

**Direct:** South Africans (and foreign nationals) who need access to affordable housing, builders and contractors, property entrepreneurs/owners, property managers, architects and engineers  
**Indirect:** Local municipalities

### MARKET SIZING

Over 4.8 million housing opportunities have been provided with government support in South Africa since 1994, including 3.28 million subsidised houses. However, a lot needs to be done to respond to the needs of the nearly 1.5 million households living in informal settlements across South Africa.

### POLICY ENVIRONMENT

- ▶ South African towns and cities are of a unique nature, characterised by historically distorted settlement patterns. However, since 1994 the government has created several policies, regulations, and subsidies to correct the wrongs of the past.
- ▶ Housing in South Africa is a basic human right, enshrined in the country's Constitution. The State is obligated to ensure everyone has access to adequate housing and must take reasonable legislative and other measures to achieve the realisation of this right.

### REGULATORY ENVIRONMENT

- ▶ The 2009 Housing Code
- ▶ The Social Housing Act 16 of 2008
- ▶ The Social Housing Regulatory Authority (SHRA)
- ▶ National Home Builders Registration Council (NHBC)
- ▶ Urban Development Framework
- ▶ Rental Housing Act 50 of 1999
- ▶ Housing Act (No. 107 of 1997)
- ▶ Home Loan and Mortgage Disclosure Act, 2000

### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa, Development Action Group (DAG), the Trust for Urban Housing Finance (TUHF), GPF Fund, the Public Investment Corporation (PIC)  
**Corporates/Business:** PPC, Delft South, Ilitha Park, South Africa Siyasebenza, The New Housing Company, TUHF (Pty) Ltd, uMaStandi, Chartwell Group  
**NGO/Public:** GreenCape, Habitat for Humanity International, Banking Association of South Africa, Ministry of Finance – National Treasury

### FINANCIAL ENVIRONMENT

- ▶ Through the National Housing Subsidy Scheme (NHSS), 2.6 million (at 2014) state-subsidised houses have been delivered to low-income households across the country
- ▶ Direct funding programmes focus on households earning below R15 000 a month, but most programmes focus on households earning below R3 500 a month.
- ▶ Other funding opportunities: Housing Impact Fund South Africa (HIFSA), Integrated Residential Development Programme, Institutional Subsidies, Social Housing Programme, Community Residential Units, Enhanced People's Housing Process, Upgrading Informal Settlements Programme

### IMP CLASSIFICATION

**C:** Contributes to solutions  
**What:** The outcome is likely to be positive and important by providing access to affordable housing.  
**Who:** Underserved individuals that desperately need access to affordable housing and local builders  
**Risk:** Low risk

### OBSTACLES TO SCALE

**Industry:** The private sector has avoided involvement in the supply of lower income housing, partly due to the large role that the state has made for itself in the delivery of housing.  
**Contractor capacity:** Access to affordable finance and a lack of formal construction management skills were identified as the major challenges encountered by these developers.  
**Funding model:** The complexities of assembling housing subsidies for multiple beneficiaries in a single housing development, and the economics of cross-subsidising social housing with market-rate housing in integrated developments.  
**Policy:** major issues regarding the implementation of 'the right to build' time taken to approve zoning and pass buildings plans

### NEGATIVE EXTERNALITIES

**Direct:** New construction work may require the demolition of existing infrastructure. New construction projects may cause a loss in biodiversity, and destruction of natural habitats and rural landscapes.  
**Indirect:** Reduce demand for existing local rental





# INFRASTRUCTURE

## IOA: Affordable housing finance for the unbanked

### BUSINESS MODEL

Provide affordable housing finance for households outside the formal banking system and with limited credit history, using algorithmic assessments of social and non-banking financial transactions to determine a risk profile.

#### DEVELOPMENT NEED

- ▶ Housing affordability in South Africa has been a significant challenge in recent decades. Efforts from both government and private sector have been unable to quell the growing deficit of housing in the country, especially at the lower end of the residential market. Many citizens are outside the formal banking system and cannot afford traditional forms of finance. In South Africa, there is a major financing gap for households earning between R3 500 and R15 000.
- ▶ There is already a range of informal and formal financial products available in South Africa. However, there are significant constraints in terms of information and awareness, access, eligibility, and affordability.
- ▶ A lack of traditional financial information also makes it difficult for lenders to make sound lending decisions. Therefore, new credit risk models that do not rely on traditional consumer finance and microcredit, and rather use algorithmic assessments of other consumer behaviour through social media, mobile-phone usage patterns, or utility bill payment history, should be developed and incorporated into lenders' toolkits. The use of this personal data must be subject to customer consent.

#### POTENTIAL OUTCOMES

Providing affordable finance for housing in this way has the potential to increase accessibility of housing to individuals at the lower end of the residential market who cannot afford traditional financial products; increase the mortgage market by introducing innovative products that serve households with stable, albeit low, incomes; increase financial inclusion; and assist in revealing a true credit risk profile for the unbanked which can help them to access finance where they previously could not.

#### SDG ALIGNMENT

**Direct:** 1, 11  
**Indirect:** 4, 8, 9, 10

#### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Digital transformation
- ▶ Social innovation

#### SDG INDICATORS

- ▶ 1.4.1
- ▶ 1.4.2
- ▶ 11.1.1

#### PRIORITY SUBREGIONS

There are opportunities for investing in finance for low-cost housing across South Africa in both urban areas (Pretoria, Johannesburg, Cape Town, and Durban) and rural settings.

#### USERS OR BENEFICIARIES

**Direct:** South Africans (and foreign nationals) who need access to affordable housing, builders and contractors, property entrepreneurs/owners, property managers, architects and engineers  
**Indirect:** Local municipalities

#### MARKET SIZING

- ▶ There are nearly 1.5 million households living in informal settlements across South Africa.
- ▶ Analysis indicates that roughly 21% of the 14.9 million households who earn less than R15 000 per month lie within the addressable market for affordable housing finance. These households could potentially support lending activity in the realm of R35 billion disbursed per annum.

#### POLICY ENVIRONMENT

- ▶ Since 1994, the South African government has prioritised upgrading informal settlements. The housing policy and strategy developed after 1994 focused on stabilising the environment to transform and ensure delivery to address the housing backlog.
- ▶ Inclusionary housing is a policy tool to enable low income households access to quality housing they can afford in the areas of the city where they can have maximum access to employment opportunities, services, and amenities.

#### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa, Development Action Group (DAG), Trust for Urban Housing Finance (TUHF), GPF Fund, Public Investment Corporation (PIC).  
**Corporates/Business:** PPC, Ikhayalami, Chartwell, IBUILD, TUHF, Heart Capital, Flash Money, PACE, Innovation Switch, GIG Property.  
**NGO/Public:** GreenCape, National Treasury, GTAC.

#### RETURN PROFILE

Medium return.

#### INVESTMENT TIME FRAME

Medium to long term.

#### REGULATORY ENVIRONMENT

- ▶ The Housing Act 107 of 1997
- ▶ The BNG 2004 policy
- ▶ National Housing Code 2009 (NHC)
- ▶ The Social Housing Regulatory Authority (SHRA)
- ▶ The National Credit Act, No. 34 of 2005
- ▶ The Urban Development Framework
- ▶ The Housing Act (No. 107 of 1997)

#### FINANCIAL ENVIRONMENT

- ▶ Government has introduced new separate metropolitan and provincial grants to the value of nearly R6 billion for informal settlement upgrading. Direct funding programmes focus on households earning below R15 000 a month, but most programmes focus on households earning below R3 500 a month.
- ▶ Potential sources of financing include the Rural Housing Loan Fund, the National Urban Reconstruction and Housing Agency, the National Housing Finance Corporation, and the Social Housing Regulatory Authority (SHRA).

#### OBSTACLES TO SCALE

**Consumer Behaviour:** Aside from constraints that would limit access, many households in South Africa have an aversion to using credit for building in particular.  
**Policy:** There is a need for an over arching enabling policy framework to guide the intervention of public and private sectors in both the affordable housing rental and ownership markets, which reflects consensus on parameters that define physical and financial products for affordable housing.

#### NEGATIVE EXTERNALITIES

**Direct:** New innovative financial instruments may reduce demand for traditional financial products used by low income consumers, such as microfinance and stokvels.

#### IMP CLASSIFICATION

**C:** Contributes to solutions  
**What:** The outcome is likely to be positive and important by providing access to affordable housing.  
**Who:** Underserved, low-income individuals in informal settlements and local builders  
**Risk:** Medium risk



# INFRASTRUCTURE

## IOA: Refurbishing inner city buildings for affordable housing

### BUSINESS MODEL

Refurbishing and repurposing inner city decayed buildings to create good quality, affordable rental housing units.

#### DEVELOPMENT NEED

- ▶ In South Africa, nearly 1.5 million families live in informal settlements, half of which are in the eight metropolitan cities. Over 70% of South Africa's population is expected to be living in urban areas by 2030. However, there is a clear need for housing in urban areas as the housing backlog in South Africa was approximately 2.3 million in 2019.
- ▶ Nearly 40% of households in the inner city of Johannesburg live in slum conditions. Affordable housing is neglected in the urban regeneration of South African cities.
- ▶ There are thousands of abandoned buildings spread across South Africa (old office buildings, factories etc.) and the number of vacant buildings is expected to increase significantly as a result of the Covid-19 pandemic. These buildings can be refurbished to create good quality, affordable rental housing units for low-income South Africans.

#### POTENTIAL OUTCOMES

Investing in building refurbishment for affordable housing has the potential to leverage existing resources and latent assets (property), decrease housing shortages and informality in urban hubs, improve sustainable neighbourhood and urban management, increase new entrants into the rental property market, promote urban land reform, increase job creation opportunities, and increase enterprise development.

#### SDG ALIGNMENT

**Direct:** 1, 11  
**Indirect:** 9, 10

#### SDG INDICATORS

- ▶ 1.4.1
- ▶ 11.1.1
- ▶ 11.3.1

#### CROSS CUTTING THEME

- ▶ Addressing inequality through access to affordable basic services
- ▶ Job creation

#### PRIORITY SUBREGIONS

In South Africa there are opportunities to invest in the refurbishment of inner city decayed buildings to create affordable housing in all major metros: Pretoria, Johannesburg, Cape Town, and Durban.

#### USERS OR BENEFICIARIES

**Direct:** South Africans (and foreign nationals) who need access to affordable housing, builders and contractors, property entrepreneurs/owners, property managers, architects, engineers  
**Indirect:** local municipalities

#### RETURN PROFILE

Medium return.

#### INVESTMENT TIME FRAME

Medium to long term.

### MARKET SIZING

- ▶ In South Africa, nearly 1.5 million families live in informal settlements, half of which are in the eight metropolitan cities.
- ▶ The demand for housing from lower-income households is substantial, suggesting critical opportunities for growth in the affordable housing market. Over the last year, the number of flats and townhouses completed and building plans approved in larger municipalities have grown significantly.

### FINANCIAL ENVIRONMENT

- ▶ TUHF funds entrepreneurs with a 15-year loan to refurbish or rehabilitate decayed inner city buildings to create good quality, affordable housing rental units. TUHF has financed over 30 000 housing units and managed to expand its loan book from R2.5 million (US\$176 000) in 2004 to R2.7 billion (US\$191 million) in 2018.
- ▶ The Social Housing Regulatory Authority (SHRA) invests in the delivery of affordable rental homes and renewed communities.

### PARTNER ENVIRONMENT

**Investors:** Human Settlements Development Bank, Intuthuko Equity Fund, The Jobs Fund, Gauteng Partnership Fund and National Housing Finance Corporation, First National Bank, Public Investment Corporation (PIC)  
**Corporates/Business:** South Africa Siyasebenza, New Housing Company, TUHF, uMaStandi, Chartwell Group NGO/Public: GreenCape, Habitat for Humanity International, Banking Association of South Africa, Ministry of Finance, National Treasury.

### REGULATORY ENVIRONMENT

- ▶ The 2009 Housing Code
- ▶ Urban Development Framework
- ▶ Rental Housing Act 50 of 1999
- ▶ Housing Act (No. 107 of 1997)
- ▶ Home Loan and Mortgage Disclosure Act, 2000

### POLICY ENVIRONMENT

- ▶ The mandate for government housing policies, and the legislative framework to enact them, is found in Section 26 of the Constitution.
- ▶ The 2004 Breaking New Ground government policy
- ▶ Outcome 8 of the National Development Plan 2030

### OBSTACLES TO SCALE

**Policy:** There is a need for an over arching policy framework to guide the intervention of public and private sectors in both the affordable housing rental and ownership markets, which reflects consensus on parameters that define physical and financial products affordable housing.

### NEGATIVE EXTERNALITIES

Many of the existing abandoned buildings in South Africa have been occupied by squatters. These individuals will need to be relocated to alternate accommodation before beginning with renovations. This process can be challenging as many people may be reluctant to leave.

### IMP CLASSIFICATION

**B:** Benefit stakeholders

**What:** The outcome is likely to be positive and important as it provides access to affordable housing in urban areas.

**Who:** South African citizens in need of affordable housing in metro areas

**Risk:** low risk



# INFRASTRUCTURE

## IOA: Urban development of low-cost housing

### BUSINESS MODEL

Invest in the development of low-cost housing close to transport hubs, places of work, and economic activity in urban areas

#### DEVELOPMENT NEED

- ▶ In South Africa, nearly 1.5 million families live in informal settlements, half of which are in the eight metropolitan cities.
- ▶ Over 70% of South Africa's population is expected to be living in urban areas by 2030. The City of Johannesburg, for example, continues to attract large numbers of migrants, with an estimated 25% from outside the Gauteng province and 10% from outside South Africa. However, there is a clear need for housing in urban areas. Johannesburg's housing backlog is estimated to be 296 000 and the average delivery is approximately 3 500 housing units a year. The overall housing backlog in South Africa was approximately 2.3 million in 2019.
- ▶ Of the 9.9 million urban households that earn less than R15 000 per month, almost 4 million have a visible need for improved housing.
- ▶ There is a need to develop small-scale urban developments, in partnership with large employer-assisted housing schemes, which are close to places of work. Employees will then have easy access to economic activities and employers will benefit from increased productivity. Repayment risk has been highlighted but can be mitigated by adding mortgage repayments to payslips.

#### POTENTIAL OUTCOMES

Investing in the development of low-cost housing in or near informal settlements has the potential to increase inclusion in formal housing in urban areas, improve access to economic hubs in metros, improve sustainable neighbourhood and urban management, increase entry of new renters to the rental property market, increase job creation opportunities, and improve employee productivity.

#### SDG ALIGNMENT

**Direct:** 1, 11  
**Indirect:** 9, 10

#### SDG INDICATORS

- ▶ 1.4.1
- ▶ 11.1.1
- ▶ 11.3.1

#### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Job creation

### USERS OR BENEFICIARIES

**Direct:** South Africans (and foreign nationals) who need access to affordable housing, builders and contractors, property entrepreneurs/owners, property managers, architects, engineers

**Indirect:** local municipalities

#### PRIORITY SUBREGIONS

There are investment opportunities for investing in low-cost housing across South Africa in the urban hubs of Pretoria, Johannesburg, Cape Town, and Durban.

#### MARKET SIZING

- ▶ In South Africa, nearly 1.5 million families live in informal settlements, half of which are in the eight metropolitan cities.
- ▶ The Western Cape Government (2016) estimates that there is a market of 55 000 inadequately housed households in the Western Cape.
- ▶ Nationally, the housing deficit is estimated at 2.3 million units.

#### RETURN PROFILE

Medium return.

#### INVESTMENT TIME FRAME

Medium to long term.

#### POLICY ENVIRONMENT

- ▶ The mandate for government housing policies, and the legislative framework to enact them, is found in Section 26 of the Constitution, which states that everyone has the right to access adequate housing.
- ▶ The 2004 Breaking New Ground (BNG) government policy for housing delivery
- ▶ Outcome 8 of the National Development Plan 2030

#### REGULATORY ENVIRONMENT

- ▶ The 2009 Housing Code
- ▶ Rental Housing Act 50 of 1999
- ▶ Housing Act (No. 107 of 1997)
- ▶ Home Loan and Mortgage Disclosure Act, 2000

#### PARTNER ENVIRONMENT

**Investors:** Human Settlements Development Bank, Intuthuko Equity Fund, The Jobs Fund, European Investment Bank, Public Investment Corporation (PIC)

**Corporates/Business:** South Africa Siyasebenza, New Housing Company, TUHF (Pty) Ltd, uMaStandi, Chartwell

**NGO/Public:** GreenCape, Habitat for Humanity International, Banking Association of South Africa, National Housing Finance Corporation, National Urban Reconstruction and Housing Agency, Social Housing Regulatory Authority

#### FINANCIAL ENVIRONMENT

- ▶ A select number of banks and the National Urban Reconstruction and Housing Agency (NURCHA, now merged with the NHFC) make construction finance available.
- ▶ TUHF Holding Pty Limited funds entrepreneurs with a 15-year loan to refurbish or rehabilitate inner city decayed buildings to create good quality, affordable housing rental units. It also provides equity funding and bridging finance to entrepreneurs
- ▶ Rural Housing Loan Fund (RHLF)
- ▶ Critical Infrastructure Programme (CIP) grants

#### OBSTACLES TO SCALE

**Policy:** There is a need for an overarching policy framework to guide the intervention of public and private sectors in both the affordable housing rental and ownership markets which reflects consensus on parameters that define physical and financial products for affordable housing. Lack of urban management and by-law enforcement in inner cities has created an obstacle to scale investment in these areas.

**Market:** constraints in terms of affordability and credit worthiness within the target market Consumer behaviour: Many households in South Africa have an aversion to credit for building in particular.

#### NEGATIVE EXTERNALITIES

**Direct:** New construction work may require the demolition of existing infrastructure.

**Indirect:** reduced demand for existing local rental options

#### IMP CLASSIFICATION

**B:** Benefit stakeholders

**What:** The outcome is likely to be positive and important as it provides access to affordable housing in urban areas.

**Who:** people in need of affordable housing closer to their workplaces in the metros

**Risk:** low risk





# INFRASTRUCTURE

## IOA: Repurposing power stations with sustainable alternatives

### BUSINESS MODEL

Provide financing for the repurposing of old, dirty power plants to support low-carbon energy growth, enterprise development, and sustainable job growth

### DEVELOPMENT NEED

- ▶ The South African power generation infrastructure is under severe pressure. Rolling blackouts (load shedding) continue as state provider Eskom is unable to meet current energy demands. This load shedding has had a significant impact on the South African economy.
- ▶ Currently the South African electricity mix is primarily made up of coal assets. South Africa is the largest contributor to greenhouse gas emissions in Africa and the country's emissions per capita is the eighth highest in the world.
- ▶ South Africa's Critical Infrastructure Programme (CIP) identifies energy efficiency as a key strategic area for application of Clean Technology Fund (CTF) resources in both the public and private sectors.
- ▶ As outlined in the National Infrastructure Plan, the government aims to decarbonise the energy system and provide access to reliable clean electricity for all South Africans. This can be accomplished, in part, by the rehabilitation of existing energy infrastructure for use in producing clean energy.

### POTENTIAL OUTCOMES

The rehabilitation of existing energy infrastructure has the potential to increase near-term energy supply, reduce carbon emissions, increase universal access to sustainable and affordable energy, contribute to the country's short-term objective of avoiding an energy crisis, improve energy output, ease the burden on the national power grid, strengthen the delivery of basic services, and promote enterprise development and sustainable job growth.

### SDG ALIGNMENT

**Direct:** 7, 9, 13  
**Indirect:** 1, 8, 12

### SDG INDICATORS

- ▶ 1.4.1
- ▶ 7.1.1
- ▶ 7.1.2
- ▶ 7.2.1
- ▶ 9.4.1
- ▶ 13.2.2

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Climate change
- ▶ Job creation

### PRIORITY SUBREGIONS

Eskom has expressed interest in refurbishing three fossil fuel power plants in the Mpumalanga province that are scheduled to be decommissioned in the current decade.

### RETURN PROFILE

Medium to high returns.

### INVESTMENT TIME FRAME

Medium term.

### USERS OR BENEFICIARIES

**Direct:** Eskom (national power grid), businesses, South African citizens  
**Indirect:** the environment

### MARKET SIZING

- ▶ The global energy services market has shown the ability to impact projects in buildings, industry, and transport in both the private and public sectors around the world.
- ▶ The value of the global energy services market grew by 8% to USD 33.17 billion in 2019. South Africa's total available energy services market is expected to reach R125 billion by 2035.

### PARTNER ENVIRONMENT

**Investors:** Carbon Trust, World Bank, Power Africa, Industrial Development Corporation, Futuregrowth  
**NGO/Public:** GreenCape, Energy 4 Impact, PREO

### REGULATORY ENVIRONMENT

- ▶ Integrated Resource Plan (IRP) 2019
- ▶ Electricity Regulation Act 4 of 2006 as amended by the Electricity Regulation Amendment Act 28 of 2007 (ERA)
- ▶ Carbon Tax Act No 15 of 2019

### POLICY ENVIRONMENT

- ▶ National energy planning and governance framework
- ▶ A number of policy adjustments are proposed to ensure a practical plan that will be flexible to accommodate new and innovative technologies that are not currently cost-competitive.

### FINANCIAL ENVIRONMENT

- ▶ A range of general and sector-specific funding solutions and incentives are available to investors, manufacturers, and service companies in the green economy. Development Finance Institutions (DFIs), local public and private sector financiers and investors, and a range of tax incentives currently exist.
- ▶ Available funds include the AFD Green Energy Fund and Clean Technology Fund
- ▶ Eskom is seeking proposals for how to "repurpose" old, dirty power plants with technologies that support low-carbon growth.
- ▶ Grant funding is administered by the Department of Energy. The National Infrastructure Plan also presents substantial investment opportunities.

### OBSTACLES TO SCALE

**Operational issues:** capacity constraints, procurement processes, and revenue collection

### NEGATIVE EXTERNALITIES

**Indirect:** could divert resources away from other renewable energy projects, such as wind and solar

### IMP CLASSIFICATION

C: Contributes to solutions

**What:** The outcome is likely to be positive and important because as the investment could assist in providing reliable power generation through clean energy production.

**Who:** South African SMEs and citizens, Eskom, the environment

**Risk:** Medium risk



# INFRASTRUCTURE

## IOA: Green hydrogen infrastructure

### BUSINESS MODEL

Invest in green hydrogen infrastructure projects for electric utilities and off-grid power generation, such as small scale hydrogen energy systems that can provide reliable clean energy to commercial, industrial, and residential sectors. Additional green hydrogen opportunities through investments in hydrogen fuel cell technology, decarbonising transport and repurposing old dirty coal power stations.

#### DEVELOPMENT NEED

- To ensure security of supply, global and local energy infrastructure will require transformation. A major challenge for the South African government is to service rural populations that make connection to the national grid expensive. Distributed, off-grid, clean sources of energy (such as solar, wind, and hydrogen) offer cost-effective solutions for increasing access for rural populations.
- South Africa's investment needs in energy are vast. The South Africa National Infrastructure Plan highlights the governments aims to decarbonise the energy system and provide access to reliable clean electricity for all South Africans. The aspiration of the Department of Energy is to increase the share of renewable energy sources in the total national energy mix to 30% by the year 2025.
- Green hydrogen offers economically viable green infrastructure solutions. It has benefits for both the energy system and end-use applications. Green hydrogen energy has the versatility to operate across various sectors including transport, industry, and electricity generation. Existing solar and wind infrastructure, as well as gas pipelines and trucks can be incorporated in the generation and distribution of green hydrogen. Most coal stations can also be repurposed to have hydrogen.
- Additional green hydrogen opportunities include investments in hydrogen fuel cell technology and decarbonising transport.

#### POTENTIAL OUTCOMES

The short-term and long-term benefits of green hydrogen infrastructure include increased provision of cost effective, reliable energy services for various niche applications in Southern Africa, and increased provision of a reliable supply of energy for households, schools, clinics, and small businesses in rural areas.

#### CROSS CUTTING THEMES

- Addressing inequality through access to affordable basic services
- Climate change
- Job creation

#### PRIORITY SUBREGIONS

There are opportunities to invest in green hydrogen infrastructure projects throughout South Africa. The business case is particularly strong for investment in hydrogen as a fuel for public transportation in large metros, such as Cape Town and Johannesburg.

#### USERS OR BENEFICIARIES

**Direct:** Businesses and private citizens  
**Indirect:** the environment

#### SDG ALIGNMENT

**Direct:** 7, 9  
**Indirect:** 1, 8, 12, 13

#### SDG INDICATORS

- 7.1.1
- 7.1.2
- 7.2.1
- 9.4.1

### MARKET SIZING

- The global hydrogen generation market size is expected to reach US\$160 billion by 2026.
- As the demand for hydrogen is growing globally, the export potential of clean renewable hydrogen is also under scrutiny in South Africa. If South Africa could capture a 25% market share of the estimated 800 000 tonnes per year of hydrogen demand from Japan, this would be US\$600 million a year.

#### RETURN PROFILE

Medium to high returns.

#### INVESTMENT TIME FRAME

Medium to long term.

#### PARTNER ENVIRONMENT

**Investors:** Development Bank of Southern Africa, Department of Science and Technology (DST), Airbus, National Aerospace Centre  
**Corporates/Business:** Hydrox, Sasol, Intelligent Energy, IST, Eskom, Afrox, Anglo American Platinum, Bambili Energy Group, Singapore-based Horizon, US-based Element One, Powercell Sweden, Navita  
**NGO/Public:** GreenCape, CSIR, Hydrogen South Africa (HySA) Infrastructure, Fraunhofer IEE, IKEM

#### POLICY ENVIRONMENT

- The South African government has introduced various policies that support the adoption and growth of renewable energy in the country. These policies include fixed feed-in tariffs, tax exemption for Clean Development Mechanism (CMD) revenues, and a carbon tax.
- The government has formulated an active national policy regarding the hydrogen economy and South Africa has joined the International Partnership for Hydrogen and Fuel Cells in the Economy. The South African cabinet adopted hydrogen and fuel cell technology as one of the priority technologies to be developed in a bid to reduce the country's dependence on coal-fired power generation, oil, and gas.

### FINANCIAL ENVIRONMENT

- The Department of Science and Technology has invested R450 million (US\$40 million) in its hydrogen-energy strategy.
- The aspiration of the Department of Energy is to increase the share of renewable energy sources in the total national energy mix to 30% by the year 2025 and has set aside approximately R55.92 billion to achieve this.
- Projects that alleviate water and/or electricity dependency on the national grid can apply to the Critical Infrastructure Programme (CIP), which will offer a grant of 10-50%, up to a maximum of R50 million.

#### OBSTACLES TO SCALE

**Environmental:** Currently, almost all of the available hydrogen is produced from hydrocarbons such as natural gas and coal. However, green hydrogen (hydrogen produced from renewable energy sources) is starting to grow in popularity.

**Costs:** Green hydrogen is still expensive and hard to scale.

**Technology:** Inadequate scientific knowledge and expertise in the developing world to embrace the new technology. The hydrogen storage problem is one of the major challenges in the deployment of hydrogen-based energy systems.

#### IMP CLASSIFICATION

C: Contributes to solutions

**What:** The outcome is likely to be positive and important because the investment could promote infrastructure development and offer economically viable green economy infrastructure solutions.

**Who:** Green hydrogen energy has the versatility to operate across various sectors including transport, industry, and electricity generation.

**Risk:** High risk (particularly health and safety risks)

### NEGATIVE EXTERNALITIES

**Direct:** The environmental impact of platinum mining as platinum is used as a catalyst in the hydrogen fuel cell.



# INFRASTRUCTURE

## IOA: Small scale energy access for underserved communities

### BUSINESS MODEL

Invest in small-scale renewable energy infrastructure to increase energy access in underserved communities.

#### DEVELOPMENT NEED

- ▶ South Africa's investment needs in energy infrastructure are vast. 3.5 million households still do not have access to electricity. A major challenge for the South African government is to service rural populations who are expensive to supply through the national grid.
- ▶ Local municipalities are faced with a complex mandate to support local economic growth through the provision of reliable and affordable electricity services, while also driving the climate change response agenda. Many municipalities are attempting to tackle climate change and reduce their dependence on the national electricity utility (Eskom) through the implementation of clean, off-grid energy technologies.
- ▶ Traditional models for off-grid electrification have struggled to be replicated across different geographies.
- ▶ However, the falling cost of renewable energy technologies globally is a key driver of small-scale embedded generation (SSEG) technology as an alternative to electricity from the national grid in South Africa.

#### POTENTIAL OUTCOMES

- ▶ Investments in SSEG have the potential to increase the provision of reliable, affordable, and safe energysolutions to address basic needs.
- ▶ SSEG investment can also create jobs, promote socio-economic development, reduce unsafe and illegal grid connections, increase resource adequacy, improve grid management, and create opportunities for foreign engineering, procurement, and construction companies (EPCs) and investors.

#### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Climate change
- ▶ SME development
- ▶ Social innovation

#### SDG ALIGNMENT

**Direct:** 1, 7  
**Indirect:** 9, 10, 12, 13

#### SDG INDICATORS

- ▶ 1.4.1
- ▶ 7.1.1
- ▶ 7.1.2
- ▶ 7.2.1
- ▶ 7.b.1

#### PRIORITY SUBREGIONS

Potential investment opportunities exist across all regions in South Africa.

#### USERS OR BENEFICIARIES

**Direct:** South African citizens living in communities without secure access to electricity  
**Indirect:** Eskom (national power grid), local municipalities, the environment

#### MARKET SIZING

The total available energy services market in South Africa is estimated to reach R125 billion by 2035, which includes:

- ▶ SSEG: 7.5 GW of installed capacity, totaling a value of R75 billion
- ▶ Energy storage: conservatively estimated at R5 billion, but could reach up to R30 billion by 2025
- ▶ Energy efficiency: R21 billion by 2025

#### RETURN PROFILE

Medium to high returns.

#### INVESTMENT TIME FRAME

Short to medium term.

#### FINANCIAL ENVIRONMENT

- ▶ Tax deductible depreciation allowance in the year of installation and commissioning
- ▶ Smaller projects can be bundled together to reach a scale that is attractive to investors who previously had been more interested in utility-scale renewable energy projects.
- ▶ Property assessed clean energy (PACE) financing solves the upfront cost barrier by providing 100% financing for project costs. Long-term repayment of up to 30 years makes longer payback projects immediately cash flow positive and buildings more valuable.
- ▶ Commercial banks have started to provide tailored mechanisms for rooftop solar PV investments.
- ▶ Pay As You Save allows utility customers to access cost effective energy efficiency upgrades and distributed renewable energy assets regardless of income, credit history, or renter status. This is particularly important for financing programmes that aim to serve market segments that are hard to reach.

#### PARTNER ENVIRONMENT

**Financiers:** Commercial banks (ABSA, Nedbank, Standard Bank), Mergence, Development Bank of Southern Africa,  
**Corporates/Business:** SAREBI, SARETEC, PPC, Delft South, Ilitha Park.  
**NGO/Public:** GreenCape, Eskom, provincial investment and trade agencies  
**Other key role players:** Energy services companies, consultants (energy auditors, planning engineers, certified measurement and verification personnel, accountants, and lawyers), manufacturers and suppliers, installers, engineers, procurement and construction companies, project developers.

#### REGULATORY ENVIRONMENT

- ▶ Amendments to Schedule 2 of the Electricity Regulation Act 4 of 2006 exempt small-scale power generators, wheelers, and distributors (<1MW) from obtaining a generation license.
- ▶ National Energy Regulator of South Africa approved Eskom tariff increases of 9.41% (2020), 8.1% (2021), 5.2% (2022).
- ▶ Energy mandatory reporting for companies using 400 TJ or more
- ▶ Carbon Tax Act (No 15 of 2019)

#### POLICY ENVIRONMENT

- ▶ Integrated Resource Plan 2019 Eskom unbundling plan 2019-2021
- ▶ White Paper on Energy Policy of 1998.
- ▶ Integrated Energy Plan 2010
- ▶ The post-2015 National Energy Efficiency Strategy guides the plan for energy-efficient buildings in South Africa by 2030.

#### NEGATIVE EXTERNALITIES

**Direct:** Installing new infrastructure may cause a loss in biodiversity and destruction of natural habitats and rurlandscapes.

#### OBSTACLES TO SCALE

**Competition:** Eskom has significant control over the grid and can decide to prevent small-scale power generators from connecting to the grid.

**Finance:** shortage of affordable finance for smaller projects

**Government:** limited skills and institutional capacity within municipalities; difficulty collaborating with local municipalities

**Policy:** policies regarding

#### IMP CLASSIFICATION

**C:** Contributes to solutions

**What:** The outcome is likely to be positive and important as it promotes infrastructure development for remote communities previously not connected to the power grid.

**Who:** local communities, municipalities

**Risk:** low risk





# INFRASTRUCTURE

## IOA: Globally traded services platform

### BUSINESS MODEL

Investing in companies that provide digitised globally traded business services that outsource functions like customer support, finance and accounting, legal, or digital services to offshore markets with a cost advantage. Investment could occur through financing the development of a digitised platform or through financing supportive physical infrastructure.

### POTENTIAL OUTCOMES

Exporting globally traded services has the potential to promote job creation, increase skills development opportunities, promote opportunities for women entrepreneur empowerment, decrease costs and improve productivity for companies, reshore work done offshore for South African companies, and create conditions for overall economic growth.

### DEVELOPMENT NEED

- ▶ South Africa is facing a major unemployment problem, especially among the country's youth. The results of the Quarterly Labour Force Survey for the first quarter of 2020 indicate the number of unemployed persons increased by 344 000 to 71 million. Of these, 4.4 million or 63% were young people (aged 15–34 years) unemployed. The NDP aims to reduce unemployment to 6% by 2030. However, unemployment remains one of the country's biggest problems and one of the hardest to fix.
- ▶ There is a desperate need for job creation, especially for low-skilled workers as skills development and training remain inaccessible for the majority of South Africans.
- ▶ South Africa is already embracing digital and other technologies to create positive change in a number of areas. Investing in businesses that export globally traded digital services is an avenue that can promote skills development and job creation for those with the fewest work options.

### SDG ALIGNMENT

**Direct:** 8, 9  
**Indirect:** 5

### SDG INDICATORS

▶ 8.5.2  
▶ 9.B.1

### CROSS CUTTING THEMES

- ▶ Job creation/Youth development & employment
- ▶ Digital transformation
- ▶ Social innovation

### USERS OR BENEFICIARIES

**Direct:** Providers of globally traded services (e.g. customer support, finance and accounting, insurance, legal, or digital services), South African job seekers

### MARKET SIZING

- ▶ Trade in digitised services is growing rapidly, far quicker than other traded products. 250 000 South Africans already work in globally traded services, more than double the number employed in the automotive sector. Of these, some 50 000 already service offshore demand, a number growing by 24% a year, which makes global business service exports one of the fastest-growing job categories in South Africa. In particular, South Africa's business process outsourcing industry has grown by approximately 22% per year since 2014, three times faster than that of India and the Philippines.
- ▶ The South Africa in the Digital Age report has established that with the right policy and business environment, another 100 000 global business service export jobs can be added by the end of 2023. Moreover, 500 000 jobs could be generated by 2030 if a national program encompassing training, financial and other support commensurate with the opportunity is sustained.

### PRIORITY SUBREGIONS

Three South African cities feature in the top 100 global outsourcing destinations. Johannesburg (#20), followed by Cape Town (#56), and Durban (#100).

### RETURN PROFILE

High return.

### INVESTMENT TIME FRAME

Medium to long term.

### REGULATORY ENVIRONMENT

- ▶ South Africa's regulatory environment as well as its commercial incentive programmes are positioned to support the growth of impact sourcing opportunities in the business process outsourcing industry. The country has a large talent pool with a proven record of reliable service delivery to support the growth of impact sourcing.
- ▶ The Department of Trade and Industry's current incentive scheme for global business services does not cover jobs created by reshoring outsourced work. These decision-making processes could be influenced by changes to South Africa's BBBEE framework to recognise work that is located in or relocated to South Africa as part of the scoring system.

### FINANCIAL ENVIRONMENT

- ▶ Commercial incentive programmes such as the Department of Trade and Industry's incentive scheme for the sector with a target of 20% of all new jobs created being filled through inclusive hiring.
- ▶ The South African government has launched a number of taxation incentives.
- ▶ Funding from the National Skills Fund, together with the city as well as industry funding, will be contributed towards training and stipends.
- ▶ The Department of Trade and Industry will pay a grant up to R124 000 per job created by a business process outsourcing operation located in South Africa.

### PARTNER ENVIRONMENT

**Investors:** Amazon, Barclays, iSelect, iiNet, Old Mutual  
**Corporates/Business:** Blue IQ, Calling the Cape, McKinsey & Company, Infonomics South Africa, Shortech International, Microsoft, Google, Oracle, IBM, Intel, SAP, Dell, Amazon Web Services, RCS Group, Teleperformance, Webhelp, Deloitte, KPMG, Boston Consulting Group  
**NGO/Public:** The Department of Trade and Industry, SADA, Harambee, Business Process Enabling South Africa, Trade and Investment South Africa, Wesgro

### POLICY ENVIRONMENT

- ▶ The Department of Trade and Industry and the industry body BPESA has established that with the right policy and business environment, another 100 000 Globally traded business service export jobs can be added by the end of 2023.
- ▶ The business process outsourcing industry benefits from strategic government support through the Department of Trade and Industry's Business Process Services incentive scheme, which is aimed at improving South Africa's relative competitive position in such services.

### OBSTACLES TO SCALE

**Technology access:** digital inclusion among workforce, specifically computational training and skills development  
**Costs:** cost of telecoms and talent for higher-end services in South Africa  
**Policy:** government policy and regulation

### IMP CLASSIFICATION

**B:** Benefit stakeholders  
**What:** The outcome is likely to be positive and important as it has the potential to drive inclusive job creation through digital and ICT services.  
**Who:** unemployed citizens  
**Risk:** Medium risk

### NEGATIVE EXTERNALITIES

**Direct:** Barriers to accessing these job opportunities, such as education, access to upskilling opportunities, and access to technology, may exclude individuals most vulnerable to unemployment risk.



# INFRASTRUCTURE

## IOA: Blue-collar task matching platform

### BUSINESS MODEL

Invest in task-matching platforms that create a marketplace for low-skilled labour or a range of 'blue collar' work such as domestic services, gardening, painting, maintenance, and electrical and plumbing work

### DEVELOPMENT NEED

- ▶ A large portion of South Africa's workforce seeks and earns income in a range of 'blue collar' work, such as domestic services, gardening, painting, maintenance, electrical, and plumbing work. Much of this work has relatively low barriers to entry, and usually is informal and part-time. As a result, this work can be uncertain and a number of constraints contribute to inefficient matching of available supply to demand.
- ▶ There are high costs of work and worker searching, a reliance on referrals, and often both customers and providers are unable to verify the credibility of work-seekers and employers.
- ▶ A technological solution in the form of an online task-matching platform can be used to create a digital marketplace for workers and customers to meet.

### POTENTIAL OUTCOMES

Blue-collar task-matching platforms have the potential to create employment opportunities for low-skilled labour, reduce information asymmetries in low-skill labour markets, accelerate paths to employment, remove barriers to entry for new entrants, upskill supply-side participants, and improve conditions for overall economic and job growth in the country.

#### SDG ALIGNMENT

**Direct:** 8, 9  
**Indirect:** 1

#### SDG INDICATORS

- ▶ 8.5.2
- ▶ 9.B.1.

#### CROSS CUTTING THEMES

- ▶ Job creation
- ▶ Digital transformation

### PRIORITY SUBREGIONS

Investment opportunities exist throughout South Africa and specifically in large metros with lots of unemployed blue-collar workers, such as Pretoria, Johannesburg, Cape Town, and Durban.

### USERS OR BENEFICIARIES

**Direct:** Blue-collar workers (e.g. Domestic services, gardening, painting, maintenance, electrical, and plumbing work), customers.

### RETURN PROFILE

High return.

### INVESTMENT TIME FRAME

Short to medium term

### MARKET SIZING

- ▶ The market for digital platforms in South Africa has yet to mature. On-demand cleaning service platforms, such as Domestly and SweepSouth have created 600 and 3 000 income opportunities for previously unemployed and underemployed individuals in one year, respectively.
- ▶ Platform businesses across industries have room for growth (e.g. SweepSouth moving to plumbers, painters, accountants etc.). These platforms have received private sector finance. However, there is great potential for further investment in the rapidly growing market of task-matching platforms.

### REGULATORY ENVIRONMENT

- ▶ As in most countries, digital platforms in South Africa benefit from a legal loophole related to labour rights. Labour rights are limited to workers classified as 'employees' while digital platforms classify their workers as 'independent contractors'.
- ▶ Labour and competition laws need to be modernised to recognise the new forms of business emerging in the digital economy.
- ▶ The regulatory bottlenecks that are preventing digital businesses from scaling need to be addressed.

### POLICY ENVIRONMENT

The Department of Communication has developed a mission that focuses on the development of an information society in South Africa. Effort has been made to formulate a policy environment that focuses on growth for all its citizens through a global digital economy.

### FINANCIAL ENVIRONMENT

- ▶ There is little in the form of government funding for platforms in the digital economy in South Africa.
- ▶ Significant private investment in platforms through venture capital exists.

### PARTNER ENVIRONMENT

**Investors:** Investec, angel investor Vinny Lingham, several venture capital firms

**Corporates/Business:** Kandua, Domestly, SweepSouth, Clockwork, 234work, Domestly, Freelancer.com, Fiverr, getTOD, Handymandirect, Guru, Hubstaff Talent, Kandua, Kuhustle, Nomad Now, NoSweat Work, PeoplePerHour, PrimU, Snupit, TaskApp, Truelancer.com, twago, Workana, Weworx

**NGO/Public:** Wesgro, The Centre for IT and National Development, Silicon Cape

### OBSTACLES TO SCALE

**Technology access:** digital inclusion and connectivity issues among the workforce; technology training and skills development

**Policy:** underdeveloped government policy and regulation

### IMP CLASSIFICATION

**B:** Benefit stakeholders

**What:** The outcome is likely to be positive and important by removing the barriers to entry for low-skilled workers to find opportunities.

**Who:** Underserved, low-skilled, blue-collar workers

**Risk:** Medium risk

### NEGATIVE EXTERNALITIES

**Direct:** Traditional businesses that are in competition with these new task-matching platforms may lose business; exploitation (low pay and poor working conditions) of the workers who use the platforms is a risk



# INFRASTRUCTURE

## IOA: Off-grid solar WiFi for low-income communities

### BUSINESS MODEL

Direct capital investments in standalone WiFi stations in public areas where WiFi service will be offered to users for free or at subsidised rates using a freemium model that sells advertising space and access to securely captured data on the platforms used to connect

### POTENTIAL OUTCOMES

- ▶ Providing such connectivity to townships and villages can enable South Africans to participate in the global digital economy.
- ▶ Free WiFi provision has the potential to increase digital inclusion; provide employment opportunities; and improve access to educational materials at schools, universities, and colleges

### DEVELOPMENT NEED

- ▶ South Africa urgently needs innovative solutions to address digital inequality. Limited coverage and slow data speeds in remote areas, together with the relatively high cost of services, exacerbates the digital inequality in the country.
- ▶ There are many underserved communities throughout South Africa and the cost of data remains a major hurdle for the majority of South Africans. Many South Africans spend up to 30% of their income on data from mobile telecommunication operators. Currently, WiFi hotspots are not widely available in rural areas.
- ▶ The Department of Telecommunications and Postal Services has noted that public WiFi programmes are important as they help address issues of inequity for the communities that can't afford the high costs of data. Building a public WiFi infrastructure to provide free, uncapped WiFi in communities, townships, universities, and transportation hubs across South Africa will help close the digital divide

### SDG ALIGNMENT

**Direct:** 1, 9, 17  
**Indirect:** 10

### SDG INDICATORS

- ▶ 1.4.1
- ▶ 9.c.1
- ▶ 17.8.1

### CROSS CUTTING THEMES

- ▶ Addressing inequality through access to affordable basic services
- ▶ Digital transformation
- ▶ Job creation
- ▶ Social innovation

### PRIORITY SUBREGIONS

In South Africa there are investment opportunities in the urban centres of Pretoria, Johannesburg, Cape Town, and Durban. Particular attention should be given to public areas such as city buildings, clinics, administration buildings, traffic departments, and cash offices.

### USERS OR BENEFICIARIES

**Direct:** South African consumers (low-income consumers who cannot afford data), communities in outlying areas that have limited coverage and slow data speeds, informal settlements, universities, transportation hubs  
**Indirect:** Advertisers

### RETURN PROFILE

Low return.

### INVESTMENT TIME FRAME

Medium to long term.

### MARKET SIZING

In 2015, there were nearly 18.5 million internet users in South Africa and in 2020 there are approximately 36.54 million users. However, despite this rapid growth, there are still millions of underserved consumers without access to the internet or affordable data services.

### POLICY ENVIRONMENT

- ▶ The provision of free public WiFi is an established practice globally and now has a track record in South Africa. It's a solution that the local government has taken notice of with various projects (see Funding environment).
- ▶ The South African government has prioritised the national broadband project SA Connect to improve access to modern communication tools and services for South African citizens.

### PARTNER ENVIRONMENT

**Investors:** Telkom, Showmax, Airports Company South Africa.  
**Corporates/Business:** Google Station, ThinkWifi, AP3K, Neotel, Herotel, TooMuchWifi, MetroConnect  
**NGO/Public:** Project Isizwe, Department of Telecommunications and Postal Services (DTPS), Jozi Digital Ambassadors, City of Cape Town Municipality, SA Connect

### REGULATORY ENVIRONMENT

- ▶ In 2008, the Independent Communications Authority of South Africa published regulations exempting certain uses of spectrum without a frequency license, subject to certain technical restrictions.
- ▶ Protection of Personal Information (POPI) Act

### FINANCIAL ENVIRONMENT

- ▶ There are tenders for connectivity projects to roll out free WiFi stations around the country.
- ▶ In the North West province, Kenneth Kaunda District Municipality has announced a budget allocation of R10 million to roll out WiFi within its district over a three-year period.
- ▶ The City of Cape Town is committed to funding free WiFi infrastructure.
- ▶ Social impact bonds offer up front cash resourcing of government approved projects to expedite deployment.

### OBSTACLES TO SCALE

**Technology:** complex and varying technical requirements (initial installation of the necessary infrastructure)  
**Business model:** the public WiFi business model is difficult to monetise

### NEGATIVE EXTERNALITIES

**Direct:** reduces demand for broadband packages from data providers  
**Indirect:** vandalism of stations and difficulty with maintenance

### IMP CLASSIFICATION

**C:** Contributes to solutions  
**What:** The outcome is likely to be positive and important as it helps to achieve universal digital inclusion.  
**Who:** underserved communities  
**Risk:** low risk



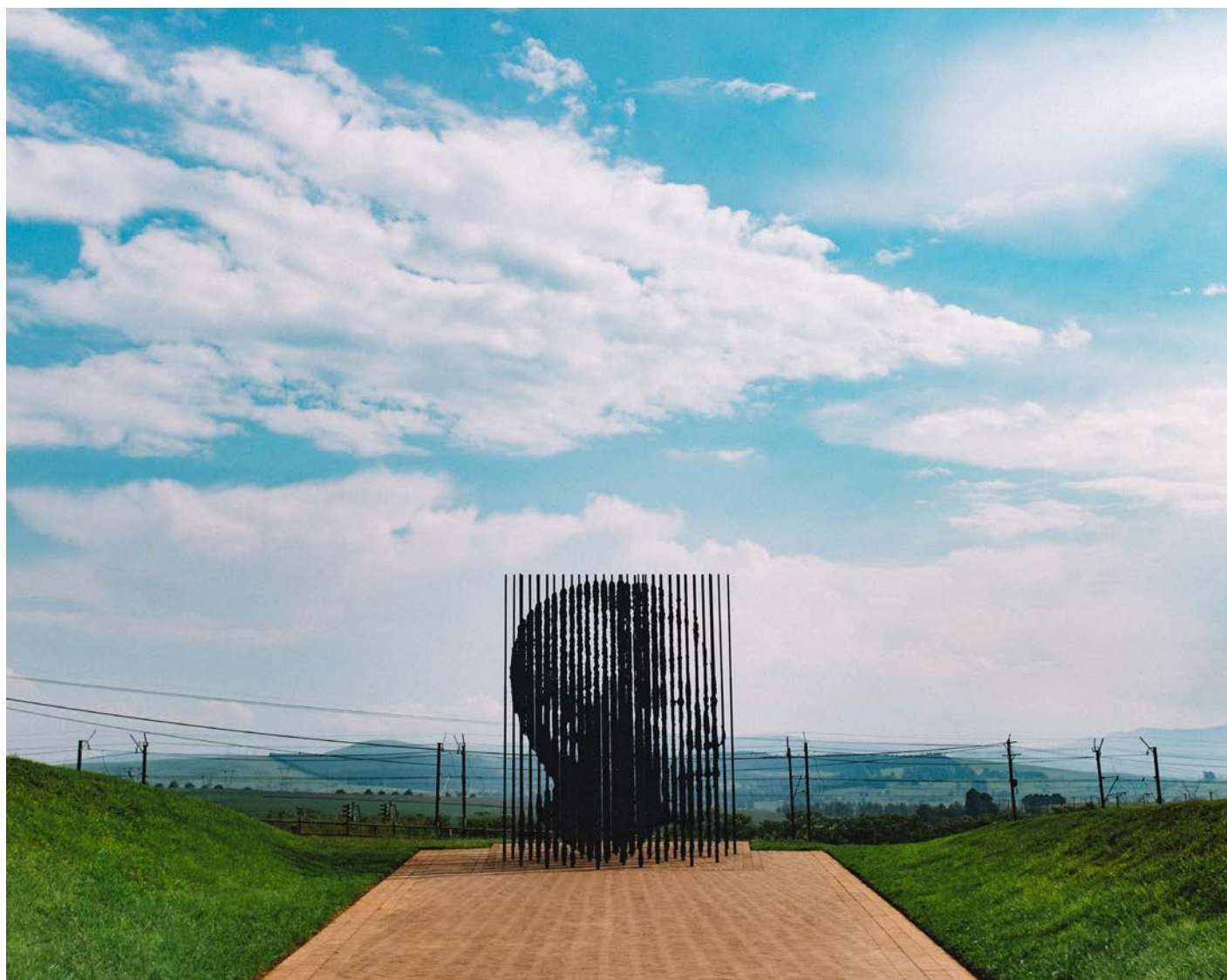
## 8. CONCLUSION

The South Africa SDG Investor Map 2020 presents 30 investment opportunities, all of which contribute to a more just, sustainable, and inclusive South Africa. As mentioned in the foreword, this map likely looks quite different from what it would have, had it been prepared just six months earlier. Across the country and the world, investors have come to realise the importance of sustainable investing as it provides resilience to shocks such as those caused by COVID-19 by contributing to efficient infrastructure, sustainable living conditions, effective health care, and overall access to affordable basic services.

In light of the adverse conditions created in South Africa by the pandemic, the report has proposed investment opportunities that promise a significant social return, some with a reduced commercial return. The deployment of an innovative finance toolbox will likely be required to navigate and mitigate this trade-off. Existing industry tools include Social Success Notes, Guarantees, Credit Enhancement Schemes, and Social Impact Incentives. Such approaches can strengthen the investment case by blending public and private, commercial and concessional capital for the greater good. Let us not waste this opportunity to imagine a different world and instead, in the words of the World Economic Forum, “build a new social contract that honours the dignity of every human being”.

The South Africa SDG Investor Map should make this journey easier for investors as it profiles initiatives and trailblazers that are working hard every day to make impactful investment opportunities materialise. This report should encourage all investors, both those within and outside of South Africa, to engage with the people and processes driving investment opportunities on the ground in order to realise their full impact and financial potential.

The South Africa SDG Investor Map 2020 will be digitised and integrated into a digital platform called the UN Global SDG Investment Platform, which will increase global investor outreach. Key UNDP recommendations for the future include the hosting of an annual Public Private Dialogue Forum to review progress on the investment opportunity areas and stimulate further action, the facilitation of exchange of best practises, and policy development for the replication and implementation of successful business models and innovative financing mechanisms. As the country continues to “build back better”, this report invites government partners, investors, and concerned citizens alike to continue the discussion and engagement on sustainable investment opportunities.



# APPENDIX A: STAKEHOLDER LIST

## Project Steering Committee (in Alphabetical order)

Name	Designation
Mr. Anthony Costa	President Investment Committee, Investment Programme Lead, Investment Mobilisation Programme
Dr. Ayodele Odusola	UNDP South Africa Resident Representative and PS Committee Chairperson
Mr. Elias Masilela	Chair of the SA National Impact Investment Task Force
Mr. Hubert Danso	Chairman, AUDA Continental Business Network (NEPAD)
Ms. Lindiwe Nakedi	Former Chairperson of the Women in Mining in SA (WIMSA)
Mr. Mark van Wyk	Head: Unlisted Investment, Mergence Investment Managers- Asset Manager
Ms. Martie Janse van Rensburg	Independent, board member of DBSA
Ms. Polo Radebe	Principal and Co-founder of Alitheia IDF- Impact Investor
Mr. Robin Toli	Chief Director, International Development Cooperation, National Treasury
Mr. Sizwe Nxasana	Founder of the Sifiso Learning Group and former CEO of Telkom Group and FirstRand Group as well as chairman of NSFAS
Ms. S'ongoba Vuba	Commissioner, 4th Industrial Revolution to the Presidency
Mr. Tshediso Matona	Founding Managing Director, Perpetu8Head of Secretariat, National Planning Commission

## Interview List

Name	Designation
Anthony Costa	IDC
Aunnie Patton Power	Intelligent Impact, UCT GCB Bertha Centre
Bridgit Evans	SAB Foundation
Derek Verrier	DBSA
Erika Wiese	Innovation Edge
Jack Radmore	GreenCape
Jerrold Moodley	RMB
Debbie Rogers	Praekelt Foundation
Katusha de Villiers	UCT GSB Bertha Centre
Kecia Rust	Centre for Affordable Housing for Africa
Krista Davidson	Injini
Lee Wallis	Western Cape Government
Mark van Wyk	Mergence Investment Managers
Martie Janse van Rensburg	Independent
Monique Mathys	IMP
Nehru Pillay	LandBank
Nithin Thomas	Old Mutual
Paul Currie	DBSA
Peter Benjamin	HealthEnabled

Name	Designation
Phillip Roberts	Project Last Mile
Sizwe Nxasana	Sifiso Trust
Raldo Kruger	GreenCape
Robert McGaffin	Consultant
Ryan Harrison	SA SME Fund
S'onqoba Vuba	Perpetu8
Sam Smout	GreenCape
Shameela Soobramoney	JSE
Sqiniseko Mbatha/Katherine Cox	TUHF
Steve Nicholls	NBI
Tanya Cohen	PPGI
Timothy Chambers	Inspirafarms
Josh Hamman	SAB
Tshediso Matona	National Planning Committee
William Mapham	Vula Mobile

## APPENDIX B: SUPPLY-SIDE INSTRUMENTS

Vehicle	Value	Website
Acorn Equity	R2.08 billion	<a href="http://www.acornagri.co.za">www.acornagri.co.za</a>
ADvTECH Stock	R7.05 billion	<a href="http://www.advtech.co.za">www.advtech.co.za</a>
AFGRI Support Fund	R3 million	<a href="http://www.afgri.co.za">www.afgri.co.za</a>
Africa Food & Agribusiness Investment Fund I	R2.43 billion	<a href="http://agrivie.com">agrivie.com</a>
Africa Food & Agribusiness Investment Fund II	R1.67 billion	<a href="http://agrivie.com">agrivie.com</a>
AfroCentric Investment Corp. Stock	R1.92 billion	<a href="http://www.afrocentric.za.com">www.afrocentric.za.com</a>
Agri-Funds I, II & III	R1.5 billion	<a href="http://www.futuregrowth.co.za">www.futuregrowth.co.za</a>
Agro-processing and Agriculture Strategic Business Unit (SBU)	R4.4 billion	<a href="http://www.idc.co.za">www.idc.co.za</a>
Agventures Fund	R100 million	<a href="http://agventures.africa">agventures.africa</a>
APOLLO Investment Partnership II	R842 million	<a href="http://www.aiimafrica.com">www.aiimafrica.com</a>
ARC Health	R77 million	<a href="http://www.africanrainbowcapital.co.za">www.africanrainbowcapital.co.za</a>
Aspen Stock	R62.65 billion	<a href="http://www.aspenpharma.com">www.aspenpharma.com</a>
Business Partners Green Fund	R300 million	<a href="http://www.businesspartners.co.za">www.businesspartners.co.za</a>
Calgro Stock	R510 million	<a href="http://www.calgrom3.com">www.calgrom3.com</a>
Carlyle Sub-Saharan Africa Fund	R750 million	<a href="http://www.carlyle.com">www.carlyle.com</a>
Community Property Fund	R4 billion	<a href="http://www.futuregrowth.co.za">www.futuregrowth.co.za</a>
Comprehensive Agricultural Support Programme (CASP)	R1.54 billion	<a href="http://www.daff.gov.za">www.daff.gov.za</a>



Vehicle	Value	Website
Acorn Equity	R2.08 billion	<a href="http://www.acornagri.co.za">www.acornagri.co.za</a>
ADvTECH Stock	R7.05 billion	<a href="http://www.advtech.co.za">www.advtech.co.za</a>
AFGRI Support Fund	R3 million	<a href="http://www.afgri.co.za">www.afgri.co.za</a>
Africa Food & Agribusiness Investment Fund I	R2.43 billion	<a href="http://agrivie.com">agrivie.com</a>
Africa Food & Agribusiness Investment Fund II	R1.67 billion	<a href="http://agrivie.com">agrivie.com</a>
AfroCentric Investment Corp. Stock	R1.92 billion	<a href="http://www.afrocentric.za.com">www.afrocentric.za.com</a>
Agri-Funds I, II & III	R1.5 billion	<a href="http://www.futuregrowth.co.za">www.futuregrowth.co.za</a>
Agro-processing and Agriculture Strategic Business Unit (SBU)	R4.4 billion	<a href="http://www.idc.co.za">www.idc.co.za</a>
Agventures Fund	R100 million	<a href="http://agventures.africa">agventures.africa</a>
APOLLO Investment Partnership II	R842 million	<a href="http://www.aiimafrica.com">www.aiimafrica.com</a>
ARC Health	R77 million	<a href="http://www.africanrainbowcapital.co.za">www.africanrainbowcapital.co.za</a>
Aspen Stock	R62.65 billion	<a href="http://www.aspenpharma.com">www.aspenpharma.com</a>
Business Partners Green Fund	R300 million	<a href="http://www.businesspartners.co.za">www.businesspartners.co.za</a>
Calgro Stock	R510 million	<a href="http://www.calgrom3.com">www.calgrom3.com</a>
Carlyle Sub-Saharan Africa Fund	R750 million	<a href="http://www.carlyle.com">www.carlyle.com</a>
Community Property Fund	R4 billion	<a href="http://www.futuregrowth.co.za">www.futuregrowth.co.za</a>
Comprehensive Agricultural Support Programme (CASP)	R1.54 billion	<a href="http://www.daff.gov.za">www.daff.gov.za</a>
Convergence Partners Communications Infrastructure Fund	R1.7 billion	<a href="http://www.convergencepartners.com">www.convergencepartners.com</a>
CorePlus Fund	R3 billion	<a href="http://www.thirdway.co.za">www.thirdway.co.za</a>
Crookes Brothers Stock	R702 million	<a href="http://www.cbl.co.za">www.cbl.co.za</a>
Curro Stock	R3.76 billion	<a href="http://www.curro.co.za">www.curro.co.za</a>
Decentral Energy 12J Investment Fund	R350 million	<a href="http://decentral.co.za">decentral.co.za</a>
Development Equity Composite	R2.6 billion	<a href="http://www.futuregrowth.co.za">www.futuregrowth.co.za</a>
Discovery Foundation	R976 million	<a href="http://www.discovery.co.za">www.discovery.co.za</a>
Economic Transformation of Black Citrus Growers Programme	R307 million	<a href="http://www.cga-gdc.org.za">www.cga-gdc.org.za</a>
Eridanus VC1 Limited	R150 million	<a href="http://www.eridanus.co.za">www.eridanus.co.za</a>
Evolution II	R3.62 billion	<a href="http://inspiredevolution.co.za">inspiredevolution.co.za</a>
FirstRand Empowerment Foundation	R7.7 billion	<a href="http://www.firststrand.co.za">www.firststrand.co.za</a>
Food Fund I	R4.1 billion	<a href="http://www.phatisa.com">www.phatisa.com</a>
Food Fund II	R5 billion	<a href="http://www.phatisa.com">www.phatisa.com</a>
Fund I	R8.38 billion	<a href="http://www.pembani-remgro.com">www.pembani-remgro.com</a>
GAIA Stock	R215 million	<a href="http://www.gaiaip.com">www.gaiaip.com</a>
Green Outcomes Fund	R93 million	<a href="http://www.greencape.co.za">www.greencape.co.za</a>
Growthpoint Healthcare Property Holdings	R2.4 billion	<a href="http://growthpoint.co.za">growthpoint.co.za</a>
Housing Impact Fund South Africa	R9.15 billion	<a href="http://www.oldmutualalternatives.com">www.oldmutualalternatives.com</a>
Hulisani Stock	R210 million	<a href="http://hulisani.co.za">hulisani.co.za</a>
IDEAS Managed Fund	R13.23 billion	<a href="http://www.aiimafrica.com">www.aiimafrica.com</a>

Vehicle	Value	Website
IHS Fund II SA	R3.4 billion	<a href="http://www.ihsinvestments.co.za">www.ihsinvestments.co.za</a>
Imperial & Ukhamba Community Development Trust	R137 million	<a href="http://www.ukhamba.co.za">www.ukhamba.co.za</a>
Indluplace Stock	R1.04 billion	<a href="http://www.indluplace.co.za">www.indluplace.co.za</a>
Infrastructure & Development - Debt Fund	R263 million	<a href="http://www.mergence.co.za">www.mergence.co.za</a>
Infrastructure & Development - Equity Fund	R732 million	<a href="http://www.mergence.co.za">www.mergence.co.za</a>
Infrastructure & Development Bond Composite	R15 billion	<a href="http://www.futuregrowth.co.za">www.futuregrowth.co.za</a>
Infrastructure Investment Programme for SA	R1.9 billion	<a href="http://www.dbsa.org">www.dbsa.org</a>
Infrastructure Private Equity Fund 1	R1.2 billion	<a href="http://www.stanlib.com">www.stanlib.com</a>
Infrastructure Yield Fund	R1.4 billion	<a href="http://www.stanlib.com">www.stanlib.com</a>
Injini Edtech	R2 million	<a href="http://www.injini.co.za">www.injini.co.za</a>
Innovation Edge	R25 million	<a href="http://innovationedge.org.za">innovationedge.org.za</a>
Isibaya Fund	R66 billion	<a href="http://www.pic.gov.za">www.pic.gov.za</a>
Kagiso Infrastructure Empowerment Fund Africa	R529 million	<a href="http://www.aiimafrica.com">www.aiimafrica.com</a>
LandBank Loans and Advances	R44 billion	<a href="http://landbank.co.za">landbank.co.za</a>
Life Healthcare Stock	R27.94 billion	<a href="http://www.lifehealthcare.co.za">www.lifehealthcare.co.za</a>
Lower & Mid-Market Fund I	R100 million	<a href="http://www.sanari.co.za">www.sanari.co.za</a>
Mediclinic Stock	R46.01 billion	<a href="http://www.mediclinic.com">www.mediclinic.com</a>
Momentum Student Accommodation Impact Fund	R150 million	<a href="http://www.momentum.co.za">www.momentum.co.za</a>
Nesa Capital S12J Fund	R125 million	<a href="http://www.nesacapital.co.za">www.nesacapital.co.za</a>
Netcare Stock	R21.41 billion	<a href="http://www.netcare.co.za">www.netcare.co.za</a>
Pan African Infrastructure Development Fund (PAIDF) 1	R10.55 billion	<a href="http://www.harith.co.za">www.harith.co.za</a>
Pioneer Community and Education Trust	R9 million	<a href="http://www.pioneerfoods.co.za">www.pioneerfoods.co.za</a>
Power Debt Composite	R8.4 billion	<a href="http://www.futuregrowth.co.za">www.futuregrowth.co.za</a>
Private Capital Growth Fund II	R1.45 billion	<a href="http://www.metier.co.za">www.metier.co.za</a>
Razorite Funds	R1.6 billion	<a href="http://rhmanagers.co.za">rhmanagers.co.za</a>
Rencell Section 12J	R39 million	<a href="http://rencell.co.za">rencell.co.za</a>
Renewable Energy Debt Fund I	R998 million	<a href="http://www.mergence.co.za">www.mergence.co.za</a>
RH Bophelo Stock	R559 million	<a href="http://www.rhbophelo.co.za">www.rhbophelo.co.za</a>
RSA Green Fund	R800 million	<a href="http://www.dbsa.org">www.dbsa.org</a>
SA Renewable Energy Fund I	R2 billion	<a href="http://www.ashburtoninvestments.com">www.ashburtoninvestments.com</a>
Schools Investment Fund	R1.4 billion	<a href="http://www.oldmutualalternatives.com">www.oldmutualalternatives.com</a>
Serwes Stock	R2.39 billion	<a href="http://www.senwes.co.za">www.senwes.co.za</a>
Siyakha Education Trust	R2.8 billion	<a href="http://www.resilient.co.za">www.resilient.co.za</a>
SME Education Fund	R150 million	<a href="http://www.businesspartners.co.za">www.businesspartners.co.za</a>
Stadio Stock	R1.22 billion	<a href="http://stadio.co.za">stadio.co.za</a>
Standard Bank Tutuwa Foundation	R1.8 billion	<a href="http://www.tutuwafoundation.org">www.tutuwafoundation.org</a>

Vehicle	Value	Website
The Masisizane Fund	R750 million	ww3.oldmutual.co.za
Tiger Brands Foundation	R1.43 billion	www.thetigerbrandsfoundation.com
Tongaat Stock	R653 million	www.tongaat.com
Transcend REIT	R851 million	transcendproperty.co.za
TUHF Domestic Medium Term Note Programme	R280 million	www.tuhf.co.za
TUHF Urban Finance	R2 billion	www.tuhf.co.za
Utho SME infrastructure Fund	R62 million	www.utho.co.za
Westbrooke Stac 2018 Ltd	R300 million	westbrooke.co.za
WWF Green Trust	R298 million	www.wwf.org.za
Zeder Stock	R3.96 billion	www.zeder.co.za

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