HOW COVID-19 IS SHIFTING PRIORITIES AMID LACK OF AGILITY IN IMPLEMENTATION OF INFRASTRUCTURE PROJECTS

THE CASE OF SOUTH AFRICA

Public Policy in Africa Initiative

Powering the African Economy

How COVID-19 is shifting priorities amid lack of agility in implementation of infrastructure projects: The case of South Africa

Author:

Thabang Lisbon Rakoena,
MSc. Building: Property Development & Management (University of the Witwatersrand, Johannesburg, South Africa)

The opinions expressed in this article are those of the authors and do not necessarely reflect the views of the editorial advisers or The Public Policy in Africa Initiative

We wish to thank the following reviewers for their insightful and valuable remarks and comments.

Thabiso 'Neko Moshoeshoe,
Master of Commence, Development Finance (University of Cape Town, South Africa)

Thibaud Favier,
Master in Management (HEC Paris, France)

Abstract

This paper argues for prioritising infrastructure projects to make economic progress by observing the following: macroeconomic environment, policy uncertainty, and the impact of the Covid-19 in South Africa (SA) through the resulting economic lockdown. This will be performed by looking at the situation before the lockdown and the anticipated economic outlook post-lockdown. Consequently, the article recommends the important policy position leaning on the unbalanced growth economic strategy.[1] This should not be viewed as a panacea but rather as an add-on to the proposed Sovereign Bond initiative, which looks at fuelling the economy through boosting liquidity – the stimulus budget. The paper will also look at the relevance of infrastructure development, for instance, construction projects, as a quick-win in terms of job creation as well focusing on the infrastructure projects which should be prioritised. The paper will also acknowledge reforms which are afoot, which if adhered to and given enough publicity could improve the country's economic growth and credit rating.

1 Unbalanced Growth Strategy – refers to the growth strategy where investment is made in the specific or strategic sectors of the economy instead of investing simultaneously in all sectors. These could be based on the sectors which are quick-wins in terms of job creation. It assumes that non-funded sectors will grow by linkages. It is appropriate under the stimulus budget/Capital Deficiency (recession). It could be relevant for South Africa as it is an unequal society

1) Introduction

The emergence of COVID-19 in the Asian part of the world was a pastime story to many, but with the potential of wreaking havoc, and leaving most African economies bleeding profusely. We were looking at the pandemic through the eye of a needle. Many of us in Africa thought it was a foreign problem or pandemic, that it would not reach us. Therefore, we assumed there was no need for us for agility in policy certainty and planning ahead. Unbeknown to us, it soon reached our shores and it found most economies worldwide unprepared, let alone those in Africa. The latter economies were already in close brushes with recession. In the same vein, South Africa (SA) also experienced recession during the end of 2019 (Stats SA, 2020). This was albeit the 2018 State of the Nation Address (SONA) (which charts a road map for the economy), which suggested a 100 Billion (Bn) Rands Stimulus Package for infrastructure development over 10 years. Despite what optimists would call a heroic effort at the time, no traction has been realised in terms of the infrastructure spending (Hardhat Professional, 2020).

2) The macroeconomic environment pre-COVID-19

2.1 State of Infrastructure

In terms of a well-functioning infrastructure South Africa has a comparative advantage[2] *over its peers in Africa – (Broadband, Rail lines and Port Infrastructure).* Be that as it may, the pandemic imposes pressure to accelerate the economic growth and reverse the devastating effects of the pandemic. Arguably, good infrastructure can increase the Total Productivity Factor (TPF) by reducing the transaction and other costs translating into efficient use of the productive inputs namely: land, labour and physical capital assets (AfDB, 2018). By the same token, a high TPF can dovetail into fixed investment by companies. For instance, this calls for the collaboration of government and the private sector in expanding the coverage of the broadband which could accelerate e-commerce and contribute to the digital economy. Moreover, implementing social distancing measures requires both learners and workers to have access to affordable data and wider broadband coverage.

Inevitably, in the new trend the investment in logistics, which is in keeping with the forward and backward linkages, is much needed economic intervention. This is needed to take advantage of both the Global and Regional Supply Chains for the movement of goods and services for both the internal and external demand, and to improve economic growth through trade. A sneak preview into the landscape depicting the state of readiness of the economic infrastructure for local and regional integration presents us with the data set below.

2 Comparative Advantage is an ability to produce goods and services at the lower opportunity cost by a country compared to its trading partner in the free trade situation. In this case the assumption is that this is made possible by the efficient infrastructure as an input.

Tables

CATEGORY	COUNTRY	NO. OF SUBSCRIPTIONS
Base Country	China	407,382,000
Southern Africa. Trading Block	South Africa	1,386,841
	Zimbabwe	203,056
	Tanzania	861,234
Western Africa. Trading Block	Ivory Coast	175,918
	Nigeria	73,965
	Senegal	129,820
Eastern Africa. Trading Block	Kenya	371,498
	Ethiopia	62,950
	Uganda	11,779

Source: World Telecommunication/ICT Development Report and database

The above table depicts the NWOW State of Readiness, e.g., Fixed Broadband Subscriptions and fixed subscriptions to high-speed access to the public Internet across the countries in African Trading Blocks compared to China as a Base Country.

CATEGORY	COUNTRY	INDEX (113 – 150,462.3)
Base Country	United States	150,462.3
Southern Africa. Trading Block	South Africa	20,953
	Botswana	886
	Mozambique	3,116
Western Africa. Trading Block	Ivory Coast	639
	Nigeria	3,528
	Senegal	906
Eastern Africa. Trading Block	Kenya	953
	Ethiopia	754
	Uganda	259

Source: International Union of Railways (UIC)

The table above shows how Rail lines (Rail Network) (total route-km) varies by country.

CATEGORY	COUNTRY	WEF INDEX (1- 7)
Base Country	Finland	6.2
Southern Africa. Trading Block	South Africa	4.8
	Namibia	5.2
	Mozambique	3.6
Western Africa. Trading Block	Ivory Coast	5.2
	Nigeria	2.8
	Senegal	4.4
Eastern Africa. Trading Block	Kenya	4.5
	Ethiopia	2.7
	Uganda	2.6

Source: World Economic Forum, Global Competiveness Report: - State of Readiness - Quality of Port Infrastructure[3] based on Word Economic Forum Opinion Poll of Business Execs (1= extremely Underdeveloped; 7= Well Developed based on the world standards).

The SA performance on infrastructure projects pre-Covid-19 in comparison to the two super economic performers in the Eastern African Trading Block leaves room for improvement According to the World Bank Report (2017) Sub-Sahara Africa (SSA) is required to invest 4.5 % of GDP to attain climate friendly infrastructure. However, its precarious budgetary position has made this developmental goal less achievable. In the same vein, South Africa also experienced nearly a decade of recession in her territory. This culminated in the growth rate of 0.9 % towards the end of 2019 (Stats SA). The pace of investment in infrastructure appears sluggish in this regard.

On the contrary, the two economies in the Eastern Trading Block, viz. Ethiopia and Rwanda, experienced consistent impressive growth patterns over a decade, 9.9% and 7.5% respectively, attributable to the significant investment in infrastructure projects (Brookings Stats). Although this was a positive development, these investments were vulnerable to external shocks as they were highly dependent on donor[4] funding: 30% to 40% from the IMF and the World Bank for Rwanda (WEF). As for Ethiopia, Chinese loans accounted for 20% of GDP (Brookings Stats).

2.2 Political inefficiencies and red tapes

The pandemic found us with a litany of problems which reflect the imbalance of forces due to lack of political buy-in. The general problem of many African economies is inefficiency in policy development. This results from a limited budget on Research and Development (R&D) devoted to this exercise. For instance, in SA only a small proportion, 0.82%, of GDP is devoted to R&D (Brookings Stats). Accordingly, this figure should at least be hiked to 1% of GDP for evidence-based policy making in order to achieve a significant outcome in economic growth (World Bank).

Those tasked with the policy development do not have the adequate skills to properly define the problem, which is central to the policy process. Furthermore, there seems to be lack of political buy-in which fails to push the policy development high up the hierarchical ladder of national priorities. Worse, the civil society is not given enough space to ensure good governance. As it were, infrastructure development is not immune to these problems. Most importantly, the pandemic has prioritised the urgency of the social fabric to enable social distancing measures. In the social fabric bucket list, the importance of shelter or housing cannot be overemphasised. This sadly has caught most economies, particularly in Africa, unprepared as they now have to deal with policy uncertainties in terms of the quick response needed for the pandemic.

3 The Quality of Port Infrastructure is judged on its capacity to meet the following: enough containers to cope with increased goods, easy access, and the Health and Safety considerations for Covid-19 readiness.
4 Donor funding in most cases is issued in two components: the loan and the grant.

Moreover, cultural predispositions lead to rigidity in accepting any innovation. The case in point is resistance to new innovative building systems, which would be cost-effective and less time-consuming. Instead, most societal preferences gravitate towards the traditional brick and mortar in the provision of shelter.

The policy uncertainties with the SA case made matters worse. The policy and regulations governing the economic lockdown have been nothing short of ambiguity and lacked economic evidence (Theobald, 2020). This was exacerbated by the lack of sector specific guidelines except for those of the Department of Health (DoH). Worse, the details of lockdown phases were silent on the response to the economic impact and lacked required analysis (Theobald, 2020). Furthermore, African economies necessitated a careful consideration of the economic and cultural setting, which is characterised by a limited social security. Moreover, according to Theobald (2020), in SA it took about four weeks of lockdown to consider a stimulus package with the resultant relief fund for vulnerable households and small businesses. On the contrary, in United Kingdom (UK) the relief fund was accessible within three days. As such, both vulnerable households and businesses were cushioned. Theobald further points to a favourable situation in the UK where companies were assisted with 80 percent of their payroll expenses. As it were, this option is not viable in most African economies. Hence, it is incumbent upon policymakers particularly in SA to rely on evidence-based policy-making for informed decisions. The said evidence would assist in projecting future economic impacts.

During the onset of the pandemic outbreak, the Department of Science and Technology (DSI) repurposed some facilities and laboratories for the development of diagnostic tools to respond to the pandemic (Govt Speeches, 2020). These initiatives were a collaboration between the National Department of Higher Education (DHE) and the National Department of Health (DoH), and these were well received. However, the halting of construction and repurposing of the maintenance budget are likely to bear negative consequences for education infrastructure, which is below par for most public schools presently. Even worse, lately plans are afoot to repurpose most of the education maintenance budget towards the social measures meant to deal with the pandemic. The repurposing of the budget is caused by the constraints in the overall budget. This leaves the education infrastructure in limbo.

3) The impact of COVID-19

3.1 Macroeconomic effects

The post-pandemic situation paints a bleak picture for everyone, although it is not yet clear for the two Eastern African countries referred to earlier. As for South Africa, the situation is very dire considering that it was already an ailing economy before the pandemic. This is due to lack of a follow-through and policy uncertainty. The 2018 infrastructure spending details (mentioned earlier) appeared not have been given enough publicity (The Hardhat Professional, 2020). To make matters worse, the lockdown is expected to have devastating effects on the economy. Among others, the economy is likely to shrink by 12% with the potential loss of 140,000 jobs in the construction sector (The Hardhat Professional, 2020). The cries of civil contractors to have the construction sector declared an essential service had not borne fruit (The Hardhat Professional, 2020).

3.1.1 How SA was forecasted to perform in general by the end of 2020 pre-COVID19

The IMF forecasted the growth rates of 0.8 and 1.1 % for end of 2020 and 2021 respectively (CNBC 2020), however local independent economists predict a different picture after the lockdown as follows: -10% growth rate for 2020, 8.0% (partial rebound) in 2021 and 3.5% in 2022, assuming that economy-reopening adheres to a scenario four[5] of the risk adjusted strategies (Intellex in Altman, 2020).

3.1.2 SA infrastructure projects for 2020 and their overall impact on the economy once completed

The Medium Term (MTEF- from 2020/21 to 2022/23) public infrastructure budget was projected at 815 Bn, with the lion-share of 314 Bn, (75.1%) allocated to the State-Owned Enterprises (SoEs) (Treasury SA, 2020), as the implementing agencies and the key drivers of economic development, particularly in the infrastructure space. Provinces and municipalities were allocated 177 Bn and 196 Bn respectively. The allocation for the infrastructure divisions were as follows: Energy 150 Bn, Water and Sanitation 117.1 Bn, Health 37.3 Bn, (4.6%), Education 59.1 Bn ,(7.2%), Housing 43.9 Bn and Transport and Logistics 308.3 Bn etc. Although both the Health and Education sectors were allocated smaller shares, they seem to endure sustained pressure from the pandemic, making them more vulnerable. It should be noted that the estimates for the economic spin-offs were not readily available. However, an independent employment forecast reveals the following: 14 778 (2020), 15 961 (2021) and peaking at 16 638 Jobs in (2023), assuming the risk adjusted strategies of scenario four are at play (Intellex in Altman, 2020). The reliance on an independent opinion was necessitated by the absence of future forecasts by government, which is a

5 Risk-adjusted strategies – mean the economy is opened observing the health protocols as suggested by the World Health Organisation (WHO) which involve testing, case information management, contact tracing and isolation of those infected, as well as following the social distancing measures and most importantly community engagement.

limitation on the policy front.

3.1.3 The SA infrastructural projects halted due to lockdown - Overall Cost - (Construction Projects)

Almost all the construction projects were halted during level 5 of the economic lockdown except essential and critical public works construction and maintenance projects (SA Lockdown Guidelines, 2020). The overall cost could translate into the economy shrinking by 12% and the erosion of approximately 140,000 jobs in the construction sector, which has a direct bearing on infrastructure, as earlier alluded to in this text. The abrupt near switch-off of the economy with the halting of the construction projects could have been handled differently. This is because the construction sector plays a key role in service delivery in the infrastructure projects. Perhaps with hindsight it could have been permitted as an essential service, with the quick application of the risk-adjusted strategies as in the case of Australia where construction projects were not halted, due to the essential role they play in the infrastructure delivery and job creation.

3.2 The shift in infrastructure projects prioritization

The pandemic brings a complete shift in infrastructure projects in order of priority. . In the 2018 SA stimulus package, the priority infrastructure projects were water, energy, transportation and school accommodation (Hardhat Professional, 2020). However, it seems the pandemic has pitted the hard infrastructure against the soft infrastructure. It has brought the New Way of Working (NWOW), working remotely for safety and curbing the cross-infections. It means the social fabric (health and school accommodation and housing) has become part of the urgent bucket list.

The Australian expected response after the current pandemic, of devoting more energies to social housing, provides a classic example which can be applied in South Africa. Professor Geoff Hanmer explains that social housing provides a long-term benefit through the stability of life to the occupant, with a high local stimulatory economic impact (Hardhat Professional, 2020).

However, affordable housing in SA still remains a pressing need for workers in health, emergency services, education and retail, to ensure they are in close proximity to the communities they serve (Hardhat Professional, 2020). Hence, the scarcity of the repurposed budget calls for innovative building methods from cost and time constraints perspective. This calls for a paradigm shift from the traditional brick and mortar. In the same breath, in SA areas that were given first preference and identified as vulnerable during the lockdown were informal settlements. One case in point was Dunoon, part of N2 Gateway housing project in the Western Cape Province, which was earmarked for de-densification to limit overcrowding (SA Parliamentary Monitoring Group, 2020).

Overcrowding in these informal settlements inhibits the social distancing practice. The present paper became biased to this province as it was initially the most affected, with the highest number of cases and therefore needing urgent attention. However, this does not mean that the other provinces are less important in terms of required interventions to fight the pandemic.

Another shift was recorded in water provision during the commencement of the lockdown. In this regard, by 20th April 2020 through collaboration between the Department of Water and Sanitation (DWS) and Rand Water (the water utility) about 7698 tanks were installed throughout the country, with water tankers delivered to vulnerable communities without piped potable water as part of the pandemic intervention measures (SA Parliamentary Monitoring Group, 2020). This necessitated the repurposed budget of 306 Million (Mil) from DWS, and about 831 Mil from the National Treasury was secured (SA Parliamentary Monitoring Group, 2020).

It is equally important that energy production should not be left lagging behind regarding interventions towards the pandemic. The SA national public utility has a capacity of 45,000 MW of which an estimated one-third is out of commission due to the maintenance backlog and breakdowns (Oxford Biz Group, 2016). In addition, it has an estimated funding gap of R200bn ($17.3bn) (Oxford Biz Group, 2016). This energy gap was a major economic impediment pre-covid-19, and still remains an urgent priority required to power health facilities, homes and for the other uses. In terms of power generation, the public utility (Eskom) uses the "plant mix" with the capacity of 37,745 MW, and the net output of 34,952 MW. In this regard, the internationally recommended reserve level is 15 %, and Eskom is only able to retain 8% for unforeseen demand. This is due to the maintenance backlog and breakdowns mentioned earlier in this text (Eskom Report, 2020). The 7% deficit implies the grid is under severe pressure, which is not favourable under the pandemic conditions.

4) Policy recommendations

4.1 Re-opening of the economy based on risk-adjusted strategies

Arguably, the country needed to prepare the heath sector to avoid being overwhelmed by the pandemic. Amid the lockdown more global experts have argued that a more balanced approach was required between health and economic interventions (Altman M, 2020). This confirms that there were no trade-offs between basic health and re-opening of the economy. Professor Miriam Altman further illustrates a four-pronged economic scenario approach, and in the interest of rationality[6] this paper picks the 4th scenario. The approach advocates for a phased economy re-opening with risk-adjusted strategies, with the introduction of structural reforms and the facilitation of the growth induced activities where emphasis is put on the following (Altman M, 2020):

- Building a professional state capacity expected to yield certainty for investments that boost growth and employment;
- Progress is realised on energy production by the Independent Power Producers (IPP) investments,

6 Rationality is based on the behavioural economics which implies that our choices are shaped by the satisfaction derived. Normally, benefits are weighed against costs. In this case going with the 4th scenario means reduced risks and therefore more implied benefits or returns.

supplier industries and infrastructure spending;

- Broadband access becomes affordable and government services be available online.

Therefore, from the above argument, this paper also infers that the scenario four of the risk-adjusted strategies with reforms has the potential for more benefits to the economy with less risk. Consequently, society would be cushioned from the pandemic, also implementing structural measures to ensure good governance, which fosters a conducive environment for economic growth and prosperity.

4.2 Implementing an unbalanced economic growth strategy

How SA wriggles itself out of this economic pit requires a steady hand strategically. Fortunately, at the dawn of the economic lockdown an independent team of economists volunteered their services and suggested a sovereign bond of 500 Billion Rands. This includes a 200 Bn bank guarantee to bankroll small businesses. However, this noble effort risks both economic and social exclusion (Theobald, 2020). This is due to a litany of government red-tapes, characterised by the near impossible criteria. According to Theobald, the existing emergency budget requires a quick movement of cash into the economy. This is essential to save jobs, particularly in the Small and Medium Enterprises (SMEs) sector which constitute the engine for growth.

Given this scenario, a multifaceted strategy which embraces the "unbalanced growth strategy" with forward and backward linkages could be a winner. This is an economic intervention which is applicable under the stimulus budget environment. It assumes that an investment in one area of the supply chain leads to investment downstream. This is essential for stimulating aggregate demand, thereby boosting the Gross Domestic Product (GDP). An analysis of the economic sectoral contribution is required. This would be followed by devoting more resources to those sectors that are quick-wins in job creation. For instance, the construction sector would benefit from linkages to investment in infrastructure. Construction is currently estimated to contribute 5% to the economy in SA (Stats SA, 2020). It has a gargantuan potential in job creation, especially short-term and medium jobs.

4.3 Focusing on infrastructure projects which should be prioritized

4.3.1 Projects that needed a (budgetary) boost to fight COVID-19 in SA (e.g., development of hospitals and other centres of public health)

Intuitively, the projects that needed prioritisation in SA were health facilities and education infrastructure as well as energy projects as interventions against the pandemic. But the near total shut-down of the economy focusing on basic health has affected progress in the construction sector, bringing the economy to its knees. Only critical public works construction and maintenance were permitted in level 4 and 5

(Lockdown Guidelines, 2020). These all have put service delivery on the back-foot.

In the same breath, a top economist in a webinar[7] (2020) prescribed the following priority areas in response to the pandemic (which this paper fully supports):

4.3.2 Attention should be paid to the regional supply and value chains over the global supply chains due to the ailing economies in Africa with reference to South Africa as the worst hit by the pandemic;

4.3.3 There should be an increase in investment on digital and port infrastructure to facilitate trade regionally;

4.3.2 There should be the building of sustainability and resilience for future pandemics by pursuing people-centred infrastructure projects that reflect community engagement.

4.4 A recommended pathway to address the budgetary constraints under the pandemic

In fact, the sovereign debt in Sub Saharan Africa has climbed from 40% to 59% of GDP between 2010 and 2018 (Favier and Pyndiah, 2020), with SA's fiscal space occupying 58% of GDP recently (Brookings Stats). In this regard, numerous relief measures are worth considering, including, but not limited to, twinning the Renewable Energy (IPPs) with coal-legacy based utilities infrastructure, with the potential of reduced transaction costs and environmental compliance (Standard Bank, 2019). This reportedly leads to lower tariffs to the end-users. In SA it is also therefore urgent to increase focus on upgrading infrastructure which should be valued as another asset class. On the same token, the end-user pay principle should be encouraged to ensure sustainability. This also presents a good opportunity for Blended Finance[8], another worthwhile re-financing option. This is based on the premise that institutional or local Pension Funds could be invested locally where owners enjoy the benefits. Another viable and affordable source of finance in this context could be impact investing[9] under the auspices of the Environmental Social Governance (ESG) (Theobald S, et al, 2020).

7 *Webinar (2020): Africa Economic Outlook Post Covid-19: Challenges and Opportunities- Brand South Africa*

8 *Blended Finance: is a financing model that combines initial investment from a government entity with commercial investment (debt financing). It accepts a high risk in exchange for a low financial return. Its purpose is to jump-start the project (https://www.theimpactivate.com/what-is-blended-finance).*

9 *Impact investing is a funding model where Development Finance Institutions (DFIs) allocate funds to mitigate against socio-economic needs. The funds are geared towards investment in projects such as environmental degradation, poverty alleviation, etc. ''The intention is to generate social and environmental impact alongside a financial return'' (Theobald, S et al 2020). This is also a low return type of investment*

4.5 The reforms that are underway in SA to improve infrastructure projects implementation – a welcome development

4.5.1. The Budget Facility for Infrastructure (BFI)

This facility was launched in 2016, and it evaluates proposals prior to the allocation of the financial resources to ensure appropriate controls in funding and to limit poorly planned and shoddy large-scale projects. The submissions are assessed for final recommendations to the budget authorities and political decision makers (Treasury SA, 2020).

4.5.2. Appraisal and evaluation guidelines

With funding from the World Bank, the South African National Treasury is currently compiling the government wide appraisal and evaluation guidelines for uniform and simple methodologies for project appraisal to use for new proposals to ensure value for money (Treasury SA, 2020).

4.5.3. Infrastructure Fund

The Facility whose budget size is 100 Bn is to be operated by Development Bank of South Africa (DBSA), and 10 Bn of which is made available for the next three years, for funding new projects. The fund is aimed at Blended Finance projects whose intended financier is the private sector. The facility is to the tune of 700 Bn for the duration of 10 years (Treasury SA, 2020).

5. Conclusion

To sum up, the SA government showed policy inequities by prioritising basic health over the economy. This was evidenced by the lockdown phases which appeared not responsive to the economic impact. In hindsight, ceteris paribus (all things being equal) an appreciation of the importance of infrastructure projects, that is, declaring the construction sector as an essential service, with risk-adjusted strategies, would have had positive spin-offs in steam-rolling the economy. Going forward, a strict adherence to reforms in infrastructure projects holds the key to positive growth rates, job creation, and ultimately improving the South African credit rating. In this regard, it is advisable that the civil society should be kept abreast throughout and allowing its input.

References

AfDB, African Economic Outlook, (2018): Africa's infrastructure: great potential but little impact on inclusive growth: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2018AEO/African_Economic_Outlook_2018_-_EN_Chapter3.pdf

Altman M, (2020): Top Covid-19 policy priorities for protecting employment: https://www.covid19economicideas.org

Brookings Statistics, (2019) CNBC, (2020) IMF lowers South African growth forecasts for 2020, 2021: https://www.cnbc.com/2020/01/20/reuters-america-imf-lowers-south-african-growth-forecasts-for-2020-2021.html#:~:text=The%20IMF%20now%20sees%20the,earlier%20prediction%20for%201.4%25%20growth.

Favier, T et al, (2020): How Africa Can Tap into the Global Savings Glut to Close its $1.7 Tn Infrastructure Gap : https://www.linkedin.com/pulse/how-africa-can-tap-global-savings-glut-close-its-17-tn-thibaud-favier/?trackingId=8L15QOfzRk%2BTv%2B79lg%2FEew%3D%3D

Indexmundi: https://www.indexmundi.com/facts/topics/infrastructure

Oxford Business Group, (2016): South Africa makes efforts to improve reliability of power supply: https://oxfordbusinessgroup.com/analysis/light-end-tunnel-improving-reliability-power-supply-high-priority

Regulations and Guidelines, (2020): https://sacoronavirus.co.za/covid-19-risk-adjusted-strategy/

South African Government, Speeches (2020) : https://www.gov.za/speeches/response-covid-19-24-mar-2020-0000

South African Parliamentary Monitoring Group, (2020): COVID-19 initiatives on water, sanitation & de-densification: briefing by Minister and DHS: https://pmg.org.za/committee-meeting/30104/

Standard Bank Group, (2019): Energy landscape in Africa transitions to base load capable renewables: https://corporateandinvestment.standardbank.com/cib/global/about-us/news/energy-l

Statistics South Africa, (2020). Quarterly Labour Force Survey (QES) various. http://www.statssa.gov.za/publications/Report-00-80-03/Report-00-80-03May2020.pdf

Statssa, Publication, (2019): http://www.statssa.gov.za/?page_id=1854&PPN=P0441&SCH=7695

The Hardhat Professional, (2020): Post Covid-19: should we only stimulate construction that puts social housing first?: https://hardhatprofessional.blogspot.com/2020/04/post-covid-19-should-we-only-stimulate.html Theobald, S. (2020): Fast response let down by economic blunders: https://www.intellidex.co.za/insights/stuart-theobald-fast-response-let-down-by-economic-blunders/

Theobald, S et al, (2020) : A sovereign social bond to fill a funding gap for the Covid-19 crisis response : www.covid19economicideas.org

Treasury SA, (2020) Public-sector infrastructure update: Annexure D: http://www.treasury.gov.za/documents/National%20Budget/2020/review/Annexure%20D.pdf

Unbalanced Growth Strategy: https://www.google.com/search?q=unbalanced+growth+strategy

What Is Blended Finance? https://www.theimpactivate.com/what-is-blended-finance/

World Bank, (2020): Preventing mega-cities from becoming mega-gridlocks : https://blogs.worldbank.org/ppps/preventing-mega-cities-becoming-mega-gridlocks

Powering the African Economy