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Invest Africa Regional Study

Planning, financing and managing industrial parks in sub-Saharan Africa

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Executive summary

Introduction

In recent years, several **governments across sub-Saharan Africa have put the development of industrial parks at the heart of their national economic strategy**. Parks have been identified as a tool to promote investment and export-led growth; to address national infrastructure challenges; and more generally to emulate the economic trajectories of successful countries in East Asia.[1]

The success of industrial parks in sub-Saharan Africa has been mixed, however. Common pitfalls have included poorly-defined national goals, with objectives that are too ambitious; insufficient financial planning and transaction structuring before the development of the parks; insufficient focus on investor appetite, commercial realities and optimal park specifications; lack of robust legal and regulatory frameworks; and challenging national governance arrangements.

This report aims to equip policymakers with practical findings and recommendations that will enable them to achieve three linked policy goals:

- The commercial, social, economic and environmental value of each park is fully realised;
- Public resources are invested with maximum efficiency; and
- Private investment is fully leveraged to drive forward industrial transformation.

Throughout the report, three key themes emerge as critical findings for policymakers in sub-Saharan Africa:

- The need for more comprehensive, strategic and robust national strategies for industrial park development, built upon realistic analyses of economic growth, comparative advantage, and costs of capital;
- The need for significantly enhanced project planning and structuring, built upon wide consultation between central and local government, and between public and private sectors, so that commercial feasibility, physical infrastructure needs and social and environmental impacts are all addressed from the outset;
- The need for continued efforts – through better project structuring, use of innovative finance, capital markets deepening and wider economic reform – to increase the appetite of private capital to invest into industrial parks, if governments' ambitions are to be met in a fiscally sustainable way.

Findings

More specifically, the report makes **20 recommendations** for immediate actions that governments can take to optimise their industrial parks programmes.

National planning and park identification

Governments should have or should develop a national industrial parks strategy, either as a standalone policy or as part of a wider economic strategy (such as Ethiopia's GTPII). Many African governments already have such a strategy. Where a strategy is already in place, governments should audit it against the recommendations in this report.

Governments should undertake a detailed and robust assessment of future investor demand for industrial land at the national level, and compare it carefully against their park development plans. Where

[1] In this report, the term 'non-state investment' is used to capture investment that is not carried out by the relevant sovereign government. The term encompasses institutions such as development finance institutions (DFIs) and Chinese state-owned enterprises (SOEs) who cannot properly be called the 'private sector'.

they identify a risk of over-supply of industrial park land, this should be mitigated by phasing the timing of park developments more gradually.

Governments should develop minimum standards and processes for project identification, which could be supported by a template Pre-Feasibility Study that must be completed for any proposed new site or batch of sites. Where such standards already exist, governments should audit them against the recommendations in this report. Where Pre-Feasibility Studies have already been completed, they should be assessed against the recommendations in this report, and if necessary, revisited and strengthened.

Park structuring

Governments should review national legislation and regulation to ensure that all models of park development are legal and feasible to park developers, including public, private and public-private. This will maximise the ability to match the right deal structure to the right park opportunity.

Governments should develop guidance for the deployment of public investment in park development. The guidance should in particular provide a framework for understanding when to provide public subsidy. This will ensure public investment is targeted at the most strategic areas and optimise outcomes for the public sector. The guidance should also mandate the use of phasing to mitigate the risks of upfront investment.

Where governments are looking to the private sector to develop parks, they should provide a helpful 'roadmap' setting out the full sequence of steps – legal, regulatory, physical – that developers will need to go through in order to successfully launch a park. This will give developers confidence and clarity, and will also enable governments to see how existing processes can be streamlined.

Governments should develop minimum standards for approving public investment in park development. A government Business Case and full, international standard pre-Feasibility and Feasibility Studies should be minimum criteria for the approval of such investment. Governments should consider developing templates and standards for such studies so that they always capture the right scope and depth of detail.

Close and continued cross-government (including regional government) liaison is key as is close engagement with utilities and those planning basic service provision for park workers. Cross-government committees or subcommittees should be considered. Park developers need to work closely with investment promotion agencies who refer investors; utilities to consider whether power, water and solid waste provision is adequate; and multiple other government agencies who need to be engaged on logistics, customs, rail and road access for goods , safety regulations, fire and security provision, quality and quantity of local housing, and sanitation, health, transportation and school services. If regional governments and local communities are not properly engaged, problems will arise down the line.

Park specifications

Governments should seek to identify key anchor tenants for proposed new parks. Specialisation should take place around this anchor tenant.

Governments should adopt and publish a suite of common approaches to maximising the commercial and economic viability of parks, including reducing factor costs, boosting labour productivity, enhancing linkages to the local economy, and allowing developers flexibility in allocating a proportion of the park to non-industrial usage. They should limit pre-building sheds to the minimum possible to attract tenants, however. This guidance should inform all future park development projects.

Governments should specify the minimum social and environmental standards that must be applied to any new park development, drawing on both national legislation and existing international frameworks.

Governments should embed consideration of social housing and other infrastructure needs into the approval processes for major industrial park development. Failure to do so may lead to displacement, unrest and inequitable outcomes for local populations.

Park financing

Governments should benchmark planned costs for industrial park developments against comparable development costs from the region. This benchmarking should be done against parks which are similar in scope, complexity and deal structure. Ministries of Finance should be sceptical of park development costs which look unusually low, as they are likely to result in cost over-runs.

Government appraisal processes should ensure that when selecting a source of finance, officials must consider the impact on the non-financial input costs of the project. For example, if a source of finance (such as export finance) is available at competitive rates, but comes with pre-specified developers, this is likely to push up overall cost. Maintaining competition between developers is likely to deliver better value for money than selecting a slightly concessional source of policy finance.

The barriers to private sector development of parks are high, because of the private sector's comparatively high costs of finance. **Governments should therefore use pre-development of parks, guarantees, joint venture arrangements, flexible zoning rules, and so on to enable private park developers to have a credible chance of making a commercial success of the park**, if they wish to pursue a private sector route to park development. They should also enable park developers to participate in some of the land value appreciation, by sharing rewards in the structure of the transaction.

Park procurement and contracting

Governments should invest due resources in the proper planning and structuring of a park transaction. This includes early consultation with other parts of government, utilities, regional governments, cities and the private sector, and engaging professional expertise to help structure and procure the transaction.

Governments should specify, and publish, their intended procurement process for park development partners. This will provide clarity to the market and foster competition and transparency among developers. Transparency is a critical tool to deliver value for money for the public sector.

Governments should develop Standard Developer Agreements, that will enable them to contract with private developers on a consistent and robust commercial basis.

Park management and regulation

Where the State intends to play an active role in park development, it should set up a specialist unit, staffed with infrastructure and real estate experts who are equipped to procure and oversee major EPC contracts. This unit should typically be an executive agency, implementing policy as set by a superior Ministry. Where park development is to be left to the private sector, such a unit may be confined to a liaison role.

Where an industrial park programme is of sufficient scale to warrant two separate entities, regulatory agencies should be formally separated from investment promotion agencies. The culture and independence required of these two agencies are very different.

Where SEZ, EPZ and/or industrial park regulation is currently overseen by different agencies, these agencies should be amalgamated. The regulatory function played by these bodies is sufficiently similar to be carried out effectively by a single entity.

These findings are summarised at the end of each relevant chapter of the report, and again in the conclusions section of the report.

1. Introduction

The rise of special economic zones globally

Recent decades have seen a rapid growth of special economic zones (SEZs) – areas in which business and trade laws differ from the rest of the country. In 1986, there were 176 zones in 47 countries, according to ILO reports. By 2006, this had increased to 3,500 zones in 130 countries, and more recent estimates put the figure at closer to 4,300 (2015).[2]

SEZs are now estimated to account for more than US$200 billion in global exports and directly employ at least 40 million workers.[3] This growth can be seen in almost every region of the world, but most markedly in East Asia and Latin America.

The rapid expansion of SEZs has coincided with the globalisation of trade and investment since the 1970s, which accelerated in the 1990s and 2000s. In this context, **countries with low labour costs, scale economies and preferential access to major consumer markets have been especially successful in achieving industrialisation**, which is critical to broader economic transformation. East Asia, for example, saw trade grow 85 percent faster than GDP between 1983 and 2008.[4]

SEZs come in many forms, varying both in terms of their legal, regulatory, customs and tax arrangements, as well as in the nature and extent of their physical geography and infrastructure.[5]

This study focuses specifically on industrial parks: spatially defined areas with a degree of dedicated infrastructure, typically focussing largely on manufacturing, and planned and managed deliberately for the purposes of clustering industrial enterprises in close proximity.[6]The purpose, performance and impact of industrial parks is of course itself a subject of some debate among development practitioners and policymakers; the objective of this report is not to revisit these fundamental questions about the role of parks but rather to guide practical decision-making where, for whatever reason, parks have been adopted as a development strategy.

Africa's ambitions for industrial parks

Industrial parks have been widely deployed across Africa in recent decades. Policymakers have sought to use parks as a tool to promote investment and export-led growth; to address specific challenges such as a lack of reliable electricity supply, which severely hampers industrial activity; and more generally to emulate the economic trajectories of successful countries in East Asia.

The success of industrial parks in sub-Saharan Africa has been mixed, however. Common pitfalls have included poorly-defined national goals, with objectives that are too ambitious; insufficient financial

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[2] Boyenge, 2007. *ILO Database on Export Processing Zones, Revised*. Working Paper, ILO, Geneva. See http://www.ilo.org/public/libdoc/ilo/2007/107B09_80_engl.pdf; and for the 2015 figure, https://www.economist.com/leaders/2015/04/04/not-so-special

[3] FIAS, 2008. http://documents.worldbank.org/curated/en/343901468330977533/pdf/458690WP0Box331s0April200801PUBLIC1.pdf

[4] Farole, Thomas, 2011. Special Economic Zones in Africa: Comparing Performance and Learning from Global Experience. Directions in Development; trade. World Bank. https://openknowledge.worldbank.org/handle/10986/2268

[5] Including, for example, free trade zones, export processing zones, free ports, urban enterprise or SME zones, trade logistics parks, etc. For a fuller description and set of definitions for special economic zones, including industrial parks, see for example both Farole reports cited above and the footnote below.

[6] The report does not use the term 'Export Processing Zone' in recognition that not all of the parks considered are purely for the purposes of exporting. In addition, not all of the parks considered benefit from differentiated customs or tax arrangements (and so would, under some definitions, technically not be counted as Special Economic Zones). One useful definition can be found in the World Bank's Guidance Notes on Pollution Management, which states (they use the term 'Industrial Estates'): "An industrial estate is a specific area (tract of land) that is separated from urban and densely populated areas, and zoned specifically for the location of industrial facilities. Industrial estates must support proper infrastructure such as roads, power, water supply, and other utility services to all facilities located within the well-defined parameters of the estate." Note that even this definition is not a perfect fit, as it would exclude for example Kigali Special Economic Zone. Accessed here http://siteresources.worldbank.org/INTRANETENVIRONMENT/Resources/GuidanceNoteonIndustrialEstatesupdated.pdf,

planning and transaction structuring before the development of the parks; insufficient focus on investor appetite, commercial realities and optimal park specifications; lack of robust legal and regulatory frameworks; and challenging national governance arrangements.

In light of this, and with a growing body of evidence now available about how to promote successful parks, governments' attention is increasingly focussed on three major questions:

1. **How do we maximise the commercial, economic, social and environmental potential of industrial parks**? This is key to ensuring that governments deliver on their national development objectives.

2. **How do we optimise financial outcomes for the public sector**? Evidence shows that poor structuring, planning or procurement of parks may lead to unnecessary costs to the state, both upfront, and in future operations.

3. **How do we leverage the private sector to finance future industrial parks**? Public resources remain heavily constrained, and an increasing number of governments are unable or unwilling to take on significant new sovereign debt. But many private investors remain unconvinced that they will get a healthy return on their investment from industrial parks,[7] and they have a range of alternative ways to invest their assets in infrastructure and real estate, often with lower risk-adjusted return profiles.[8] Careful financial planning and transaction structuring is necessary to persuade such investors to choose to allocate their resources instead to industrial park development.

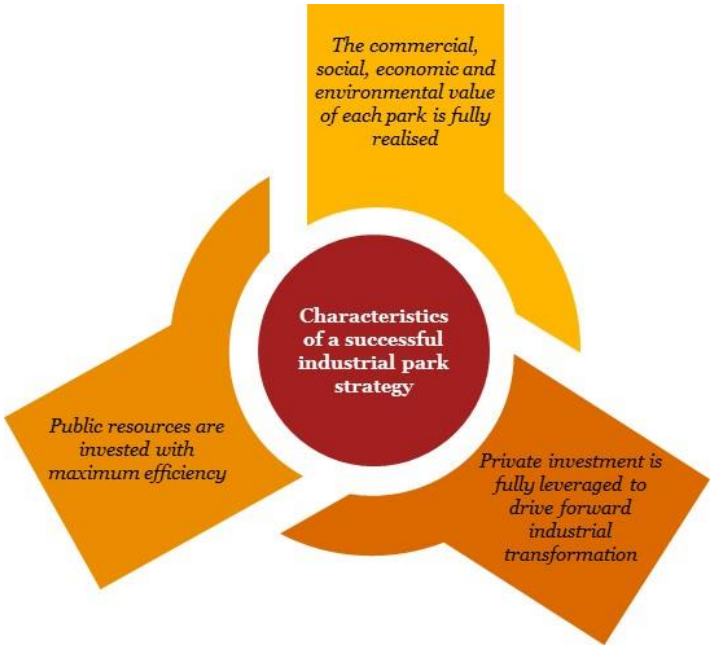


Figure 1. Characteristics of a successful industrial park strategy

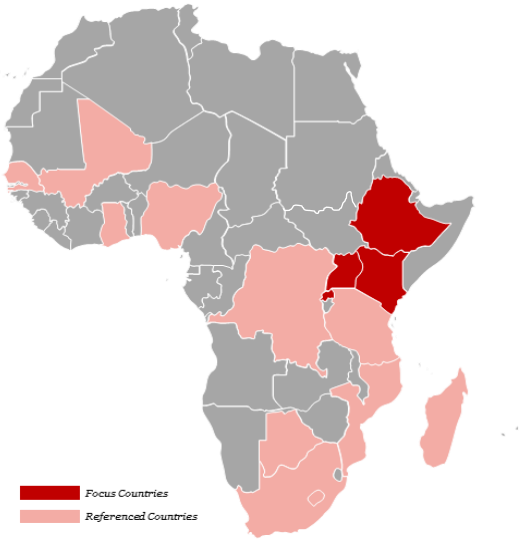
As this report makes clear, governments must make improvements across the project lifecycle if they want to attract greater non-state investment into industrial parks, and then to maximise those parks' developmental benefits.

Purpose of this report

This report seeks to address this challenge. It provides practical implementation guidance on the process of developing industrial parks in Africa. It considers the whole of the industrial park lifecycle, from national planning and selection of park development models, through to specifications, financing, management and regulation of parks. The report is accompanied by a financial model, which enables policy officials to illustrate the financial outcomes of proposed industrial parks based on a range of different models and a range of different input assumptions.

[7] Even development finance institutions, who have both commercial and developmental mandates, are wary of the poor risk-adjusted returns that have historically been on offer from investments into industrial parks. Park development has therefore generally remained state-led across the region.
[8] For example, power plants, toll roads or water and waste infrastructure, which can all be structured to offer guaranteed offtake volumes at fixed prices, and often backed by sovereign guarantees.

Figure 2. Map of countries in focus and referenced.



The findings are relevant to countries across Africa, while also drawing where relevant on lessons from East Asia. Particular emphasis is placed on Ethiopia, Kenya, Rwanda and Uganda. These countries are among those that have each made the development of industrial parks a key pillar of their wider economic strategy.[9]

While some literature is referenced, this report is intended to be practical rather than academic in nature. It reflects the opinions and perspectives of a variety of government officials, park developers and investors currently engaged in the development of industrial parks in Africa, interviewed in June and July 2018. The report does not claim to offer a comprehensive view of the regional landscape, but rather offers specific insights and recommendations for those charged with managing this important economic agenda in the region.[10]

Structure of the report

The report is divided into eight further sections and various annexes:

- **Section 2** discusses the role of industrial parks and the **need for governments to adopt a framework** for understanding the whole of the industrial park lifecycle in order to deliver on their intended purposes.
- **Section 3** discusses the key elements of **strategic programme planning** for industrial parks and the minimum requirements for **project identification**, leading to Pre-Feasibility Studies as an output. The contents and sub-studies required for a robust Pre-Feasibility Study are listed.
- **Section 4** is the first of two sections on **project structuring**. It considers the various models available for the development of industrial parks, involvement of the private sector and questions of phasing.
- **Section 5** looks at the other half of **project structuring**: specifications. It discusses industrial mix and specialisation, infrastructure standards, and environmental and social considerations. The contents and sub-studies required for a full Feasibility Study are listed.
- **Section 6** is the first of two sections on **project transacting**. It considers different sources and costs of capital and demonstrates the challenges of private sector financing of parks in Africa.
- **Section 7** looks at the other half of **project transacting:** procurement and contracting of the park developers and construction firms. It discusses contracting models and procurement issues.
- **Section 8** looks briefly at certain issues around **project implementation,** principally around managing and regulating parks.
- **Section 9** concludes the report by summarising all the key **recommendations** from the preceding sections, which have also been included at the end of each section**.**

Annexes provide factual information on various African industrial parks; acronyms; references, and detailed discussions.

[9] The report also references anecdotal examples from a number of other countries in Africa, including Botswana, DR Congo, Lesotho, Madagascar, Mali, Mozambique, Nigeria, Senegal, South Africa and Tanzania.
[10] The evidence and examples presented in the study are based on information available at the time of reporting. It must however be noted that some of the information accessible to the study team may be dated due to its nature (e.g. business plans and feasibility studies conducted at the beginning of projects; national economic statistics and forecasts etc.). The team has, where feasible, validated the information through interviews, consultations and supplementary secondary research. The data presented in this study therefore should be interpreted as indicative and must not be relied upon for making any commercial or investment decisions. The purpose of the study is to highlight and inform policy makers but not to make recommendations on investment or related commercial decisions.

2. The role of industrial parks

The intended purposes of industrial parks

Industrial parks are seen to play a number of important functions in supporting the national economic development agenda. In practice, the track record of parks across Africa in delivering on these perceived benefits is mixed; much depends on the implementation. Of course, industrial parks are also only one part of the picture – SEZs more broadly, and the wider enabling environment, must also be considered.

The five most common objectives of African policymakers in promoting parks are:

- **Clustering and agglomeration**: Manufacturing and service industries tend to be geographically concentrated in proximity to cities and other naturally evolved clusters, both in developed and developing economies.[11] Industrial parks and SEZs promote the formation of such clusters in order to ensure that the benefits of geographic concentration can accrue to the enterprises within the park, and to the broader surrounding economy.
- **Export competitiveness for secondary economic sectors:** Industrial parks promote the development of processing, manufacturing and other secondary sectors, through enhanced trading conditions such as lowered taxes, tariffs or visa barriers and (usually) through some degree of state financing of critical transport and site infrastructure. This in turn enables a country to capture a greater proportion of the global value chain, with associated fiscal and employment benefits.
- **Sector diversification and resilience:** By enhancing the trading conditions available to secondary sector businesses, governments also promote sector diversification. This process of diversification and interconnection increases the resilience of the wider economy, through reduced exposure to primary commodity prices, which are relatively volatile, and the development of a distributed, competitive economic marketplace.
- **Investment promotion:** Industrial parks provide high-profile investment destinations, which may often be backed by clear government support, professional international marketing and a strong sense of economic 'momentum'. This in turn helps to garner interest from international investors, provided the underlying economic rationale for investment is sound.
- **Job creation**: Industrial parks are often perceived as being a tool to accelerate job creation. By clustering such job creation in one area, this also enables governments to create visible signs of their proactive support for economic development.[12]

A more detailed discussion of these topics is set out in Annex A.

Delivering on the purposes of parks in practice

While these purposes are typically well understood, governments – and much of the donor literature – often underestimate the full cycle of steps required to launch and manage an effective national industrial park strategy which will deliver the intended benefits.

As a result, there is much emphasis on policy-making and project management, but too little attention paid to **strategic national programming** and the technicalities of **project structuring** and **project transacting,** in particular with respect to robust financial analysis.

[11] For example, in France, UK and the USA, 75-95% cent of industrial output is clustered or geographically concentrated, while in Vietnam, large anchor firms are surrounded by thousands of small enterprises, as seen in the major industrial clusters near Hanoi and Ho Chi Minh City. Source: World Bank, 2009

[12] In fact, there is quite limited empirical evidence that industrial parks make a significant positive contribution to job creation beyond what would have taken place through organic, economy-wide growth. See Annex A for further details.

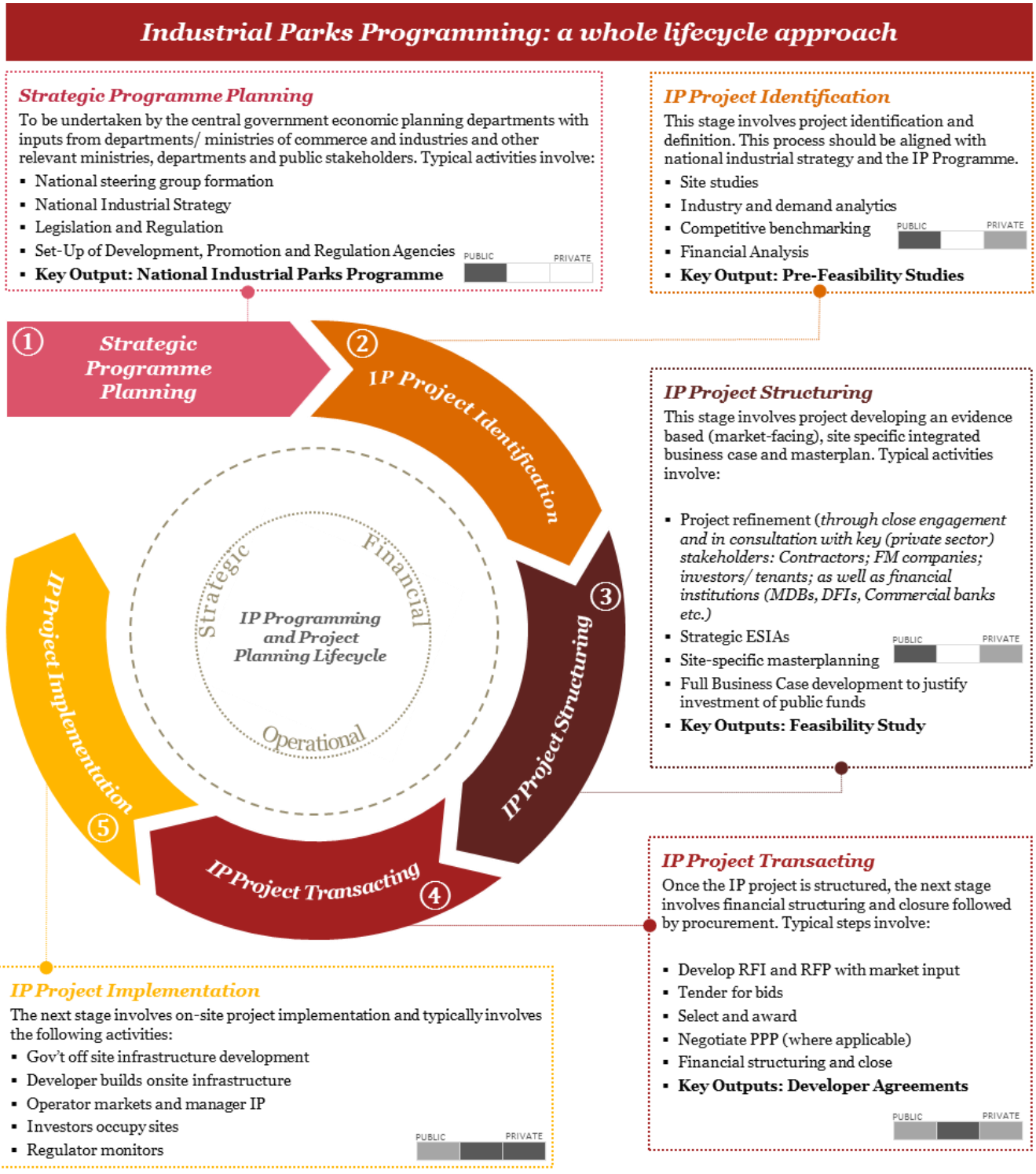
As a result, **too many industrial parks fail to deliver on their full economic potential, entail too much cost to the public sector, and/or fail to fully harness the power of non-state investment**.

The figure below attempts to address this gap by setting out a full lifecycle approach, from national planning through to project execution. This lifecycle approach forces individual projects to be situated within a wider national strategic plan for industrial parks, and in turn gives due emphasis to the importance of robust project structuring and financial analysis.[13]

The lifecycle also provides the structure for the remainder of this report.

[13] The framework demonstrates that, while much of the upfront economic analysis and planning must be done by government, professional financial investors and transaction advisors should be involved at an early stage, starting with project identification. Early engagement with prospective end-tenants will further support the viability, attractiveness and suitability of the final project in terms of desired technical specifications.

Figure 3. Industrial parks programming and project planning proposed approach.



3. Strategic programme planning and project identification

This section sets out the key considerations for East African governments when establishing a national strategic programme for industrial parks and then identifying individual potential parks. These represent the first two stages of the project lifecycle outlined in Section 2.

The key considerations are:

- Formulating of a robust national programme;
- Adopting a macroeconomic understanding of overall demand for industrial land; and
- Agreeing a national set of minimum standards and processes that will apply to industrial parks at the project identification stage.

Further discussion of examples of good practice across Africa is included in Annex E.

Formulating a robust national programme

Elements of a robust national programme for parks

The framework in Section 2 emphasises that **no individual park project should be taken forward in the absence of a strong link to a wider national industrial parks programme.** Such a programme may exist as a standalone policy, or may form part of a wider national industrial strategy, such as Ethiopia's Growth & Transformation Plans.

A strategic programme should generally set out:

- The role of industrial park policy within the context of wider national economic strategy
- National comparative advantages
- What markets can competitively be served
- National factors of production relative to neighbours and peers
- Proximity to supply or demand markets to enable trade in a cost-effective manner, from the perspective of transport economics and logistics
- National supply and demand for serviced industrial land
- Key national constraints to business and investment, and plans to address them
- What 'value-add' industrial parks as a mechanism could play to support business, beyond ordinary investment outside a designated zone
- What roles government can usefully play in this context and what will be left to the private sector
- What complementary policies the nation may require in order to make a success of an industrial park development plan

Adoption of a national strategy ensures that the planning process starts with comprehensive and dispassionate strategic and economic analysis, captured and agreed at senior levels, rather than arbitrary site selection. Such analysis can be used to drive industrial park location, size and characteristics, but more importantly it galvanises vital other strands of economic reform work across government, which will be necessary to make a success of each park ('enabling environment reform'). **Kenya**, **Botswana** and more recently **Ethiopia** have offered good examples of such national strategic programme planning.

Institutional alignment and capability to deliver

Development of a strategic programme for industrial parks should be inter-agency and inter-disciplinary. This is because institutional alignment and co-ordination are imperative to ensure the strategic planning process and park planning and implementation are properly sequenced and fully aligned between agencies, and because that process requires a wide skill set across political, financial, legal, engineering and regulatory fields.

As well as representatives and experts from a wide variety of government agencies, experts from the private sector should also be consulted and engaged in the programme development.[14] The programme should also set out how the various agencies and the private sector will continue to collaborate in the future, in the execution of the programme.

There are multiple examples across sub-Saharan Africa of issues arising due to lack of sufficient cross-Government and public-private co-ordination. Tenants in the China-Zambia Economic & Trade Co-operation Zone (Zambia), Liao Shen (Uganda), Hua Jian and Velocity industrial parks (Ethiopia) are all delayed in their operations because of missing substations, for example. Similar problems have arisen with regard to water shortages, lack of worker housing, inadequate solid waste management facilities, and social unrest. All of this has affected recruitment, retention, productivity and ultimately commercial viability.

The programme should also set out a plan for investment in the capabilities of the state agencies responsible for park development. Having a good legal, regulatory and institutional framework, and even well designed and built industrial parks, are not enough – industrial park programmes' success also depends upon human resource capabilities. These include good standard operating procedures, human resource management and development systems, organisational performance systems, and training programmes.

Defining the role of the public sector and creating a conducive enabling environment

The role of the government (public sector) should be clearly defined in the national programme. This includes a clear understanding of where the government (and its institutions), including regional government and cities, need to play an enabling role rather than acting as an active market participant.

In particular, the programme should set out how the government will avoid crowding out the private sector. In the context of industrial parks, government involvement in delivering goods and services which private sector operators are capable of delivering may risk impeding private sector development, tying up valuable official resources in socio-economically neutral or low-value-add projects, and creating conflicts of interest within and between government agencies.

Instead, the programme should explain how the government will focus on tackling market failures and gaps. The preferred approach of any industrial parks programme should be on enabling private developers, where necessary through PPPs and other private risk-mitigation strategies, to lead park development; so-called state-led approaches should be considered only where it has been demonstrated that the private sector cannot deliver.

Approaching industrial parks as one tool among many

Industrial parks should be understood as one policy tool among many. The creation of an industrial park cannot in itself circumvent underlying market conditions.

A national industrial parks strategy should therefore either be embedded within, or should align with, national governments' plan in relation to wider special economic zones and

[14] In many sub-Saharan African countries, by contrast, industrial park strategies and policy are led by the relevant Ministry of Industry, but the views of customs officials, the private sector and other ministries (such as ICT, agriculture, utilities or environment) and regional governments are not sufficiently taken into account.

industrialisation. Those wider plans should set out how different tools – such as logistics platforms, export-processing zones, SME incubators, industrial parks and any sectoral support initiatives (such as agri-processing extension worker support) will all be used to respond to the different markets and practical realities that exist in different parts of a country. This clarity is important so that different policy tools do not end up undermining each other.[15]

Adopting a macroeconomic understanding of overall demand for industrial land

A demand-led approach is vital for the design and execution of a programme for industrial parks. This is especially the case in countries where there is limited capacity for the state to absorb further upfront financing costs and associated financial risk.

As such, **a national programme should set out how park development plans are to be matched to credible forecasts of demand for serviced industrial land**. The programme should combine macroeconomic forecasting with empirical evidence of demand (gained from early investor soundings), in order to mitigate the risk of over-supply of industrial land.

Currently, in several of the countries within the scope of this study, macroeconomic forecasts suggest that the planned supply of industrial land may outstrip the demand from local and international investors to fill that land, if currently proposed programmes are rolled out too quickly.

This may create overcapacity, reduce the commercial sustainability of each individual park, and reduce the benefits of economic concentration (agglomeration). The following table shows an estimate of supply and demand for industrial land in certain key African markets:

[15] In several countries, for example, interviewees commented that the introduction of one type of special economic zone had conflicted with or undermined the attractiveness of, or simply been confused with, another pre-existing type of zone.

Figure 4. Illustrative demand and supply exercise for industrial land in key African markets.

Parameter	Unit	Ethiopia	Kenya	Uganda	Rwanda
Current industrial output[16]	*$m*	4,072	6,448	2,173	474
Projected industrial output by 2021 according to World Bank forecasts[17]	*$m*	6,539	8,037	3,009	648
Projected industrial output by 2026 according to World Bank forecasts	*$m*	10,502	10,806	4,127	931
Incremental capital output ratio[18]	-	2.68	4.69	3.02	2.18
Cumulative investment required by 2021, implied by country's ICOR	*$m*	6,612	7,453	2,523	380
Cumulative investment required by 2026, implied by country's ICOR	*$m*	17,234	20,441	5,899	616
Industrial land demanded per $m investment[19]	*Ha*	0.51 – 0.64	0.29 – 0.55	0.51-0.68	0.51 – 0.7
Implied approximate demand for net leasable industrial land by 2021 (ha)	*Ha*	**3,400 - 4,237**	**2,163 - 4,115**	**1,297 - 1,728**	**196 – 266**
Implied approximate demand for net leasable industrial land by 2026 (ha)	*Ha*	5,462 - 6,807	3,769 - 7,171	1,736 - 2,312	512 - 695
Supply of IP industrial land, expected to come on-stream by 2026, gross[20]	*Ha*	7,050[21]	12,140	5,868	966
Supply of IP industrial land, expected to come on-stream by 2026, net leasable	*Ha*	**4,230**	**7,272**	**3,521**	**659**
Potential likelihood (risk) of oversupply		***Moderate***	***High***	***High***	***Very High***

The above table should be seen as an illustrative exercise highlighting the need for more robust macroeconomic analysis (not as an answer in itself). The demand data is based on a simplistic industrial output projection, and the supply data is based on rough information derived from interviews with the UIA and UFZA (Uganda), public media sources (Kenya), the IPDC (Ethiopia) and MINICOM (Rwanda). In all four countries there is therefore a need for governments to ascertain and publish their overall strategy with regard to the overall supply of industrial land, and how it maps to demand. This should be a piece of economic analysis in its own right, and form part of the wider national parks development strategy.

Notwithstanding the above caveats, the analysis illustrates two important points:

- There is a high risk that the amount of land intended to be earmarked for industrial parks exceeds the amount of land required to meet industrial growth in Rwanda, Kenya and Uganda. Even in Ethiopia, the estimated supply of land does not include organic, private sector real estate development which is likely to take place in the next decade. Here too, therefore, continued state-led land development poses a risk of over-supply;
- Even if the amount of land set aside is to be fully utilised, **current forecasts suggest that it will not be fully needed until 2026**. Park development can be assumed to take 2 – 4 years from concept to completion. This gives governments valuable additional time to carry out further project planning and viability testing on some of their proposed parks.

[16] Source: National Institute of Statistics of Rwanda. Currency Conversion from http://exchange-rates.org (accessed on July 20, 2018).
[17] Source: World Bank.
[18] Source: UNCTAD (2011).
[19] PwC analysis, based on land capital ratio benchmarks from deals across the region and globally.
[20] Indicative and high level based on publicly available information and stakeholder interviews. Not comprehensive; overall supply of economy wide industrial land (within and outside IPs) may be significantly higher than estimates presented. For illustration purposes only. Same applies to the net estimates.
[21] Source: IPDC website; EIC. An estimate of 100,000 hectares has also been published in the press; however, this is not considered credible in the short-term (and may include, for example, large-scale agricultural zones). Remaining figures in this row: stakeholder interviews.

This report therefore recommends that governments take a more careful **phasing** approach in order to match the planned supply of industrial land to demand, over a 5 – 10 year time horizon.

Setting minimum standards for individual park plans at the project identification stage: Pre-Feasibility Studies

A national programme should establish what the minimum requirements are for individual parks to be deemed viable, in terms of analysis at the project identification stage.

These requirements should be brought together in a Pre-Feasibility Study as part of the project identification stage. A good Pre-Feasibility Study should include:

- A Market Assessment, which considers:
  - Growth and export trends
  - Costs and availability of required factors of production for the sectors intended for the park's occupants
  - Preliminary labour force analysis
  - Financing opportunities and costs for developers and tenants
  - Associated regional market integration needs, such as enhanced trading arrangements and resolution of customs issues
  - Associated sector-level and sub-sector-level policy reform needs
- A Preliminary Design, outlining the forecast land requirement, preliminary site boundaries, and potential layout of land use zoning within the proposed site
- Preliminary Infrastructure Assessment, outlining new or upgraded infrastructure and services that will be required including power, water, internet and solid waste
- High-Level Project Structuring, setting out feasible development options
- High-Level Modelling of Financial and Economic Rates of Return (IRR and ERR)
- Investor Soundings, including engagement with potential investors in the overall park and potential tenants who may establish operations within it
- An Execution Plan, based on the above, with an overall assessment of the viability of the proposed site, a recommendation as to whether to proceed to a full Feasibility Study, and (if so), a clear set of actions to take forward

A strong Pre-Feasibility Study containing all of the above aspects will provide realism, demonstrate to investors an understanding of their requirements and a political will to meet them, and mitigate the risks of park failure. An indicative cost range for such a study is set out in Figure 30 in Chapter 7 below.

Investor Soundings in particular are key, and often overlooked. As a result, there are multiple examples from around the world where parks have failed due to over-optimistic assumptions about investor demand.[22] Too often, demand analysis for proposed new parks has been 'general' in nature, rather than based on a detailed analysis at the level of each park. It is also often based purely on economic analysis rather than being complemented by real investor market soundings. Again, this creates a risk of over-supply of industrial land relative to actual market demand, and increases the risk of park failure.

[22] For example, summarising the status of textile parks across the country, a report for the Ministry of Textiles in India stated that 74 textiles parks have been sanctioned to date, of which 30 are functional, while eight have applied for cancellation and others are at various stages of implementation. The 30 parks that are currently operational employ around 68,000 people, which is only 57 per cent of their planned employment. Source: Perfect Sourcing Vol7, Issue 1, Feb 2017

Conversely, there are several good examples of investor demand analyses that have been prepared, which governments could use as a benchmark.[23]

In summary, a robust Pre-Feasibility Study, including specific investor soundings should be performed before approving further public investment or moving to the project structuring or transacting stage.

[23] For example, the IFC's assessment of investor demand for Naivasha Industrial Park in Kenya carried out by Buro Happold; Kaiser EDP's assessment of demand for five SEZs in Botswana (2014); Kaiser EDP's assessment of demand for Dube Trade Port in South Africa.

Summary of recommendations from this section

No.	Recommendation
1	Governments should develop a **national industrial parks strategy**, either as a standalone policy or as part of a wider economic strategy (such as Ethiopia's GTPII). • Many African governments already have such a strategy. Where a strategy is already in place, governments should audit it against the recommendations in this report.
2	Governments should undertake a **detailed and robust assessment of future investor demand** for industrial land at the national level, and compare it carefully against their park development plans. Where they identify a risk of over-supply of industrial park land, this should be mitigated by phasing the timing of park development more gradually.
3	Governments should develop **minimum standards and processes for project identification**, which could be supported by a template Pre-Feasibility Study that must be completed for any proposed new site or batch of sites. • Where such standards already exist, governments should audit them against the recommendations in this report. • Where Pre-Feasibility Studies (or their equivalent) have already been completed, they should be assessed against the recommendations in this report, and if necessary, revisited and strengthened.
4	Close and continuous cross-government liaison (including with regional governments, sectoral agencies and with key infrastructure providers – roads, utilties, fire security and basic services providers – sanitation, health, housing, solid waste) is critical. Governments should consider establishing formal cross-Government committees and oversight bodies to provide for this.

4. Project structuring (1): models

Once a national programme has been established and individual project(s) identified and approved at the pre-feasibility stage, governments should, in consultation with the private sector:

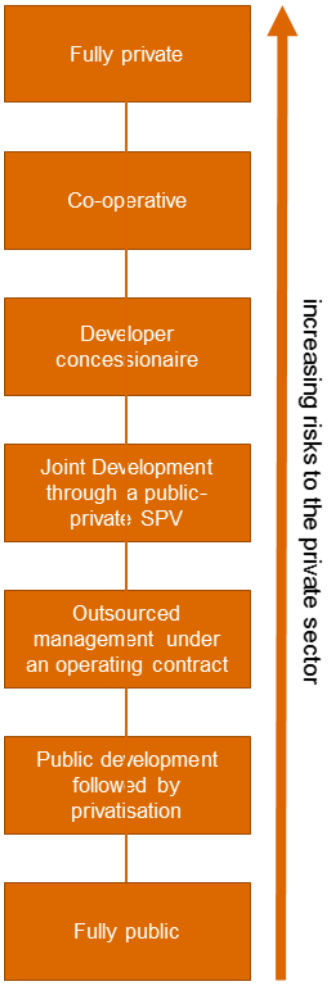
- assess and choose from the various development models available to implement the park(s); and
- determine their approach to the specifications of the park(s).

These two steps can be considered as critical to the viability of any proposed park predominantly for the park owner/developer and the park's end-tenants respectively (though they are inextricably linked).

Together, these two steps represent the **project structuring** phase of the project lifecycle and they form the basis of this section and the next. The output of this stage of the project lifecycle should in most cases be a full Feasibility Study, which will provide an overall blueprint for the design and execution of a proposed park, including considerations of hydrology, power, topography, demand, and environmental and social impact.

This first section (Section 4), on development models, explores three aspects critical to the project structuring: selection of the overall development model; optimising the involvement of the private sector in a park transaction; and determining the phasing of overall park development.

Figure 5. The different development models set out in Annex F



Selection of the overall development model

Previous reports have set out the different types of development model that exist.[24] In the African context, it is useful to consider **seven major models** (see diagram)**.**

Annex F provides a one-page summary of how each of these models works; their advantages and disadvantages; and examples of each model from sub-Saharan Africa. As the Annex explains, there are certain pre-requisites as well as trade-offs associated with each model that the host government must take into account early on in the project planning lifecycle.

In general, **PPPs are to be preferred over publicly-driven industrial park development and operation, wherever possible**. As a general rule, private participation (and indeed ownership) drives greater market orientation, industry knowledge and expertise, access to private capital, customer service levels, efficiency and innovation.

Anecdotal evidence also suggests that private sector participation in parks has also specifically brought efficiencies in overall financing, construction, and operations. Indeed, where the prevailing business environment is conducive and market attractiveness high, park development can occur without significant support from the host government beyond regulatory approvals.

The **timeframe** implications of a PPP approach are specifically explored further in the discussion box overleaf.

[24] In practice, there are very many variations on these structures, and only the main relevant types are discussed here. The many different models have also already been set out in the Demand Assessment Report of the Transaction Advisor to MINICOM (September 2016), prepared by CRISIL. Annex F uses narrative description rather than the acronymic approach (OOT, DBFOT, etc.) for clarity.

Figure 6. Implications of the choice of a PPP development model for the speed of build

As compared to 'pure' public or private development models, PPP-based industrial park projects typically add a further 9 – 18 months to the timeline for park development. This is due to the need for an intermediary step of structuring the project development vehicle and then procuring the master-developer, with appropriate emphasis on due diligence and value for money.

However, the additional time needed to properly structure a PPP is insignificant as compared to:

- The super-long-term lifecycle of international industrial parks;
- Other primary causes of delay, which create greater hurdles;
- Wider inefficiencies in the business enabling environment.

For this reason, the ambition to develop a national industrial park programme quickly and effectively should not lead governments to reject PPP models. This is set out in further detail below.

Understanding industrial parks as super-long-term investments

The long-term development strategy for an industrial park is typically divided into 3 – 4 phases and it is not unheard of, particularly for larger industrial park projects, to divide a project up into even 5 – 7 phases, over a 30 – 40 year overall project development timeline. As a rough average, it is typical to see 5 – 10 year intervals between the developments of each successive phase of site occupancy. Each phase of build typically takes between 12 – 30 months. Investing an additional 9 – 18 months in the design stage is therefore immaterial compared to the full lifecycle of the park over many decades.

The structuring of the PPP has not historically been the main cause of major delays to flagship industrial parks

Structuring a PPP deal has not historically been the primary cause of delays to industrial park development. Rather, delays have arisen from a number of other sources, including:

- Where the specifications of the build out are changed subsequent to procurement of the lead construction firm, or even subsequent to the start of the build phase. For this reason, it not only necessitates continuous dialogue with prospective tenants, but it is equally vital to specify upfront, in procurement and contract negotiations, the international and/or national standards which will be used – including for site preparation, factory shed build, and waste water and other utility plant; and the mechanisms – contractual, financial and governance – that will be put in place to handle inevitable contract variations subsequent to the initial agreement.
- Sourcing and agreement of financing;
- The procurement cycle and finalisation of the desired specifications and amendments to reflect tenant requirements.
- Lack of key infrastructure outside the park e.g. electricity substations or housing or issues with regional governments or logistics issues. which mean the tenants cannot operate in practice.

Clearly, these delays may occur regardless of the public, private or PPP model chosen.

Wider enabling environment inefficiencies

Finally, governments may also in any case offset the additional time investment required for structuring PPPs, by taking steps to improve the overall business environment, thus reducing time costs elsewhere in the project lifecycle. For example, all four of the countries in focus under this study rank low in 'Ease of getting construction permits' parameter, which implies cost and time (delay) implications in conducting business in these countries – this may also have a bearing in the overall speed of build, especially with regards upstream project structuring and transacting stages of the lifecycle.

Table: World Bank Ranking on Ease of Getting Construction Permits

No.	*Country*	*Rank*
1.	Rwanda	112
2.	Kenya	124
3.	Uganda	148
4.	Ethiopia	169

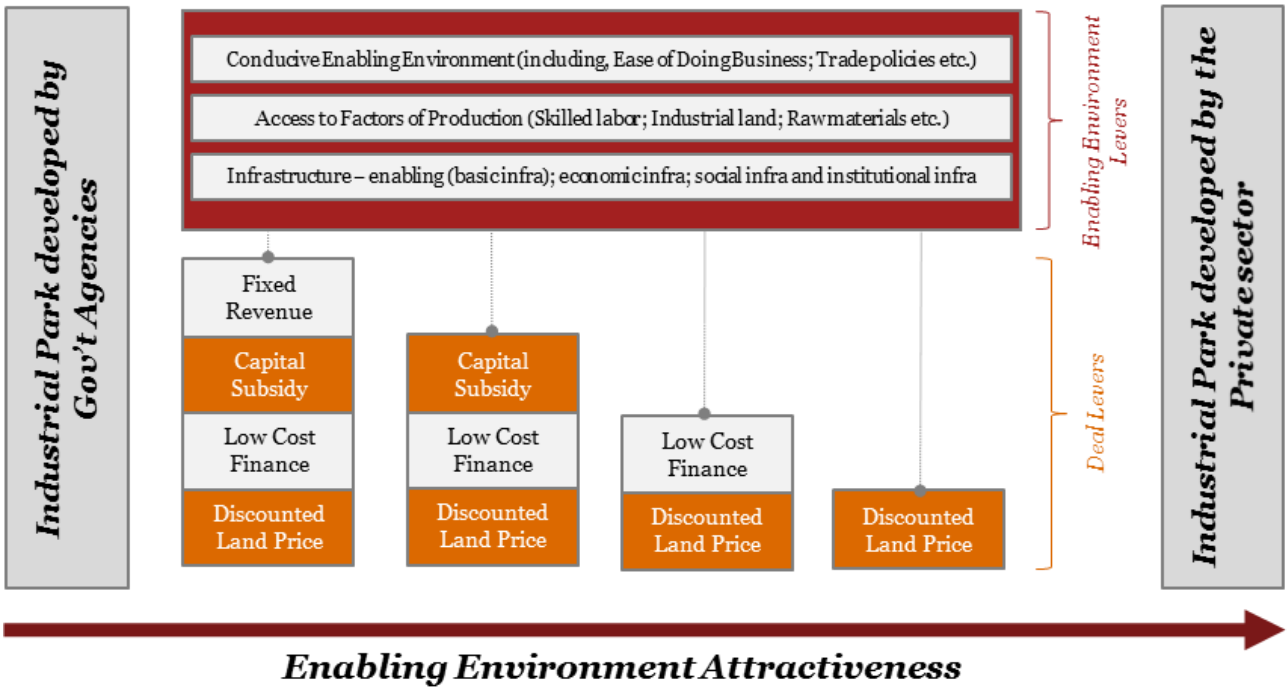
Source: World Bank, Ease of Doing Business Index

Optimising the involvement of the private sector

Given the range of models available, a key design question for any proposed park is the timing and the extent of the involvement of the private sector. To address this question, governments may consider a set of **levers** at their disposal to ensure that park development (and/or operation) is an attractive investment in terms of the risk-adjusted returns that can be made by the private sector.

Governments' levers in this regard can be thought of in two categories: **enabling environment levers** and **deal levers**, as shown below.

Figure 7. Industrial park development by both government agencies and the private sector in relation to market attractiveness



A government decision to subsidise park development through public financial support must always be grounded in an economic rationale for enhancing the attractiveness of the deal for the private sector. Otherwise, the government risks causing unnecessary subsidies, excess profits, and opportunity costs for social expenditures elsewhere.

As the diagram illustrates, **the poorer the enabling environment, the greater the extent to which government must improve the risk-adjusted returns to the private sector through subsidy to the deal itself**.

Improving the enabling environment for infrastructure and real estate development is a more cost effective way to drive economic transformation than the deployment of state subsidies at the project level, in the long term. For this reason, any use of subsidy to drive a specific park, should always act as a prompt to government to press on with wider economic reform policies that will reduce such a need for subsidy in future transactions.

In many economies in sub-Saharan Africa, the practicalities of executing a major private real estate transaction can be challenging. Where possible, therefore, they should be mapped out and streamlined – during the project structuring phase. Governments can do this by creating a roadmap for a public-private transaction, and then seeking to understand where the delays are most likely to occur. Steps can then be taken to mitigate such delays.

An example of such a roadmap is provided below as an illustration. The hurdles set out, which represent an opportunity cost for investor management, should be understood by government and appropriate resources put into ensuring that associated processes are handled smoothly among the relevant government agencies.

Figure 8. Illustrative roadmap to enable government to assess potential blockages to commencement

More broadly, governments should be cognisant of the market realities faced by the private sector, and realistic about the attractiveness of a given park development or park investment opportunity. To assist with this due diligence process, governments may ask:

- Are the deal fundamentals likely to be robust, given market conditions?
- Is there a reasonably active market of project developers, who have been adequately engaged at the identification and structuring stage? Does the market know of and understand the proposed type of deal?
- Do financing options with identified financial institutions exist for real estate deals, in these markets, and if so, which, and on what terms? Could developers pay the interest likely to be demanded, and still return an overall profit?

The financial model prepared to accompany this report can be used to assist with illustrating the range of potential financial outcomes, from a project developer's perspective, from an industrial park.

All of the above considerations should be dealt with as part of the business planning for the park, and should be captured in the Business Case alongside the other results of the full Feasibility Study.

Adopting a phased model of development

Finally, a critical component of the overall blueprint for an industrial park will be the proposed phasing. Phasing is the single most effective way for project developers to mitigate the risks they incur through the upfront investment they make into preparation of a park site. It limits the amount of cash which has to be invested before the commercial viability of the park has been proven; and it spreads the cash flow burden over a longer period of time, reducing financing costs.

The critical nature of phasing is evidenced by its adoption in many parks across the African continent; but it is also clear that phasing is insufficiently mapped out in many existing business plans or feasibility studies. The table below outlines this at a high level.[25]

Figure 9. Table outlining phasing approaches across the African continent

Park	Country		Phasing approach
Hua Jian	Ethiopia	✓	Phased approach - Phase 1 (80,000 sq m BUA; by Dec 2016); Phase 2 (70,000 sq m BUA; by Dec 2017); Phase 3 (160,000 sq m BUA; by Dec 2018); Phase 4 (190,000 sq m BUA; by Dec 2019); Phase 5 (1 mill sq m BUA; by Dec 2020)
EIZ	Ethiopia	✓	Phased approach - Planed phase 1 (230 Ha out of c. 500 Ha total land area), subsequent development phasing is expected to be based on tenant demand.
Mekelle	Ethiopia	✓	Phased approach - development phased over 4 years. Phase 1 area is ~10Ha (Source EIC); IPDC plans to develop ~475 Ha by 2019 (Source IPDC).
Velocity	Ethiopia	✓	Phased approach - plan to build initial sheds (7-8 sheds) and the rest of the development to be phased out based on demand/ uptake.
Kombolcha	Ethiopia	✓	Phased approach - phase 1 is 75 Ha (source: EIC) whereas the overall area is 1000 Ha. IPDC plans to develop ~300 Ha by 2019 (source: IPDC)
Adama	Ethiopia	✓	Multi-developer approach, with four 'sub-plots' each with different developers. The sub-plots can be developed either concurrently or sequentially. Phasing also takes place within each sub-plot – e.g., in Ethiopia-Hunan (Adama), which is a PPP model rather than public, the initial sheds are built but subsequent sheds will be phased on demand. See also below.
Bole-Lemi II Industrial Zone	Ethiopia	✓	Phased approach - 3 demonstration sheds to be built and the rest to be developed by investors as per their specifications based on future demand.
Kilinto Industrial Park	Ethiopia	✓	Phased approach - IPDC aims to develop c. 243 Ha in next five years (Source: EIC)
Dire Dawa SEZ	Ethiopia	✓	Phase approach - Phase 1 area is c. 15% of overall IP land area (source: EIC). The development will be phased over next 4 years and IPDC plans to develop c. 675 Ha by 2019 (Source: IPDC).
Dongo Kundu SEZ	Kenya	▣	Limited information on phasing approach.
Infinity Industrial Park	Kenya	▣	Limited information on phasing approach.
Lekki Free Trade Zone (LFTZ)	Nigeria	✓	Phased approach - 2009 masterplan has been revised (as per WB policy notes, c. 2012) as well as team interviews. Overall area: 3,000 ha. 'Start up' phase of c. 154 Ha to be developed over 5 years. Thereafter, the development will be phased out based on investor demand and uptake.
Kigali SEZ	Rwanda	▣	KSEZ Phase 1 was the first phase of the overall development and is now fully occupied (with a mix of manufacturing, warehousing and commercial). Phase 2 has now been developed and is fully booked. Based on proven appetite from investors, GoR is considering whether to develop and book out a third phase.
Bugesera Industrial Park	Rwanda	✓	Phased approach - planned phase 1 is 100 Ha; the remaining 230 Ha will be developed in two subsequent phases (Phase 2 and 3).
Huye Industrial Park	Rwanda	▣	Phased approach is recommended in the business plan, but no phasing plan is included.
Rwamagana District Ind. Park	Rwanda	▣	Phased approach is recommended in the business plan, but no phasing plan is included.
Musanze District Industrial Park	Rwanda	▣	Phased approach is recommended in the feasibility study, but no phasing plan is included.
Rusizi Provincial Industrial Park	Rwanda	▣	Phased approach is recommended in the business plan, but no phasing plan is included.
Kicukiro SME Park	Rwanda	▣	Phased approach is recommended in the feasibility study, but no phasing plan is included.
Nyagatare Industrial Park	Rwanda	✓	Phased approach - Phase 1 (4 yrs.), Phase 2 (3 yrs.), Phase 3 (3 yrs.)
Diamniadaio Industrial Park	Senegal	▣	Limited information on phasing approach.
Kibaha SEZ	Tanzania	✓	Phased approach - development is planned to be phased over 24 months.
Liao Shen	Uganda	✓	Phased approach - phase 1 to be 260ha within a wider development that will eventually be around 1,300ha..

[25] The table is indicative and based on a high-level review of available literature, stakeholder interviews and secondary research.

This gives rise to some important conclusions.

Successful parks have used phasing, sometimes over a decade or longer

Almost all parks in our interviews conducted a de facto phasing approach. Infrastructure is constructed one step at a time, typically starting with a sub-scaled (diesel or natural gas) power generator, underground water well boring, and basic land development. The developed area is typically a small subset of the overall planned area even after a decade since inception, for even some of the more successful parks:

- 1.5 sq km of 30 sq km planned in **Nigeria**'s Lekki Free Zones. It was originally a completely undeveloped swamp area without a power grid or roads. Early tenants had to supply power with their own generators. Only in 2010, after some initial critical mass and add-on capital injection by its shareholders, did it build a 12MW on-site power station using compressed natural gas (transported by cylinders).
- 2.33 of planned 5 sq km of **Ethiopia**'s Eastern Industrial Park has been developed since 2007 (11 years).
- Liao Shen IP in **Uganda** offers a similar example with an overall area of around 520ha, but phase 1 planned to be 260ha – 80% leased and remainder set aside for leisure, parking, etc. Around 10-12 factories to be ready by year end (2018), with four currently operational.

As an indicative benchmark, **anecdotal evidence suggests that as few as 5 – 10 tenant companies are sufficient to form a starting cluster,** and that infrastructure investments should target this range to begin with. Thereafter, park developers can be led by demand.

Part of the reason for such elongated timescales is the length of time it takes to secure tenants**. The time between initial interest, MOU signing, binding agreement signing, construction and operational commencement for the end tenant can be very long.**

- In **Uganda**'s KIBP, created in 1997, 150 companies are in pre-start studies phase, 70 are in construction phase, with only 21 companies currently operational as of 2017. 120 companies have been removed from status list due to 'non-performance', mostly in turn due to lack of progress on investments, construction and operations. A lack of a plan to recover the park costs has meant insufficient recovery of funds to enable infrastructure investments e.g. roads, wastewater systems are missing.
- A large **Chinese textile and garment company** in Ethiopia signed the investment memo with the government in 2016, bored water wells in April 2017, and then started construction in October 2017. To date (July 2018) it is in construction phase and not yet operational, versus an originally announced timeline of operation starting by January 2018. The main delay is the absence of a substation and water supply; these requirements are clear to the investment promotion agency but evidently not sufficiently communicated across the other relevant parts of Government and state utilities.

From the above, it is evident that an industrial park in Africa can easily take up to 10 years to reach initial scale (defined as more than ~5,000 employees). While certain flagship parks such as Hawassa have defied these timeframes (reaching completion in 9 months and being fully occupied within 12), they should be understood as being the exception rather than the rule. Even with Hawassa, tenants cannot meet their full export potential due to logistics issues and lack of adequate housing for workers, which is developing over time.

Successful parks use phasing as a way to reduce cash flow challenges

One key reason for the long and phased development cycle is cash flow balancing. A park developer needs to balance the upfront cash for capital expenditure with cash in through sales and revenues. This is particularly the case if the park employs a private or PPP development model; but in fact the same principle applies for good public financial management. Especially for larger parks, each phase needs to deliver incremental cash flow to support the development of the next phase. Realistic financial cash flow planning is therefore essential in phasing planning.

The **Lekki Free Zone** in **Nigeria** illustrates this point. The total 30 sq km park agreed by the government is larger in size than Macau. The developer JV was injected with US$200m of cash, a large portion of which was spent to develop the initial 1.5 sq km phase. The developer consortium then needed to sell plots of land (e.g. tens of thousands of sq m each) to individual tenant investors (who can build sheds on top) to recoup some of the cash for next phase development. The recent development of Lekki airport and Dangote Group's investment in a nearby oil refinery and petrochemical park are helping prospects for land price appreciation, which will facilitate cash recovery. The developers will seek to slow down land sales after sufficient cash is recouped for next phase development, as they prefer to reserve the land holding for even longer-term appreciation potential.

One model to support larger parks is to divide into carefully phased and integrated sub-plots for different sub-developers

For very large plots, it may be beneficial to sub-divide the overall development into smaller sub-plots, to be concurrently developed. This approach may accelerate the development of larger parks in the region as well as providing natural competition and cost comparison between developers, construction firms and tenants.

For example, the 3.65km land area at Adama, in **Ethiopia**, has been divided into four sub-parks, each invested and developed by the Industrial Park Development Corporation but built and operated by different parties:

- Phase I (130ha) – built by Chinese SOE, CCECC, while operation is still being discussed
- Phase II (122ha) – built by Chinese company CGCOC and operated by Hunan Industrial Park Corporation (a SOE owned by the government of Hunan province), who has strong tenant resources
- Phase III (80ha) – built and operated by large Chinese textile and garment company Jiangsu Sunshine Co, who has its own construction capabilities in China and wants to bring them to Ethiopia to do land development shed construction
- Phase IV (32ha) – built by a Chinese textile company from Zhejiang province (operation not yet clear)

A few parks with many phases is better than many parks with few phases

A smaller number of heavily occupied parks is greatly preferable to a larger number of a partially unoccupied parks. One of the primary reasons for the development of industrial parks is the clustering effect. Achieving a critical mass of tenants in a single place creates natural supply chain efficiencies, improves the cost-benefits of the supporting infrastructure, and enables economies of scale. By contrast, setting up a large number of parks creates exactly the opposite result and leads to fragmentation. A smaller number of viable parks also reduces the significant capital costs that are involved in establishing new sites. This in turn has significant cash flow benefits, as industrial parks absorb a significant amount of cash up front, which is typically not recovered until several years after completion.

Governments' preference should be to optimise existing parks, including through the addition of new phases, rather than establish new ones, especially where existing sites are not yet fully developed. In Uganda for example, the government has plans for as many as 22 industrial parks. Yet only one public park and one private park actually have tenants secured and a site developed. KIBP leads with 21 companies in operations and 70 in construction, but even here certain key elements of infrastructure in the park such as roads, electricity and water remain inadequate.[26] For the Government of Uganda, therefore the priority should be on improving the current infrastructure of KIBP rather than breaking new ground elsewhere. The incremental costs of enhancing KIBP are also likely to be far lower than developing new sites.

Governments should ensure that sufficient support is given to make existing parks a financial success, before new ones are embarked upon. This is because whereas successful parks such as Hawassa undoubtedly build confidence, a single park failure can have a highly detrimental impact on future market

[26] Uganda Investment Authority interview, 2017

confidence, which can more than offset the positive reputational effect of a success story and lead to long-term investor reluctance to engage. For example, a number of development finance institutions interviewed for this study cited prior investments which had failed to deliver commercially acceptable returns. In addition even if a park is occupied, there are issues above and beyond the immediate remit of the park which also need to be addressed to ensure ongoing success. For example Hawassa industrial park's full potential is being held back by lack of worker accommodation which is hampering recruitment and retention and softer investment climate issues e.g. logistics, customs and banking issues which affect the ability to realise export targets and volumes necessary to help with the park's financial payback.

Summary of recommendations from this section

No.	Recommendation
1	Governments should **review national legislation and regulation** to ensure that all models of park development are legal and feasible to park developers. This will maximise the ability to match the right deal structure to the right park opportunity.
2	Governments should **develop guidance for the deployment of public investment in park development**. The guidance should in particular provide a framework for understanding when to provide public subsidy. It should insist on positive full Feasibility Studies being in place before moving to park tender and build. This will ensure public investment is targeted at the most strategic areas and optimise outcomes for the public sector. The guidance should also mandate the use of phasing to mitigate the risks of upfront investment.
3	Where governments are looking to the private sector to develop parks, they should provide a helpful '**roadmap' setting out the full sequence of steps – legal, regulatory, physical** – that developers will need to go through in order to successfully launch a park. This will give developers confidence and clarity, and will also enable governments to see how existing processes can be streamlined.
4	Governments should develop **minimum standards for approving public investment in park development**. A government Business Case and a full, international standard Feasibility Study should be minimum criteria for the approval of such investment, encompassing hydrology, power, topography, demand, and ESIA. Developers should be prepared to make project amendments to reflect the associated conclusions of these studies.

5. Project structuring (2): specifications

Introduction

As Section 4 demonstrates, selecting the right park development model, designing the deal appropriately to attract private sector involvement, and determining the optimal phasing strategy is key to successful outcomes in the development, financing and operation of the overall industrial park for the park's sponsors (typically either government or the park master-developer).

Equally important however is the viability of operating in the park **for the eventual tenants** who will set up operations in the park's individual plots. **Ultimately, the commercial business case for a tenant is the key determining factor for attracting investment into a park and making the park a success**. Only profitable businesses will come and stay in the park, paying the operator or developer for rent and services, which then enables the developer to repay the financiers of the park.

This is where the **specifications** of the park's design become key – and this represents the second of the two critical aspects of the **project structuring** phase of the project lifecycle, and the subject of this Section 5.

This section therefore considers how the specifications of a park will impact on the risk-adjusted return, and therefore the attractiveness, of a potential site to tenants. The key aspects of such specifications are:

- Industrial mix and specialisation, including 'anchoring'
- Enhancing the operating environment for tenants
- Infrastructure and superstructure specifications
- Environmental and social considerations

These are each considered in turn below. A final section summarises the contents of a full Feasibility Study, which should set out the planned approach to all of these considerations.

Industrial mix and specialisation, including 'anchoring'

While there are plenty of examples, internationally, of successful specialised parks,[27] **specialisation (as opposed to mixed use) rarely tends to be economically necessary**. International experience shows that light manufacturing, logistics and other services can typically be well-combined through internal industrial park zoning plans.

If specialisation is proposed, **it is preferable to build the specialisation around an anchor tenant**. Government (or its park developer partners) should then focus on attracting players across the full value chain of that anchor tenant, in order to deliver the benefits of supply chain integration.

A case study box is presented below illustrating various successful anchoring models. This is presented in three categories: **influencers**, whose presence on or near the site acts as an attraction to other players in their supply chain or in the same sector because of their size, significance or reputation; **opportunists,** whose interest is primarily in their own plant investment, but who have spotted the opportunity to build out a park off the back of their investment, which they may not have originally intended to do; and **volume buyers**, whose committed international buying needs provide a loose guarantee of future volumes of purchasing (but who may or may not have any physical presence directly around the site).

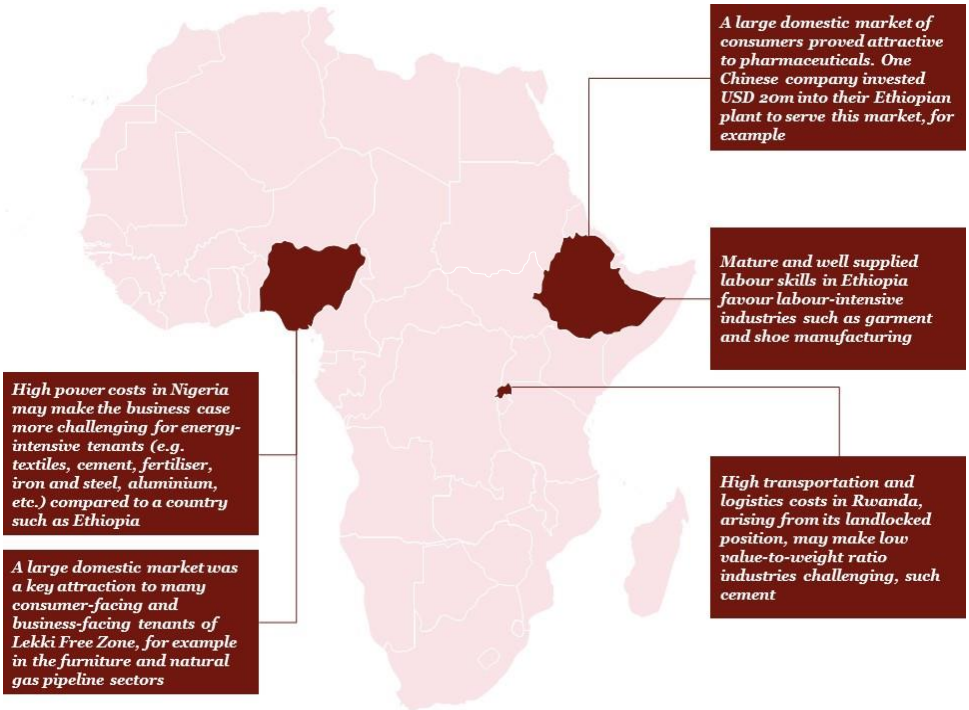
[27] Including in the East Africa context, for example, leather parks in Kenya (Machakos) and Tanzania, garment/textiles parks in Ethiopia. Ethiopia has also explored pharmaceutical specialisation (Kilinto) and ICT, the latter with less success (Kilinto is less than 10% booked).

Figure 10. Illustration of various successful anchoring models

Influencers	Opportunists	Volume buyers
Shenzhen-Haiphong Park, Vietnam: investment promotion was sector agnostic, but investment by the influential Shenzhen Investment Holdings, with its strong connections to state-owned and Shenzhen area companies, acted as a catalyst for others	**Velocity Industrial Park (Mekelle), Ethiopia:** this park is essentially being retrospectively built out from the major plant investment built by Vogue	**Hawassa Industrial Park, Ethiopia**: significantly accelerated by the decision of US buyer PVH, who also brought with them JP Textiles (a mill) and subsequently Arvind and other members of its supply chain[28]
East London Industrial Development Zone, South Africa: this park was essentially built as a supply park for Tier 1 and Tier 2 suppliers to the nearby Mercedes-Benz manufacturing plant. Other car manufacturers have similarly clustered around	**TIH Industrial Park, Mekelle, Ethiopia**: a set of four factories is being built by Turkish Industrial Holdings, to maximise the commercial benefit (and guarantee demand for) that company's USD 880m investment in a gas-fired power plant in the area. This will effectively give TIH its own industrial park.	**Mauritius's EPZs** were significantly catalysed by Lacoste's decision to outsource its purchasing of garments from the 1970s onwards
Ehoala Business Park, Madagascar: driven by Rio Tinto's need to get its mining output out of the Port Dauphin region, with the infrastructure put in place also turning out to be of value to other regional mid-sized mining, sisal and agro companies		

In the absence of an anchor tenant, specialisation should at least be determined by an evidence-based understanding of demand, as well as an assessment of the park's likely comparative advantage in a proposed sector and the extent of potential clustering benefits – rather than a top-down, deterministic selection of sectors. This is because cost advantages are critical to industrial park success. Achieving a critical mass of tenants through clustering (regardless of sector specialisation) therefore ought to be encouraged, especially in early stages of park development. Some simple illustrations of this point are shown below.

Figure 11. Simple illustration of high-level factors of comparative advantage



[28] http://documents.worldbank.org/curated/en/163511499673766520/A-case-study-of-PVH-s-commitment-to-Ethiopia-s-Hawassa-industrial-park

Enhancing the operating environment for tenants

As noted above, the commercial business case for a tenant is the key determining factor for attracting investment into a park and making the park a success. Many industrial planning exercises in Africa however have been characterised by a lack of emphasis and diligence on the tenants' business cases, even though this is the only basis for sustainability of the parks.

Governments (and park developers) should therefore increase their focus on (i) lowering the key costs for tenants; (ii) enhancing their productivity, in order for them to run a viable business within the park; and (iii) maximising the integration of the park with the surrounding economy. Taken together, this will improve the overall operating environment for tenants, and thus drive greater commercial success for the park as a whole.

Lowering key costs for tenants

Governments should analyse the key cost drivers for future tenants of a park and consider whether they are likely to lead to credible and viable businesses and what government can do to reduce them.

Aside from material input costs, which are likely to require longer term economic intervention to reduce, the key factor costs that can be addressed by governments are land (i.e. sales and rental prices), labour and utilities. The table illustrates the way in which tenants will consider these relative costs across different investment opportunities. [29]

Figure 12. Illustrative costs for various types of investor based on stakeholder interviews

	SEZ based exporter, Rwanda	***Market seeking Chinese investor, Ethiopia***	***Eastern Industrial Zone, Ethiopia***	***Investor in Lekki Free Zone, Nigeria***
Notes	*[Indicative cost structure for an SEZ based scaled Chinese owned electronic assembly plant in Rwanda focusing on exports]*	*[Indicative cost for a large Chinese pharmaceutical company with approx.. USD 2bn in global sales which invested in building its own factory targeting domestic market]*	*[Indicative operating cost for tenants located in Ethiopia's Eastern Industrial Zone (EIZ)]*	*[Indicative operating cost for tenants in Nigeria's Lekki Free Trade Zone, with a significant emphasis on businesses which target the local market]*
Lease/ rental	Land: US$1 / sq m / month (6 months free, then subsidized, compared with market price of ~US$5-6 / sqm	Land procurement for 100 employees: ~US$ 77,000	US$2.6-3.2/sq m /month (steel standard sheds)	* Rental: US$3.3/sq m/month (standard factory shed, first 6 months free) * Land sales: US$35/sq m (50 years, basic land only with no factory)
Labour	* Overseas managers for oversight and training: ~US$5000/person /month, including living expenses and relocation from China * USD85/line worker/month	Undisclosed/Not available	around US$50/ worker/month (for unskilled labour)	Undisclosed/Not available
Water	unit US$0.4-1 / ton, total US$2,000 per month	Water: Bored own underground water (low operational costs, albeit high upfront capex)	US$0.25/ton (underground water, provided by Park operator)	Currently by tenant's own wells (underground water)
Power	unit US$0.2 / kWH (municipal charge is ~$0.22 / kWH)	Similar to national level (US$0.04-0.05 / kWH)	US$0.04-0.05 /kWH (provided by Park operator)	unit US$0.15 / kWH (on-site plant by compressed gas cylinder; will be much cheaper after building natural gas pipeline)
Transportation and logistics	~10-15% of total operating cost	Undisclosed/ Not available	Undisclosed/ Not available	Undisclosed/ Not available

[29] In addition to factor costs, tax and other incentives play a key role in supporting investors' business case, thereby influencing their decision to locate in a particular IP. These are the subject of a separate study, and not covered in this report.

As highlighted from the above discussion, a key part of an IP's value – and its ability to attract tenants – lies in how much it can lower its tenants' capital and operating costs. Most often, public investments are needed to lower operating costs for businesses in some way. **Ethiopia,** for example, invested heavily in national power and road infrastructure, leading to one of the world's lowest power costs (albeit still currently subsidised) and an efficient road system.

Improving productivity

Secondly, governments can work to improve the productivity and thus profitability of park tenants' operations.

The **availability of appropriately skilled human resource**, including managerial staff locally is highly beneficial for tenants' business case. This is evidenced by the fact that it is common practice for foreign companies to bring in experienced expatriate managers to train local managers. This practice, while effective, is costly: it can take up to 50% of the overall fixed overhead cost for tenants. Businesses need a minimum scale in order to operate and cover such high overhead costs.

This is an area where governments may be able to use donor agency programmes to help lower tenants' costs through **labour skills training**. Interviews with one tenant suggested that training funded by a donor, but designed and managed in partnership with park tenants, could increase park productivity and profitability. In another example, C&H Garments (with operations in **Rwanda** and **Ethiopia**) has partnered with the Rwandan Government to form a training school, with initial investment of USD 350,000. C&H have expressed interest in replicating the model in Ethiopia and other countries.

These schemes may however prove expensive: to roll out for hundreds of factories could cost hundreds of millions of dollars, and donors have been reluctant to subsidise core business costs. There have also been success stories elsewhere, in garments, which have not required subsidies (such as Mauritius), and other Chinese investors, including now the new owner of C&H, have been content to come in and invest without training subsidies. Given there is limited consensus in this area, donor programmes should perhaps be harnessed for demonstration programmes only, to showcase good practice and highlight the links between worker welfare and enterprise profitability.[30]

Several Chinese tenant interviewees emphasised the need for training in **'soft skills'** such as time management. A potential practical solution might be to collaborate with other existing tenants to conduct such training. This has been done in the HIPSTER programme in Hawassa, where DFID has spent several million pounds on selection, screening and soft skills training for garment workers. The cost effectiveness of this model can now be improved further through the use of audio-visual materials and by handing over the running of it to the Hawassa tenants themselves (co-ordinated by the tenants' association).

Tenants have also emphasised the importance of **availability of a good standard of accommodation for workers**, preferably meeting ILO standards for garment buyers. This should be factored into park planning and building at the design stage. This is also relevant to the point below.

Maximising integration with the surrounding economy

Integration of industrial parks with the surrounding economy is key for their long term success as well as their developmental impact. This includes both physical integration (through proximity and connectivity and consideration of services and functional integration (through labour markets and supply chain linkages).

This is partly a question of simple site location. **Successful industrial parks have tended to be located within 30 – 80km of a major urban centre, and 20 – 30km of an international transport node**.

[30] For example, in Myanmar, DFID's Business Innovation Facility has used robust testing (including the use of control groups) to demonstrate the effects on productivity, absenteeism and ultimately profitability arising from improvements in the way that workers are managed and remunerated. This is intended to have a demonstration effect on the rest of the factory market.

Housing integration is also key; this is both a social and a commercial consideration. Review of available planning literature for various African parks indicates that while parks are often designed for spatial efficiency, consideration of adequate social infrastructure, including housing and associated sanitation, health provision, transport and sewage investments, is often excluded from park plans. This is due to the fact that erection of worker housing is not considered conducive to the overall commercial viability of the project, being left instead for municipal administrations or public sector park operators to address.

However, the evidence from the region shows that failure to provide for decent and closely located housing may lead to longer journey times to work, lower productivity as workers are tired and concerned about safety on their journeys, and social unrest. These factors are disruptive to tenants' business operations and in Hawassa tenants have said the absence of suitable housing has delayed their ability to recruit workers and scale up operations.[31]

Indeed, while part of the rationale for industrial parks is to provide some protection to investors from multiple layers of local and national bureaucracy, if regional government and community groups are not properly consulted about a park, do not participate in its development and/or do not share in its benefits, then there is a significant risk that tensions, crime or violence will result, not to mention challenges with recruitment.

Zoning guidelines are flexible in most of the park plans reviewed for this study, except for heavy industrial (and potentially polluting) industrial uses. This maximises the range of potential investors who can make use of the park space. Taking this one step further, **allowing residential and commercial infrastructure to be built in an integrated fashion alongside industrial infrastructure is a quick way to realise a degree of local economic integration.**

Based on stakeholder discussions across the East Africa region in the course of this study, 30% was considered a reasonable maximum allocation of industrial park land toward commercial and/or residential uses.

A final important consideration worth highlighting is around **shared use of infrastructure** (utilities) with the surrounding urban centres. This needs to be factored in the park's strategic infrastructure masterplans. Site-specific planning needs to be matched therefore with appropriate planning for upgrading of relevant off-site infrastructure (such as transport routes and power supplies).

Beyond the above, consensus from interviews was that there is relatively poor state of knowledge on ways to create better linkages and connectivity with the surrounding economy of an industrial park. Creating such linkages therefore needs to be an explicit focus at the design stage of an industrial park. This may for example justify additional investment, alongside the park itself, in SMEs and nearby basic processing industries who can provide a greater share of the park's inputs (thus substituting imports and increasing national share of added value). For Kibaha SEZ in Tanzania, a study has been commissioned to look at the relative socio-economic impacts of different ways in which industrial park enterprises may grow in this respect, and it is hoped that this study will inform policymakers' approach to wider economic development in the locality.

Infrastructure and superstructure specifications

High-quality, affordable and appropriate infrastructure and superstructure specifications are another critical part of the overall attractiveness of the offer to tenants. Infrastructure design and build specifications in most cases are developed as part of project design and structuring phases of the lifecycle. Key considerations are how far developers should go in developing sheds, what specifications they should place on those sheds, and how they should engage with the private sector. The discussion below sets out a series of practical recommendations to drive good practice in infrastructure and superstructure specification – which in turn should drive up the level of attractiveness to tenants.

[31] Note that further discussion of the requisite technical standards recommended for housing is included in the section below on environmental and social considerations.

Shed pre-building should reflect the level of 'enhancement' the developer needs to offer, in order to attract private sector participation

There are broadly four models in existence in the region studied, and no single approach is correct. The decision to pre-build sheds essentially reflects a developer judgment as to the risk appetite and market interest of potential tenants. The four models are:

- Largely pre-built; small remainder investor-built
- Partially pre-built (up to 25%); remainder investor-built
- Demonstration sheds only; remainder investor-built
- Custom-made shed builds – developer builds to specification (as in case of Lekki, Nigeria)

Pre-building sheds always entails some risk that sheds may not be perfectly adapted to the needs of a tenant that in due course expresses interest in occupying the plot. For this reason, it is logical to build a variety of different types of shed that can attract different types of business, and to minimise shed pre-building to the extent possible. For example, in Phase II of Bole Lemi, demonstration sheds have been built at 3,800 sqm, 5,500 sqm and 11,000 sqm respectively.

Park developers (including governments, where park development is led by the public sector) may be able to secure better value for money by drawing up contracts with 'shed options'. This sets a pre-agreed price for the construction of standardised sheds at the time of the letting of the EPC contract, and enables the government to draw down the option to have them built only as and when it proves necessary. This allows the government/developer to avoid committing upfront to sheds which may not be necessary, but also prevents the construction firm from charging high prices through contract variations which had not been foreseen at the outset.

Shed specification and tenure arrangements should reflect the needs of the expected tenants of the park

Shed specification should reflect the eventual users of the park during its design phase, or significant inefficiencies or wastage might result. Three considerations arise.

Firstly, the size of any plot allocation, which directly affects operational size for the tenants, which in turn affects their business cases. In **Senegal**, for example, the Ministry of Industry and Mining invited C&H Garments to set up its first pilot project in the Special Economic Zone (SEZ). Yet the standard pre-built sheds could only house 300 workers, which was sub-scale for C&H's requirements (not least because of the heavy overhead needed to move seasoned Chinese managers to the country to train the workers), leading to unprofitable operations in the first year. After repeated requests from C&H, the government decided to purchase a larger, 8,000 sq m factory for C&H, which employed 1,500 workers in 2017. C&H believes that this will allow them to better distribute their investment overhead costs and thus achieve better financial results.[32]

Secondly, the likely intended use. Some industries, such as textiles, require more tailored technical specifications than simple cut-and-trim factories. Consequently, pre-built sheds are likely to be more suited where the latter industry is the intended purpose. Pre-building sheds with incorrect technical standards can prove costly: in Hawassa, for example, sheds had to be substantially upgraded post-construction in order to meet the specifications of the intended tenants. This affected the value for money of the project as a whole. In Kombolcha, a Chinese ginning and spinning factory had to install a false ceiling below the existing sprinklers at considerable cost. Pharmaceutical factories and food processing companies who need clean room and clean air technology systems to avoid contamination or extruders or silos often prefer to build their own sheds to ensure full compliance with international standards.

[32] Source: Interviews

Thirdly, the likely tenure of the tenants. Garment cut and trim manufacturers (as opposed to textile mills) do not have extensive capital expenditure scope and traditionally refuse to build their own sheds. They may be looking for a short-term location with low upfront investment costs, which will allow them to move onto another country or region as labour costs and other factors change. For such tenants, it is likely that pre-built sheds are a very important factor in the overall profitability of their investment. By contrast, manufacturers who are investing intensively in plant and who expect to occupy the site for 20 years or more may be more willing to build their own sheds to their own specifications, and to allow themselves longer to recoup a return on their investment.

Early public-private collaboration can help reduce overall cost and inefficiency

The technical specifications of a park, and the sheds therein, will directly affect its tenants' business model and commercial viability, so getting them right is critical. For garments processing, for example, there are international specifications for factories to comply with European and US standards set by buyers. European and US brands, traders and buyers will often need to inspect plants for compliance with these standards in order to be able to source and procure output from them. Factories which do not meet the standards are likely to have drastically reduced opportunities for international supply.

Government ministries or agencies may have limited know-how of technical requirements that constitute international standards for each particular sector of relevance to industrial parks. While EPC contractors might have more technical experience and expertise in this regard, they ultimately build to a developer's specifications and requirements. This often leads to inefficiency and poor specification.

Consultation processes with targeted tenant investors to jointly develop the parks' and factories' technical specifications is thus critical. This has been put in practice in some cases, and demonstrates why it is often better to wait to build the sheds until the tenants are identified. As mentioned above, in order to lock in a price at the procurement stage, developers can include a bill of quantities and flat fee shed options to draw down on to meet tenants' needs, as and when they become clear.

Another option is to establish a framework construction contract which tenants can then draw upon. For example, in **Nigeria's** Lekki Free Trade Zone, the constructor and operator (a CCECC-led 4-way JV) offers 'made to order' factory sheds for interested tenants. Interested tenant companies can make direct requests on specifications, with a signed agreement for a 3-5 years rental commitment and a down-payment, and CCECC will build the shed to their specs. This model also fits the business incentives of the tenant, who naturally would like to move their operations to Africa on a sustainable basis.

Power, water, internet/connectivity and wastewater and topography issues and logistics management are critical to a park's success and liaison with potential tenants is critical in this respect. Hydrology studies will show what volume of water is available which is important for paper mills, textile mills and chemical processing – factories can give accurate details of demand as well as of their discharge arrangements. For some pharmaceutical factories higher grade purity of water will be needed as will cleaner air. Topography will flag whether heavy industry's sheds will be appropriate and build costs.

Environmental and social considerations

Adopting high environmental and social standards in park design is critical both for reasons of sustainable global development and also to drive tenant interest in the park. Park developers typically define these specifications in line with European or international best practices. Contractors are must adhere to such standards, formalised through performance standard provisions in construction contracts.

The section below provides practical guidance in this area, in three parts:

- Integrating appropriate environmental assessment into the planning stages;

- Harnessing various global frameworks that have been developed to help guide the development of environmentally and socially sustainable parks; and
- Specific social and environmental steps that can be taken to enhance outcomes in parks, including in the areas of wastewater treatment, heat exchanges, building materials and social provisions.

Integrating appropriate environmental assessment into the planning stages

Environmental and social impact assessments (ESIAs) are important to undertake at an early stage of industrial park development. These are needed to assess, identify and address impacts of an entire industrial park, prior to any additional individual ESIAs required for the tenants of a park.

Robust ESIAs, conducted to an international standard, are prerequisites for most international investors to engage in the financing of industrial park development in Africa. For example, many of the largest international financial institutions are signatories to the Equator Principles, a risk management framework for assessing and managing environmental and social risk in project finance.[33]

Failure to adhere to international standards will increase the perceived risk profile of a park because of historic problems that poorly executed parks have encountered. For example, international standards stipulate that informal land users and residents should be compensated for any displacement caused by land acquisition or government expropriation, even if those residents do not have any formal legal rights or documentation. By contrast, some African governments have historically only compensated those with formal documentation, or have offered very limited, nominal compensation and not kept records of who they have compensated and at what level. This has led to protests, sometimes many years later, which has in turn caused problems for manufacturing tenants. Investors and tenants are now wary of participating in development sites where the park sponsors cannot demonstrate that they have clear, unencumbered title, gained through fair compensation.[34]

Moreover, deliberately adopting high standards of compliance can be a strong differentiator for attracting international investors, because of financial and non-financial benefits that appear to flow to high-quality parks and their future tenants. For example:

- **UNIDO**, through its eco-industrial parks initiative, finds that integrating environmental and social sustainability considerations into park design from the outset can actually bring broad economic benefits, from reduced operating costs and business risks to improved productivity and resource supply security;[35]
- Parks that actively enhance the suitability of shed premises and central facilities, access roads and arrangements for people with disabilities may attract socially-minded investors and may reduce staff turnover and increase productivity.[36]

For this reason, parks that fail to demonstrate solid ESIA processes are likely to prove less attractive to investors and tenants, and incorporating proper ESIA assessment at the Feasibility Study stage can be seen as a commercially smart route to take with a view to securing outside investment at a later date.

Using existing global frameworks to guide development of sustainable parks

Several frameworks have been developed to guide park developers and tenants on the requisite standards to attract international buyers. These are discussed below and include:

- Arup's fire, health and safety standards for garment factory sheds

[33] The Principles are based on the IFC Performance Standards on Environmental and Social Sustainability, and on the World Bank Group's Environmental, Health and Safety Guidelines. Source: http://equator-principles.com)
[34] See for example https://www.theguardian.com/world/2015/apr/14/ethiopia-villagisation-violence-land-grab and https://www.reuters.com/article/us-ethiopia-landrights-industrial/expansion-of-ethiopias-first-industrial-park-reopens-old-wounds-idUSKBN1FL59R
[35] See https://www.unido.org/sites/default/files/files/2018-05/UNIDO%20Eco-Industrial%20Park%20Handbook_English.pdf
[36] PwC interview, park operator, Ethiopia.

- UNIDO's Eco-Industrial Parks implementation handbook
- The World Bank Group's International Framework for Eco-Industrial Parks
- China's Eco-Industrial Parks Performance Standards

These four sets of standards are explained in greater detail in **Annex I**.

Uptake of such standards across the continent has been variable to date. IPDC, the developer-operator of public parks in Ethiopia commented in interviews that it aspires to be a leader in developing smart and sustainable industrial parks. This would require formal adoption of international standards in planning, design, construction and management. To date, however, Ethiopia's environmental angle has focussed almost exclusively on incorporating zero liquid discharge facilities and not on energy efficiency (building materials or heat exchange), low carbon building or solid waste management issues.

Similarly, this study found no evidence of IP regimes across the continent pursuing excellence in building standards through LEED/ BREEAM certifications.

There is also a need to ensure that the compliance stated on paper is reflected in practice. For example, while several Ethiopian factories were said to be built to follow German disability guidelines, the toilets on the ground floors of factories at Hawassa cannot accommodate a wheelchair in practice due to the ways doors are built.

The study also found limited evidence of robust monitoring and measurement mechanisms to manage operational environmental performance of industrial parks. Visible and effective monitoring is an important mechanism to ensure that park developers and operators are compliant with claimed standards.

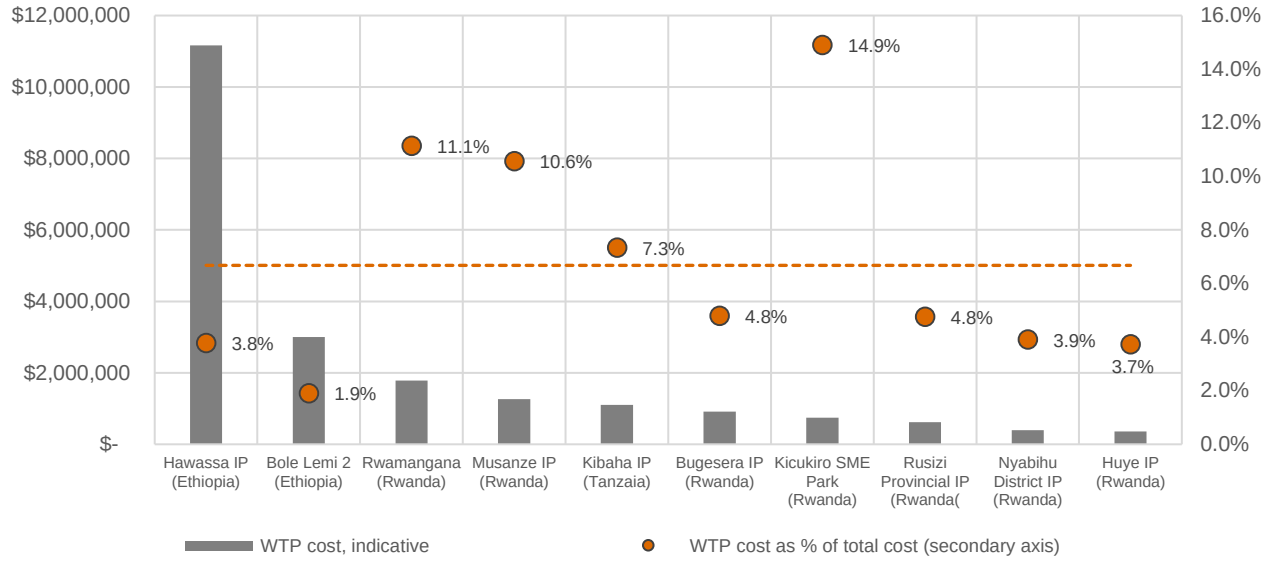
Specific steps that can be taken to enhance social and environmental outcomes

Finally, it is worth considering in more detail various specific aspects of park design which can be used to drive up social and environmental standards – as well as potentially driving better commercial outcomes. This section looks specifically at **wastewater treatment**; **heat exchange**; **building materials**; and **social provisions**.

Wastewater treatment

Wastewater treatment is a key piece of infrastructure that contributes to the overall sustainability of an industrial park. It also however represents a major capital line item in the development cost budget. In the absence of detailed data, the study analyses the indicative cost estimates for the waste treatment component of the overall capital cost of a selection of industrial parks in the region, as shown:

Figure 13. Wastewater treatment cost comparison (indicative)



As with capital costs, the **operating cost** of wastewater treatment plants varies significantly between parks. It depends principally on the type of technology in use and the volume and nature of waste handled.

Many industrial parks are now specifically adopting zero liquid discharge systems (ZLD). Some of the key factors that drive adoption of ZLD systems are local regulation/legislation necessitating adoption; water scarcity; and high-cost of discharge levied by local administration/authorities, etc.

A ZLD system is comprised of a number of 'blocks' or modules, the choice of which depends on the nature and volume of waste to be handled by the system. A typical zero liquid discharge system comprises of the following modules:[37]

- *Clarifier and/or reactor:* To precipitate out metals, hardness, and silica
- *Chemical feed*: To help facilitate the precipitation, flocculation, or coagulation of any suspended solids
- *Filter press*: To concentrate secondary solid waste after pre-treatment or alongside an evaporator
- *Ultrafiltration (UF):* To remove all the leftover trace amounts of suspended solids and prevent fouling, scaling, and/or corrosion down the line of treatment
- *Reverse osmosis (RO)*: To remove the bulk of dissolved solids from the water stream in the primary phases of concentration
- *Brine concentrator*: To further concentrate the reject RO stream or reject from electro dialysis to further reduce waste volume
- *Evaporator*: To vaporise excess water in the final phases of waste concentration before crystallizer
- *Crystallizer*: To boil off any remaining liquid, leaving with a dry, solid cake for disposal

[37] Source: Samco Technologies

ZLD systems are typically quite expensive and their suitability varies across industrial park contexts.[38] An example cost breakdown of a typical ZLD waste treatment plant from Ethiopia's Hawassa IP (capacity 11MLD) is illustrated below (although this is a single data point and therefore should be treated with caution):[39]

Figure 14: Costs of ZLD waste treatment plant from Ethiopia's Hawassa IP

Capex	**USD 11.2 million**[40]
Installation	USD 11.1 million
Mobilisation	USD 140,000
Opex	**USD 640,000 per year**
Man-power	USD 470,000/ year
Maintenance and contingency	USD 171,000/year
Cumulative OPEX as % of CAPEX (over 5 years)	**28%**

Since ZLD systems are characterised by high upfront investment (and relatively high operating cost), careful consideration is warranted before deploying the system at scale. Examples of industries/activities that need (and benefit from) ZLD systems would include:

- Textile mills;
- Chemical factories; and
- Leather tanneries.

There are alternatives to ZLD systems that could be explored in the African context, depending on the mix and intensity of industrial use. Some examples of biological treatment methods, for example, along with an indicative breakdown of costs, are listed below:[41]

Figure 15. Waste water treatment methods and indicative costs, illustrative

Technology	Description	CAPEX (USD/ MLD)	OPEX (USD per year)	OPEX as % CAPEX
Activated sludge process (ASP)	• One of the most commonly used biological waste water treatment methods • Easy to operate and maintain; higher recurring costs • Longer aeration period, so higher energy costs • Better at handling liquid waste with higher organic content	c. **USD 250,000**	c. **USD 120,000**	c. **50%**
Moving Bed Bio-Reactor (MBBR)	• Compact and robust system involving extended aeration process with submerged aeration • Lower physical footprint • Ability to handle small-medium flows and can handle a mix of bio and light chemical waste	c. **USD 250,000**	c. **USD 95,000**	c. **38%**

[38] Typical cost breakdown of the overall ZLD system is comprised of: upfront planning and engineering (c. 10-15% of overall cost); Cost of space/ land (varies across IPs); Installation rates/ charges (variable between 15-40% of the overall cost); automation module cost (variable depending on the level of automation required); Shipping/ logistics cost (variable; could be up to 5-10% of the overall cost); operating cost (can vary depending on the sophistication of the system and maintenance and servicing needs); Other costs (taxes and duties; utility costs; environmental regulatory fees/ permits; testing and compliance etc.). It must also be noted that some of the 'blocks'/ modules are significantly more expensive than others. E.g. On overall equipment cost, about 60–70% of the cost will go to evaporation/crystallization block. 30–40% on front-end pretreatment and RO.

[39] Source: Envisol Arvind. Numbers may not add due to rounding.

[40] Equates to c. USD 1 million per MLD (for a 11 MLD capacity treatment plant)

[41] Indicative. Based on international (Indian) industrial waste treatment cost benchmarks. Actual costs may vary significantly depending on local contexts. Also, the technical options presented here are not exhaustive and it is recommended that a technical feasibility assessment be carried out to explore the range of options at the disposal of future industrial parks in Africa.

	• Suitable for decentralized waste processing in IPs with limited land availability • Easy scalability			
Sequential Batch Reactor (SBR)	• Provides highest possible efficiency in a single stage biological process • Essentially activated sludge process (ASP) operated in batches through auto control • Higher energy efficiency • Smaller footprint • Can be fully automated and remotely operated • Suitable for handling up to medium flows of bio waste and small quantities of chemical waste • Suitable for decentralized approach – higher scalability	c. **USD 265,000**	c. **USD 75,000**	c. **28%**
Membrane Bio-Reactor with Submerged Membranes (MBR)	• Membrane Bioreactor or MBR is an activated sludge process that utilizes a physical barrier, the membrane, to filter contaminants from wastewater • Modular expandability • Highly effective in BOD removal also capable of nutrient removal • Higher CAPEX and OPEX	c. **USD 680,000**	c. **USD 155,000**	c. **22%**

Tenants in some of the IPs are also innovating by adopting technologies to overcome resource shortages and minimise their environmental impact. Examples include the use of waterless washing techniques followed by one apparel manufacturer in **Ethiopia**. These have the effect of reducing the overall volume of waste materials that need to be dealt with, thus reducing costs further.

Heat exchange systems

The study found no clear or systematic evidence of adoption of best practices in 'industrial symbioses' or circularity – namely material and energy (heat) exchange processes and systems.

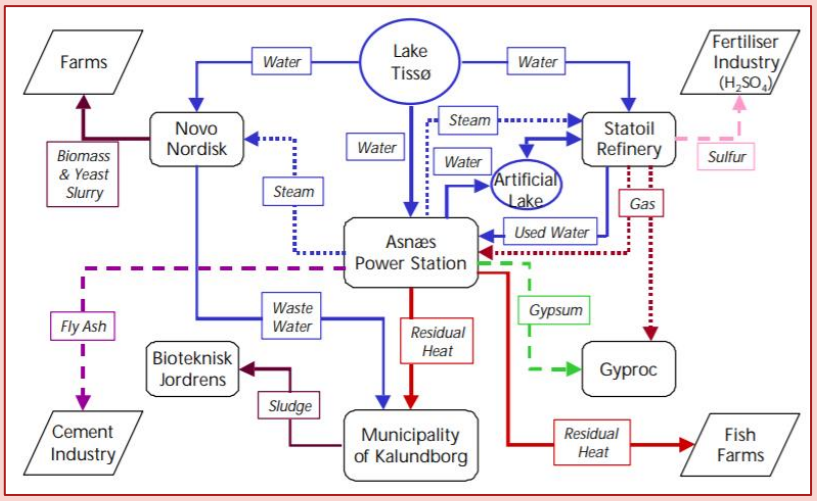
Such methods and practices, if promoted from inception, could result in significantly better environmental outcomes in African IPs in the longer run. Historically, such systems have tended to self-organise as industrial ecologies with limited top-down intervention, but park administrations across Africa can play a proactive role in promoting best practices in circularity through incentivising better and more efficient use of resources, thereby resulting in better environmental outcomes, higher operating efficiencies and cost savings in the mid-long term.

Furthermore, African industrial parks must operate in synergy with their surrounding urban areas – which can act as both material and energy exchanges thereby reducing the overall resource and infrastructure burden on the system.

These concepts are illustrated in the case study below.

Figure 16. Case study: Industrial symbiosis – Kalundborg Eco Industrial Park, Denmark

One of the most successful global precedents of industrial symbiosis is the Kalundborg eco-industrial park in Denmark. The eco-industrial park has, over time, evolved into an exemplar IP for adoption of best practices in industrial symbiosis – i.e. materials and energy exchange between the various entities located not only within but outside the IP (i.e. in the wider urban surrounding). As illustrated in the figure, the success of Kalundborg is attributed to the various stakeholders – industrial operators, farmers, residents, municipality, etc. While the IP has matured into a successful model over a significant period of time, there are some **key lessons** African IPs can draw from the experience in Kalundborg:



- While there are significant environmental benefits and resource efficiencies to be realised, the overall success depends on **timely and systematic investment** in heat and material exchange projects between key entities in the system. Furthermore, the commercial business case needs to be clearly articulated since an 'exchange' is an effective contract between two entities. In the case of Kalundborg, an estimated investment of around USD 75 million was made in the initial phase (between 1981-1998) for setting up around 18 heat and material exchanges across the IP.
- The benefits of circularity often kick-in when there is an **anchor participant and sponsor** (in Kalundborg's case it was the Asnæs Power Station).
- Continuous **engagement and awareness** building among tenants/investors is key in order to promote participation and eventual success.
- **Clustering** of industrial activities that have operational synergies (both material as well as energy) is key to facilitate exchanges.
- **Starting** with a **pilot** that clearly demonstrates the benefits to various stakeholders (IP tenants, municipality, and community) often result in scalable initiatives.
- Having **incentive mechanisms** for participating entities is also seen to be a common success factor, including in the case of Kalundborg.

Building materials

Innovation in building materials is another area industrial parks in Africa can explore in order to realise better energy efficiency as well as asset performance. Although detailed assessment of construction methods, technologies and materials was not the main focus of this study, variability was noted in the quality and standard of buildings across industrial parks. This was further validated by some of the investor/tenant feedback on the variable (and in some instances poor) build quality. As park programmes across Africa mature, there is an opportunity to draw lessons from regional and international experience in this regard.

An example of some of the recent innovations in building materials have been presented in a study by the European Commission.[42] These include techniques including **reflective indoor coatings; high reflectance and durable outdoor coatings; phase change materials (PCM); and new insulation foams and other insulation materials** to promote and enhance energy efficiency. These options are by no means exhaustive, but are representative of the options currently available as Africa plans its next generation of industrial parks.

[42] Source: 'Advanced Materials for Energy Efficient Buildings', European Commission

While it may not be possible to integrate the most advanced building materials into every new park, there is an opportunity for African governments to establish themselves as leaders in their regional market by using certain flagship park developments to showcase or pilot some of these technologies.

At a more basic level**, the study found that there was not systematic (i.e. mandatory) adoption, monitoring and compliance with key building standards across the continent**.[43] These might include for example **OHSAS 18001** (occupational health and safety management); **ISO 14001** (Environmental Management Systems); **SA 8000** (Social Accountability International's socially acceptable practices in the workplace); or **IFC's performance standards on Environmental and Social Sustainability**.

Social provisions

Finally, social provisions are a critical element of the park's design. Social provisions help to ensure that parks are well-embedded within their local urban community, thus avoiding conflict, improving productivity, and maximising social development outcomes. There are two main aspects to this:

- **The park's design should mandate its developers, operators and future tenants to run the park in a way that is socially inclusive**, for example with respect to gender, women's economic empowerment and disability. This could include for example targeted training, inclusion of minority groups in the workforce, provision of services such as clinics, crèches, canteens, showers, sanitary products, clean water and transport for employees of the park; and equality of pay provisions.
- **An adequate quantity and quality of housing must be provided**. A key determinant of IP success is the provision of safe and affordable worker accommodation at a reasonable distance from the industrial parks. By contrast, inadequate affordable accommodation for workers from the villages in the **Hawassa** area, for example, has held back recruitment and expansion and is now cited as the single biggest problem by tenants there. In **Mekelle**, considerable sums are spent transporting workers to and from the town. While park developers and operators appear to be aware of the importance of the issue, there is limited evidence of viable integrated housing models across the region. This may be because housing often ends up being a tripartite issue to be resolved between the developer/operator, local municipal government, and the private sector and requires a subsidy to be viable at current worker salary rates in Ethiopia.

Governments should insist that adequate housing plans are embedded at the project structuring stage through inclusion in any Feasibility Study and/or business case for a park. This could be supported by the adoption, for example, of the IFC-EBRD's standards for worker housing, which are ILO compliant and should be adopted in a consistent and systematic manner. These are reproduced below.

[43] Comprehensive review of adoption and compliance of standards and best practices is outside the scope of this study; but, it is recommended that a review be undertaken in order to ascertain current state of play.

Figure 17. IFC-EBRD standards (illustrative) for worker housing

Topic/ category	*Standard/ benchmark*
Water	80-180 l/person/day
Waste collection	It is best practice to locate rubbish containers 30 meters from each shelter
Housing units	10 to 12.5 cubic meters (volume) or 4 to 5.5 square meters (surface)
Ceiling height	Minimum ceiling height of 2.10 meters
Shared accommodation	2-8 workers permitted
Minimum space between beds	1 m
Double bunk beds - minimum distance between lower and upper deck	0.7-1.1 m
Toilets	1 unit for 6-15 workers
Toilet distance from rooms	30 to 60 meters
Hand wash facilities	1 unit per 6-15 workers
Bathroom/ shower facilities	1 unit per 6-15 workers
Canteen space per worker	1-1.5 sq m per worker
Other facilities	Lockers should be provided for employees to secure their valuables safely

Bringing it together: a full Feasibility Study

A full Feasibility Study provides the opportunity to bring all of the above considerations together into a single suite of documents (which may contain several different sub-studies).

A full Feasibility Study should contain:

- Overall proposed Project Structure
- Illustrative Master Plan, including zoning and possible mix of uses, phasing strategy, and identification of plots for various infrastructure components including water, sewerage, drainage, power, gas and telecommunications
- Policy Analysis, including identification of applicable guidelines and regulations and any existing regional or local development strategies
- Land Analysis, considering current usage and demographic features, planned changes of use and acquisition strategy including Rehabilitation and Resettlement (R&R) of any displaced residents or businesses
- Labour Force Analysis, outlining the current level of skills and training among local workers and the gaps that may need to be addressed in order to enable optimal local labour participation
- Topological Survey of the site including e.g. elevation, geology
- Hydrological Survey including assessment of rainfall and groundwater
- Traffic Survey and circulation plan
- Environmental Quality Survey
- Mapping using GIS

- Usage Forecasts, covering expected industrial output, population growth, and utility demand, and outlining likely phases of development
- Hard Infrastructure Gap Assessment, including detailed plans for provision of additional water, sewage, power, effluents, solid waste, transport and ICT facilities
- Soft Infrastructure Gap Assessment, including detailed plans for provision of additional health, educational, commercial, and recreational facilities
- Financing and Investment Plan and accompanying financial analysis and modelling
- Detailed Economic and Social Impact Analysis (ESIA) including detailed results of community engagement and feedback, and analysis of how this has been incorporated into the park design
- Detailed Investor Soundings and analysis of how private sector feedback has been incorporated into the park design, including identification of potential investors and tenants in the future park
- Cross-Governmental Stakeholder Mapping, including identification of which authorities will need be involved and/or consulted at each stage of the park development
- High-Level Business Plan including proposed marketing strategy

As the contents list below demonstrates, many existing studies which have been referred to as Feasibility Studies are in fact closer to Pre-Feasibility Studies; a great deal more work is required to establish a full Feasibility Study which would be considered best practice by international investors. Figure 30 within Chapter 7 gives an indication of the likely range of total costs involved.

A Project Management Office should be established to commission and then bring together all of the above aspects into a coherent and comprehensive full Feasibility Study.

Figure 18. International case study: lessons on specifications from Tianjin, Jurong and Vietnam-Singapore

Tianjin Economic-Technological Development Area ('TEDA'), one of the earliest national development zones, was approved and established by the State Council of China in 1984. With 30 years' development, TEDA has become a national-level development zone with the largest scale of economy, the highest degree of extroversion, and the most comprehensive investment environment in China. The government prepared the initial integrated zone design, specifications and master planning when TEDA was first built in 1980s.

Jurong Industrial Park is located on the seafront of south-western Singapore Island, about 10 kilometres from the urban area, with an area of about 88 square kilometres as of 2018 first quarter. The industrial zone began construction in 1961 and has now become Singapore's largest modern industrial base.

Vietnam-Singapore Industrial Park (VSIP) was established in 1996 in Binh Duong province in South Vietnam. The region, once dependent on agricultural, has transformed into an industrial power, with services and industries accounting for 97% of its economic output since 2015. The VSIP has rapidly developed since 2005 with seven VSIPs currently spanning Vietnam.

Lessons learned:

1. The location of the industrial park is critical for its success. Location has been central for all three parks, particularly access to open port areas. Coastal zones tend to have more advanced transportation systems and with a history of international exchange they are often regions of innovation that offer a wider workforce and managerial and industrial capacity, attracting foreign investment and facilitating trade. TEDA is situated in a coastal area well connected to Tianjin Port. Tianjin Port trades with over 600 ports in 180 countries and territories globally, this has facilitated TEDA's economic development. Similarly, Jurong Industrial Park was designed in a way that heavy industry zone was planned along coastal area, light industry was planned nearer to residential areas, and the medium-scale industry was planned in between.
2. Governments develop plans, but market forces drive the industry. A large part of TEDA's success was achieved through thorough government planning at each development stage, steering industry in the right direction with favourable tax and fiscal policy. Comparably, prior to the Jurong Industrial Park's construction, the Singapore government set out comprehensive master zoning and planning for long-term development. Its guiding principles include intensive utilisation of land, effective use of resources and providing convenience-oriented service to the tenants.
3. The comparative advantage of the local region must be exploited. However, master plans should not remain static. Since 1968, JTC has adjusted Jurong Industrial Park's development strategies based on evolving comparative advantages and global economic developments. Jurong Industrial Park began as a manufacturing-focused industrial park and has since transformed into an innovation-focused industry park that nurtured enterprises in cutting-edge industries, such as artificial intelligence, robotics and smart devices. This shows that masterplans should develop as industry upgrades and economic development and urbanisation take place. In all three case studies, TEDA, Jurong and VSIP, the government has updated and adjusted the master plan according to economic and social development. The VSIP was almost entirely remodelled from a traditional industrial park, with the implementation of new urban solutions such as sustainable infrastructure. After the remodelling an integrated township-industrial park with higher value-added manufacturing was created.

Summary of recommendations from this section

No.	Recommendation
1	Governments should seek to **identify key anchors** for proposed new parks. Specialisation should take place around this anchor tenant.
2	Governments should adopt and publish a **suite of common approaches to maximising the commercial and economic viability of parks**, including reducing factor costs, boosting labour productivity, enhancing linkages to the local economy, and allowing developers flexibility in allocating a proportion of the park to non-industrial usage. They should limit pre-building sheds to the minimum possible to attract tenants, however. This guidance should inform all future park development projects.
3	Governments should **specify the minimum social and environmental standards** that must be applied to any new park development, drawing on both national legislation and existing international frameworks.
4	Governments should **embed consideration of social housing, water and sanitation, health clinics, solid waste, fire safety issues, other basic services (clinics, schools and transport) for park workers/families moving into the area and other infrastructure needs** into the approval processes for major industrial park development. Failure to do so may lead to displacement, unrest and inequitable outcomes for local populations. This can be achieved by setting minimum standards for all Feasibility Studies for industrial parks.

6. Project Transacting (1): Financing

Once a project has been adequately structured, it can move to procurement and financial close. This is the **project transacting** stage. This section, Section 6, considers the financing of industrial parks, both in terms of the overall costs involved and in the different sources of capital and revenue that may be used to support their development and maintenance. Section 7 then looks at the practical steps to move toward procurement and development.

Total development cost of parks

Park development costs

Below, we set out a range of park development costs by part and by hectares. The table includes figures from public announcements and conversations with developers, not from original financial data, and therefore should be treated with caution. The first table includes parks which have been built, largely built or where the tender has been completed and costs are relatively well scoped. The second table illustrates some parks that have been mooted, but where cost estimates are likely to be less well developed and more illustrative.

Figure 19. Total park development costs by park and by hectares based on announced figures: developed/developing

Industrial Park	Country	Total Area (Ha)	Phase 1 Area (Ha)	Cost (USD million)	Cost per hectare (USD million)	Ref
Diamniadaio Industrial Park	Senegal	15	-	46	**3.1**	(a)
Ethiopia-Hunan (Adama)	Ethiopia	122	-	350	**2.9**	(a)
Lekki Free Trade Zone (LFTZ)	Nigeria	3,000	154	200	**1.3**	(b)
Kombolcha	Ethiopia	1,000	75	90	**1.2**	(b)
Infinity Industrial Park	Kenya	81	-	100	**1.2**	(a)
Liao Shen	Uganda	520	-	600	**1.2**	(a)
Dire Dawa SEZ	Ethiopia	1,000	150	159	**1.1**	(b)
Mekelle	Ethiopia	1,000	100	97	**1.0**	(b)
Vogue/Velocity	Ethiopia	176	-	160	**0.9**	(a)
Bole-Lemi II Industrial Zone	Ethiopia	178	-	158	**0.9**	(a)
Kilinto Industrial Park	Ethiopia	279	-	185	**0.7**	(a)
EIZ	Ethiopia	500	233	105	**0.5**	(b)
Kigali SEZ Phase 1	Rwanda	98	-	45	**0.5**	(a)

(a): Based on total park area and capital investment
(b): Based on Phase 1 area and capital investment

Figure 20. Total park development costs by park and by hectares based on announced figures: proposed

Industrial Park	Country	Total Area (Ha)	Phase 1 Area (Ha)	Cost (USD million)	Cost per hectare (USD million)	Ref
Nairobi Gate (announced, Sep '18)	Kenya	42	42	130	**3.1**	(b)
Kibaha SEZ (with sheds)	Tanzania	38	-	87	**2.3**	(a)
Dongo Kundu SEZ	Kenya	1,326	-	779	**0.6**	(a)
Kibaha SEZ (without sheds)	Tanzania	38	-	15	**0.4**	(a)
Rusizi Provincial Industrial Park	Rwanda	50	-	13	**0.3**	(a)
Kigali SEZ Phase 2	Rwanda	178	-	30	**0.2**	(a)
Bugesera Industrial Park	Rwanda	300	100	19	**0.2**	(b)
Huye Industrial Park	Rwanda	50	-	10	**0.2**	(a)
Rwamagana District Industrial Park	Rwanda	80	-	16	**0.2**	(a)
Nyabihu District Industrial Park	Rwanda	50	-	10	**0.2**	(a)
Nyagatare Industrial Park	Rwanda	50	-	8	**0.2**	(a)
Musanze District Industrial Park	Rwanda	164	-	12	**0.1**	(a)
Kicukiro SME Park	Rwanda	50	-	5	**0.1**	(a)

The above is indicative and based on available information. It should be treated with significant caution as figures are often presented in press releases rather than published financial accounts, and many of the above parks are not yet built (and therefore the true costs cannot be verified), and often conflicting figures are published.

As the table demonstrates, the cost per hectare of industrial park developments appears to vary significantly from park to park. This illustrates not only variations in cost between countries, but also wide variations in the scope and complexity of different park developments.

From a review of the parks considered for this study, the key variables can be identified as:

- Extent of development (ranging from land preparation only, through to complete build-out of sheds)
- Complexity and intensity of intended use (ranging from basic industrial sheds through to holistic urban developments incorporating residential, commercial and public space)
- Complexity of off-site connecting infrastructure and on-site topography
- Bargaining power and procurement capability of the procuring authority
- Financing cost

The number of variables, and the extent to which they alter the overall costs of park development, make it difficult to draw firm conclusions as to whether the source(s) of finance have any impact on overall development cost, beyond the direct impact of cost of capital. There is some anecdotal evidence that, where the finance comes with ties to a single-sourced EPC firm, this may drive total costs upwards.

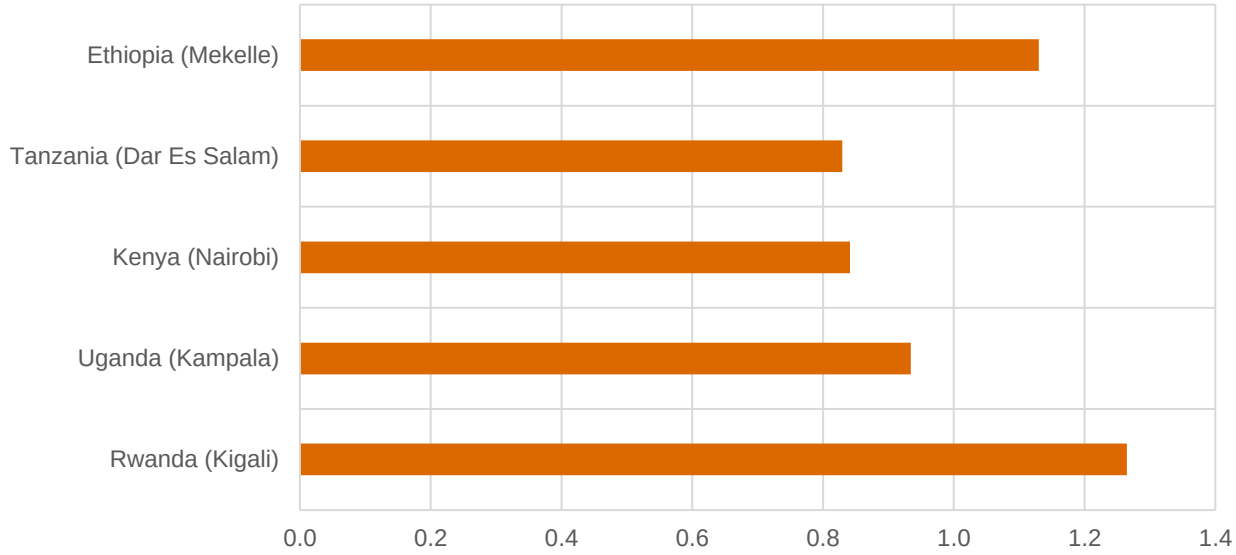
The tabled of proposed parks also illustrates the very large gap between early, public sector estimates of park costs and the likely eventual costs for a high-quality park that is attractive to international investors. For example, the lowest cost developed/developing park is estimated to cost $0.5m per hectare; but many of Rwanda's parks are in theory planned to cost much less than this. This is unlikely to be realistic. Where parks

have been costed by the private sector (Nairobi Gate) or with extensive financial modelling by external advisors (Kibaha), the true costs are more visible.

Factory (shed) development cost

The cost of construction of factory sheds across the region shows significant variation. Key construction cost sub-components include cost of materials, logistics, and cost of labour. Rwanda, Uganda and Ethiopia are dependent on neighbouring countries for port connectivity, thereby raising transport costs. Indicatively, per sq m construction cost of light duty sheds across the region, based on secondary data, averages around US$ 860 per sq m.

Figure 21. Cost of construction of factory shed[44]



Costs of public sector financing

Debt finance (1): Loans

Sovereign debt is highly competitive in terms of the headline interest rates and terms on offer to governments, but there may be wider policy reasons not to undertake further sovereign borrowing in order to finance the development of industrial parks.

Sovereign governments have access to a wide number of lenders for the purposes of borrowing. This includes multilaterals such as the World Bank, Chinese banks such as China Exim Bank and China Development Bank; and private markets.

Sovereign governments can tap these sources for public sector debt financing very cheaply. Kenya,[45] Uganda, Rwanda and Ethiopia are all eligible for IDA financing, typically at 0.75%.[46] [47] Chinese banks

[44] Source: Africa Property & Construction Cost Guide 2017, IPDC Ethiopia; PwC analysis

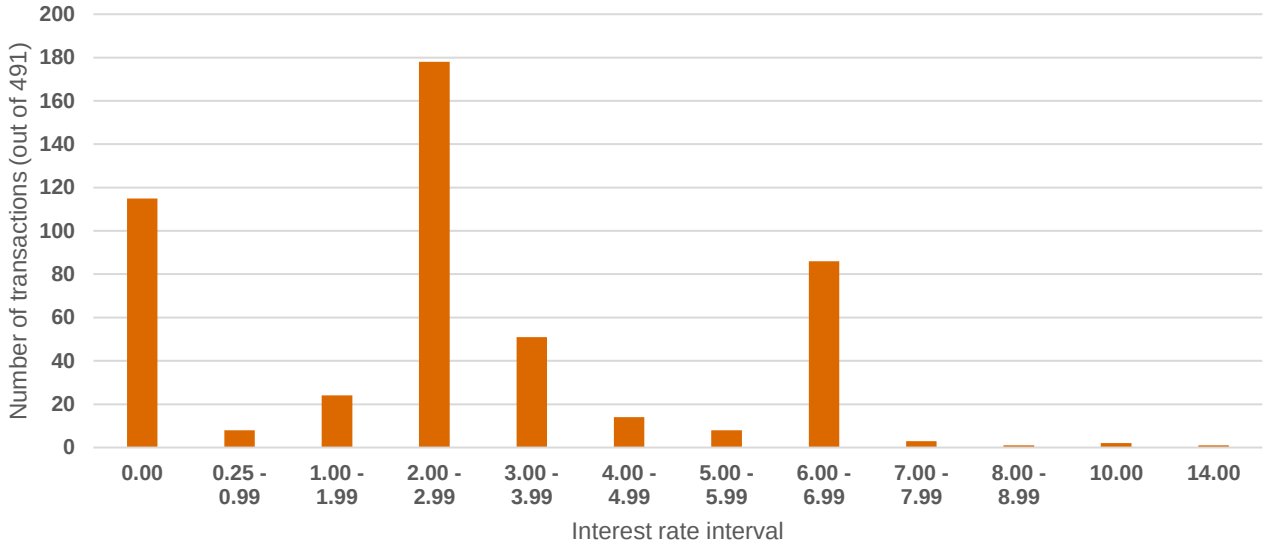
[45] Kenya, being a Lower Middle Income Country, is classified as a 'blend country' by the WBG which means it is IDA-eligible but also creditworthy for some IBRD borrowing

[46] Eligibility for IDA support depends first and foremost on a country's relative poverty, defined as GNI per capita below an established threshold ($1,165 in fiscal year 2018). Some countries are IDA-eligible based on per capita income levels and are also creditworthy for some IBRD borrowing. They are referred to as 'blend' countries (such as Kenya, as noted above).

[47] For example, the World Bank has extended a $161m aggregate loan to the Government of Ethiopia. Standard IDA-eligible sovereign financing rates apply, so interest is payable at 0.75% per annum. A 0.5% per annum commitment charge applies to amounts not drawn down. Repayment of capital begins after 10 years, at an initial rate of 1% each six months for 10 years; and then rising to 2% each six months for the next 20 years. The total loan term is therefore 40 years.

such as China Exim bank and the China Development Bank have historically offered very competitive rates, often for a mixture of policy (strategic) and commercial reasons.[48]

Figure 22. Number of loans at specified interest rate intervals, from 491 'published' rates under the AidData dataset of Chinese official finance transactions[49]

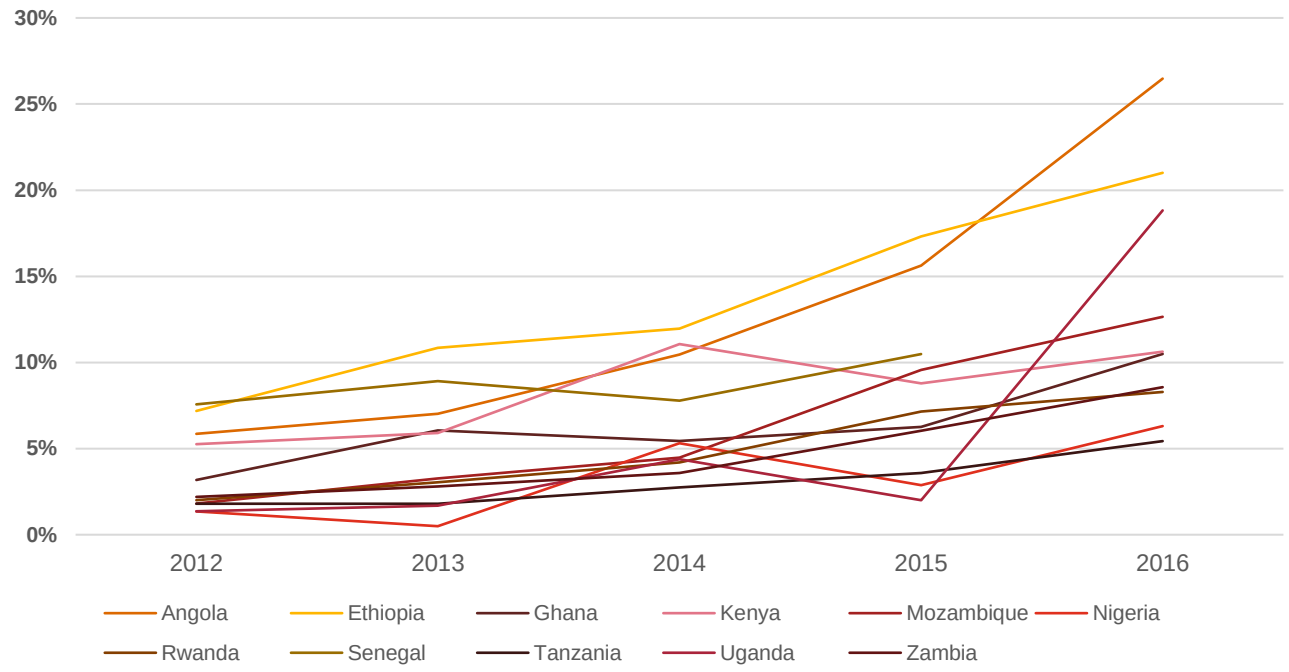


Although more expensive, governments may also tap private markets for debt finance, and achieve considerably lower rates than its private sector counterparts.

In practice, the main constraint to sovereign borrowing is not therefore the cost of capital, but rather the debt capacity of respective countries. Recent trends indicate an upward trend in debt servicing burden on several of the countries relevant to this study (see figure below). Ethiopia and Ghana have both been classified as being at 'high' risk of debt distress under the World Bank and IMF's most recent Debt Sustainability Framework assessments.[50] As a result, despite the low costs, many host governments must reserve sovereign debt capacity with multilaterals and Chinese governments for only their highest priority projects. Industrial parks often do not make that list.

[48] Chinese sovereign lending can also be quite competitive; for example, China Exim Bank's loan to the Government of Ethiopia to fund the development of the Ethiopia-Hunan Adama Park provides for 2% interest, over a 20 year term, with a 7 year grace period. Note that for projects which are more commercial in nature (for DFIs), or which carry more risk (for Chinese banks), higher rates and stricter terms may sometimes be applied. These might indicatively carry 15 year repayment periods, with a shorter, 2 – 3 years' grace period an interest rate based on LIBOR plus a mark-up. The precise mark-up may then vary from country to country depending on the project profile.
[49] PwC analysis of the data from AidData. 2017. Global Chinese Official Finance Dataset, Version 1.0. Retrieved from http://aiddata.org/data/chinese-global-official-finance-dataset.
[50] http://www.imf.org/external/pubs/ft/dsa/dsalist.pdf

Figure 23. Trends in debt servicing as a proportion of exports of goods, services and primary income (World Bank) [51]



In particular, Chinese financing may also come with sole-sourcing requirements which drive up overall cost. For example, the Ethiopia-Hunan Adama development, financed by China Exim Bank and under construction by CGCOC, is estimated to cost around $350m for a 122ha site – equivalent to around $2.9m development per hectare. Therefore, over-pricing of EPC contracts and subsequent management contracts as a result of the stipulations of the finance provider may have a bigger impact on total lifecycle cost than source of finance per se.

Furthermore, Chinese loans, like all commercial loans, also come with certain default provisions. There is limited public information available about how these are typically written. From a review of real examples of debt distress affecting Chinese debt finance, we can identify a few different approaches which Chinese lenders have taken in the event of default or risk of default:

- Debt forgiveness – for example, China wrote off several small-scale interest-free loans to Mozambique in 2017 and then resumed lending. This is typically for policy reasons to do with China's wider interest in the bilateral relationship;
- Debt restructuring with more favourable repayment periods – for example, Ethiopia's 10-year $4bn loan for the railway to Djibouti was restructured into a more favourable 30-year tenor, for similar reasons; Botswana's debt was also extended out this year along with partial write-off for road and rail projects.
- Debt-for-equity swaps in major infrastructure assets – for example, as in the case of Sri Lanka's Hambantota Port[52] and as has been rumoured but not confirmed in the case of Zambian utility company ZESCO. While asset seizure is a common approach to debt recovery and has attracted considerable media attention, it is actually not a particularly attractive option for lenders in most circumstances, particularly where the asset is still under construction or where the underlying commercial viability of the asset is weak. In such instances if there is still a shortfall, Sinosure may also step in and cover outstanding losses.

[51] Data from https://data.worldbank.org/indicator/DT.TDS.DECT.EX.ZS?end=2016&locations=ET-UG-KE-NG-SN-GH-TZ-RW-MZ-AO-ZM&start=2012 accessed 21 October 2018.
[52] This transaction was actually more complex than a simple swap but is commonly described as such.

Clearly, while the former two approaches represent a positive outcome for borrower governments, the last approach poses some risk of loss of control and benefit of key national assets and resources.[53] Governments in Africa should therefore be wary of using major infrastructure or resources as collateral.

Even where a public-led SPV is established to take on both public and private investment, governments are usually still obliged to use sovereign guarantee instruments to enhance its creditworthiness. In these instances, debt is supplied to a project finance vehicle but the vehicle's lenders have recourse to the sovereign treasury in the event of default. However, it should be noted that guarantees by host governments are accounted for as liabilities in calculating their debt capacity, so this approach does not in fact give rise to any benefit in terms of public sector debt accounting.

For all of the above reasons, further sovereign financing of industrial parks comes with significant sovereign risks, despite its low headline interest costs. This is the driver behind the current strong waves of PPP demand in African countries' infrastructure plans. Governments often welcome private sector developers who bring in their own capital even if the all-in costs are higher, because it avoids the need for further sovereign borrowing, with all of the above risks.[54]

In general, this is an area where there is significant potential for multilateral and Chinese donors and financiers to foster private sector investment through credit enhancement to enable project financing to take place without sovereign recourse. Sinosure, as the primary guarantee agency in China, may also have a role to play. At this time, we are aware of only one instance of Sinosure playing such a role: the USD 2bn Pakistan Port Qasim PPP thermal power plant. This was a very high priority for the Pakistani Government, and Pakistan is also a high priority national partner for China. In this case, Sinosure offered not only its typical political risk guarantee (which covers macro geopolitical risks), but also a specific product that covers the project's repayment (ie. tariff) risks, thus substantively de-risking the project.

Given that there is a ready supply of financing available over the next decade therefore, from a variety of sources, but limited further capacity to absorb this supply:

- Governments should find ways **to share the financing costs of new industrial parks with the private sector**, in order to limit increases in their own debt exposure. This may involve joint ventures with the private sector, with the public sector taking minority positions and using junior equity rather than sovereign guarantees to mitigate lender risk;
- Regardless of the source of finance, governments must insist on **competitive procurement of EPC contracts**. This can be achieved even where there are requirements to use specific national providers (for example, there is evidence emerging of genuine competition between different Chinese state-backed construction firms);
- Chinese, multilateral and Western bilateral lenders should **co-ordinate their debt financing and look for ways to co-finance infrastructure, including through greater use of credit enhancement facilities**. This will ensure that there is sufficient focus on overall debt sustainability. There is emerging evidence of collaborations between Chinese and Western development finance institutions, but so far very limited specific deal opportunities.[55]

Recent stakeholder engagement in **Ethiopia** and **Rwanda** indicates that national governments are increasingly aligned with the above suggested approaches.

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[53] In some instances where the risk of default is judged high, there has also been extensive use of resources instead of cash or assets as collateral – as for example in the case of China's debt financing to Venezuela and South Sudan (in exchange for oil), Ukraine (in exchange for grain), etc. A third party jurisdiction may also be agreed between the parties, such as Singapore.

[54] Estimates of the total capital to be made available under China's Belt and Road Initiative (BRI) vary considerably, but at the lower bound are estimated at around $100bn per annum over the next 10 years. Around 50% of Chinese investment in Africa to date has been from Exim Bank finance. **In this context, co-operation and co-ordination between Chinese and multilateral financiers is key, to ensure that overall debt sustainability is maintained.**

[55] For example, the MoU between CDC, a UK DFI, and China Africa Development Fund (which is in fact an equity provider), agreed over the course of 2017 – 2018. CDC however is limited to investment in non-sovereign opportunities, so could not provide sovereign debt.

Debt finance (2): Bonds

Sovereign bonds may also be used to finance infrastructure projects, including industrial parks, across the world. The Government can use them to secure the required tenor and pricing, while also retaining a certain amount of flexibility on deployment of funds in a project portfolio.

- In **Ethiopia**, this has been used to secure finance for the Hawassa, Kombolcha and Mekelle industrial parks, among others. Eurobonds were issued dedicated for industrial parks with a rate of 6.625%.[56] Ethiopia raised $1bn in this way, over a 10 year term; around 75% of the bond is estimated to have been allocated for industrial park development.
- In 2013, **Rwanda**'s debut $400 million Eurobond was heavily oversubscribed. It has a coupon rate of 6.625%.[57]
- In an interesting non-sovereign model, the IFC has also raised a RWF 3.5 billion ($5 million) bond, which is the first offshore bond in Rwandan currency. The three-year bond, called 'Twigire' (self-reliance), has a **9.0** percent coupon and was placed with five international investors. It will be listed in Luxembourg.

Sovereign bonds come with significant risk and additional cost for governments.

- Repayment terms are short compared to multilateral lending, which will create significant pressures on refinancing in the mid-2020s;
- Because bondholders may be either public or private investors, any risk of default could have a more pronounced impact on investor confidence;
- They come at significantly higher cost than multilateral finance. For illustration (and on a simplified basis), interest costs for IDA financing for a $100m industrial park development would be $7.5m; equivalent bond-financed interest costs would be $66.25m;
- There is also anecdotal evidence that concentrating the investor base (for example, by having a small number of private financiers or multilateral banks invested in the project) drives better financial discipline in the resulting project. By contrast, bondholders are likely to be interested only in the repayment of the coupon, not in the underlying success or failure of the project undertaken using their capital. For example, there was limited pressure, beyond the Government's own incentives, to drive down costs for the Hawassa Industrial Park.[58]

While issuing a small number of sovereign bonds may therefore be a useful way to drive better public financial management and create a demonstration effect for international investors, they should not be viewed as a sustainable long-term source of capital for industrial park development unless the benefits (in real cashflows) to the public sector are clearly and credibly articulated.

Equity finance

Through the use of special purpose vehicles, in particular through joint ventures, governments may both access and supply equity investment in industrial park development and management. Public sector equity stakes can effectively de-risk debt finance for private sector lenders or senior shareholders in the capital structure, and thus have significant potential to unlock investment in industrial parks, even with relatively small equity stakes.[59] They can also be supplemented by DFI capital and/or impact investment.

[56] http://cbonds.com/countries/ethiopia
[57] http://cbonds.com/emissions/issue/37481
[58] Stakeholder interviews.
[59] For example, in **Nigeria**'s Lekki Free Zone, the Nigeria-China partners (composed of Lagos State Government – 40%; the Chinese consortium of CRCC-CADF-Nanjing Jiangying Economic and Technology Corporation-CCECC – 60%) injected $200m of equity into park development entity CALIC to fund initial phase of development. CAD Fund, the Chinese Development Finance institution, is part of this equity. This means the Lagos State Government effectively leveraged $6 for each $4 of public investment. The Ethiopia-Hunan Adama Park

Equity financing gives rise to a very wide range of financial outcomes for government, but (a) retaining a substantive stake in the capital structure and (b) retaining super long-term title to the underlying land of a park ensure that the government can participate in any positive financial performance of the park.

Greater use of public-private equity structures to develop industrial parks is therefore recommended.

Costs of private sector financing

Private sector financing is considerably more costly than that available to the public sector. So the commercial business case for an industrial park has to be much stronger if it is to attract private investment with a reasonable chance of delivering an acceptable overall financial return after cost of capital. However, given the fiscal imperative to drive greater investment from the private rather than public sector, it is vital for both governments and private developers to find ways to reduce these financing costs over time. Public-private collaboration, including the use of blended finance, can be part of the solution to this challenge.

Debt finance (1): Loans

Commercial loans are available to project developers in each of the four countries considered in this study; however, the rates are prohibitively expensive. For example, private sector loans carry interest rates of around 19% in **Uganda** and 14% in **Kenya**.[60] Commercial banks also struggle to offer loans with the required tenor, although for industrial parks this problem may be less acute than for larger-scale, more capital intensive infrastructure projects.

In terms of scale, there is evidence from the corporate sphere that deals at the requisite size for industrial parks are at least in theory possible, through syndication.[61] However, industrial parks typically have significantly less predictable cashflows than corporates, and moreover the transaction costs of loan syndication may be high. Banks may therefore only be willing to come into a project at the operation or extension phase, rather than at the development phase, when credit risk is considerably higher because it is not clear at that point that the park has viable tenants.

Longer-term capital markets programmes are required to deepen the pools of local capital available for such projects, in close collaboration with major institutional investors.

DFIs such as CDC or the IFC can lend to the private sector for large projects in the range of $10m - $100m, at more affordable rates. While DFIs may have more risk appetite than commercial banks, they may still need, for example, to see a secured anchor tenant in the park or a percentage of the park committed to by tenants, as evidence of reduced market risk. DFIs may therefore be more suitable as a refinancing source of capital, or to finance an expansion to an existing park. Lending may also come with a requirement for bank or government guarantees. Similarly, China Exim Bank finance is available to the private sector, but usually requires a sovereign or bank guarantee.[62]

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in **Ethiopia**, an SPV has been formed to operate the park following construction, with a 40% IPDC, 51% Hunan Province, and 9% CGCOC equity participation.

[60] This rate would in fact be up to two basis points higher were it not for a government-mandated cap. Stakeholder interviews.

[61] For example, in Uganda, Stanbic Bank has successfully completed four large syndicated loans to the private sector ($114m to MTN for infrastructure development, in 2016; $190m to Umeme Limited; $115m loan to Kakira Sugar Limited; $64m loan to Roofings Rolling Mills Limited).

[62] Sovereign guarantees are generally not a preferred mechanism among governments facing strained debt capacity, as they add to the contingent liability of the sovereign balance sheet. Officials in Ethiopia, and Uganda confirmed their reluctance to use this instrument during stakeholder interviews. In Kenya, the officials confirmed that guarantees may be offered in the future, under a single National Guarantee Scheme. Currently, the ICDC has a mandate to offer credit guarantees, but has tended not to do so, due to high default rates in the past.

Bank guarantees are generally prohibitively priced. DFI-backed guarantees may be available; GuarantCo, for example, has been set up to provide private sector guarantees. It has no current guarantees in the real estate sector.[63]

Finally, national development banks and industrial credit agencies can in general terms be a useful source of finance. For instance, ICDC in **Kenya** can provide finance both in the form of equity and loans, including subordinated debt and preferred equity capital. Illustratively, they can provide 10-year loans at an interest rate of 12.5%. This compares to rates of around 14 – 16% that may be available to the private sector from the Development Bank of Rwanda.[64]

Debt finance (2): Bonds

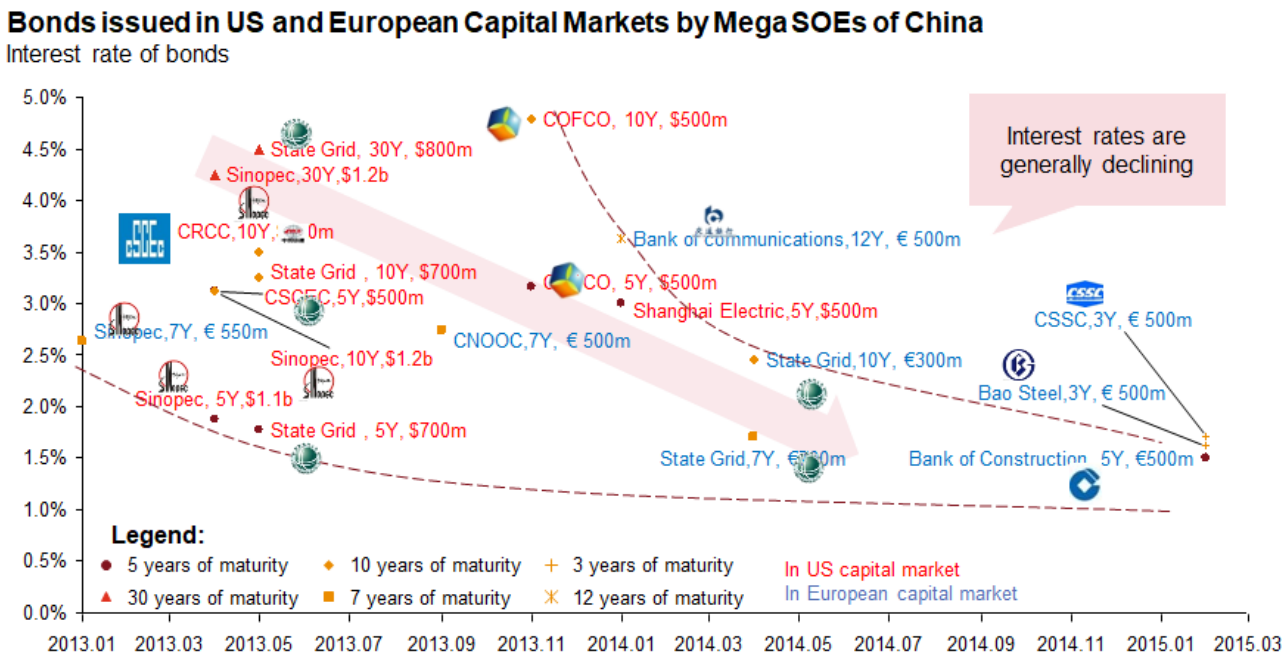
The market for corporate bonds in sub-Saharan Africa is still relatively limited as compared to sovereign bonds, particularly once South Africa is excluded. Even in Kenya, there have been very few corporate bond issuances since 2014, as a result of previous bond failures.[65]

European or US bond markets may be a more feasible route for private developers, although they come with foreign exchange risk, to the extent that the park's future revenues will be in local currency. In the case of Chinese SOEs, for example, bond issuance costs in European and US exchanges have been considerably lower than those for them in China, and decreasing from the period of 2013 to 2015, for example[66]. The SOEs' non-RMB bond proceeds were typically used to fund their overseas M&A activities as well as PPP investments, often to support BRI-related projects. Chinese SOEs benefit from established balance sheets and track records which may be a contributor to achieving these interest rates. Awareness and understanding of transaction norms and standards, due diligence procedures, and other aspects could be improved to enhance the efficiency and prevalence of this important model. Any project-related SPV would need to have the backing of such an entity in order to attract anything like similar rates of interest and bond investor interest.

[63] GuarantCo expressed interest in the industrial park sector, but only according to its investment mandate, which would require (a) development impact, such as the on-shoring of a particular value chain; and (b) some form of physical infrastructure as part of the deal (GuarantCo generally cannot back 'pure' real estate transactions).
[64] The usual lending size however is in the range of $0.1m - $2.5m and thus inadequate for industrial park projects. Having said this, ICDC, IDB and the Tourism Fund will shortly be merged into the Kenyan Development Bank and re-capitalised in order to play a larger role in infrastructure financing. This could open up more viable loan ticket sizes.
[65] FSD Africa has created the African Local Currency Bond Fund, which has a mandate to support local currency issues. This bond fund has the mandate to invest in SPV type vehicles – there could thus be potential for using this fund and, more generally, for the market moving towards this sort of project financing model.

[66] Public sources, annual reports, PwC analyses.

Figure 24. Bonds issues in US and European capital markets by mega SOEs of China



Equity finance

To date, most equity contributions to non-state entities developing industrial parks have come from Chinese SOEs, including EPC contractors. These firms often invest balance sheet equity in return for sole-sourced or preferential EPC contracts. This may enable them to obtain a higher return on investment than has historically been available from the EPC work itself.[67] In these circumstances, negotiation of appropriate pricing and reward sharing between the state and Chinese SOE is complex and requirements detailed financial modelling and procurement expertise on the part of the national government.

There is also equity investment available from Chinese investment bodies, such as the China Africa Development Fund (CAD Fund). CAD Fund has relatively high returns expectations, however, at around 8 – 10% annual return on investment within a 5 – 8 year timeframe. Their investment may be via preference shares, placing further cashflow burden on the junior equity holders. CAD Fund has, for example, taken 40% (i.e. minority) stakes in parks in both Egypt ($24m) and Nigeria Lekki Park ($60m). At the moment, there is limited interest in further investment in the industrial parks sector due to disappointing financial performance on current investments.

Other private park equity investments have come from private capital, usually structured around a single, large anchor tenant. Examples of this include Hua Jian, George Shoe, Vogue (Velocity) and Eastern Industrial Zone, all in Ethiopia and Liao Shen in Uganda.[68] This private capital places almost all risk on the private sector, and is therefore to be welcomed. It should be noted that in all these cases the land was given at a subsidised rate.

Kenya has a more mature financial sector, and there are impact funds active in the country which are willing to buy out the stake of a project promoter in the project development phase itself. The promoters benefit from front-ended returns on their investment and they retain a minor stake to stay invested in the project. Such structures allow the local investors to focus more on the development phase, where their strengths are the best suited and enable the fund to appoint an international player later on, in the operational

[67] Anecdotal evidence suggests that some such EPC contracts have delivered margins of less than 1%.
[68] At Liao Shen, Hisense assembly factory was the key tenant along with a mango processing factory.

phase, to market and run the park effectively. This however is a recent phenomenon, witnessed in the case of Infinity Industrial Park.

Other equity options also include Real Estate Investment Trusts (REITs) which can invest in industrial estates. Global industrial REITs are active in mature markets such as South Africa. In Kenya, Stanlib Fahari is a REIT listed on the NSE whose investments include light industrial estates around Nairobi. The applicability of REITs in mainstream African IP development is unproven.

Finally, many African countries have developed stock markets with a keen interest, as they understand that the capital market helps raise capital at low cost and develop 'long-term' resources. While in relatively early stages, capital markets (domestic as well as overseas – as discussed previously) offer an alternative to raise financing for infrastructure projects. The limited listings and low transaction volumes in the stock exchanges however make it difficult for investors to use this route for raising capital. The relatively nascent (and dormant) capital markets could provide an opportunity to raise financing for African IPs, but it is not likely to be a major source of capital for IP projects in the near term.

A more detailed discussion of the Stock Exchanges in each of the focus countries is set out in Annex G.

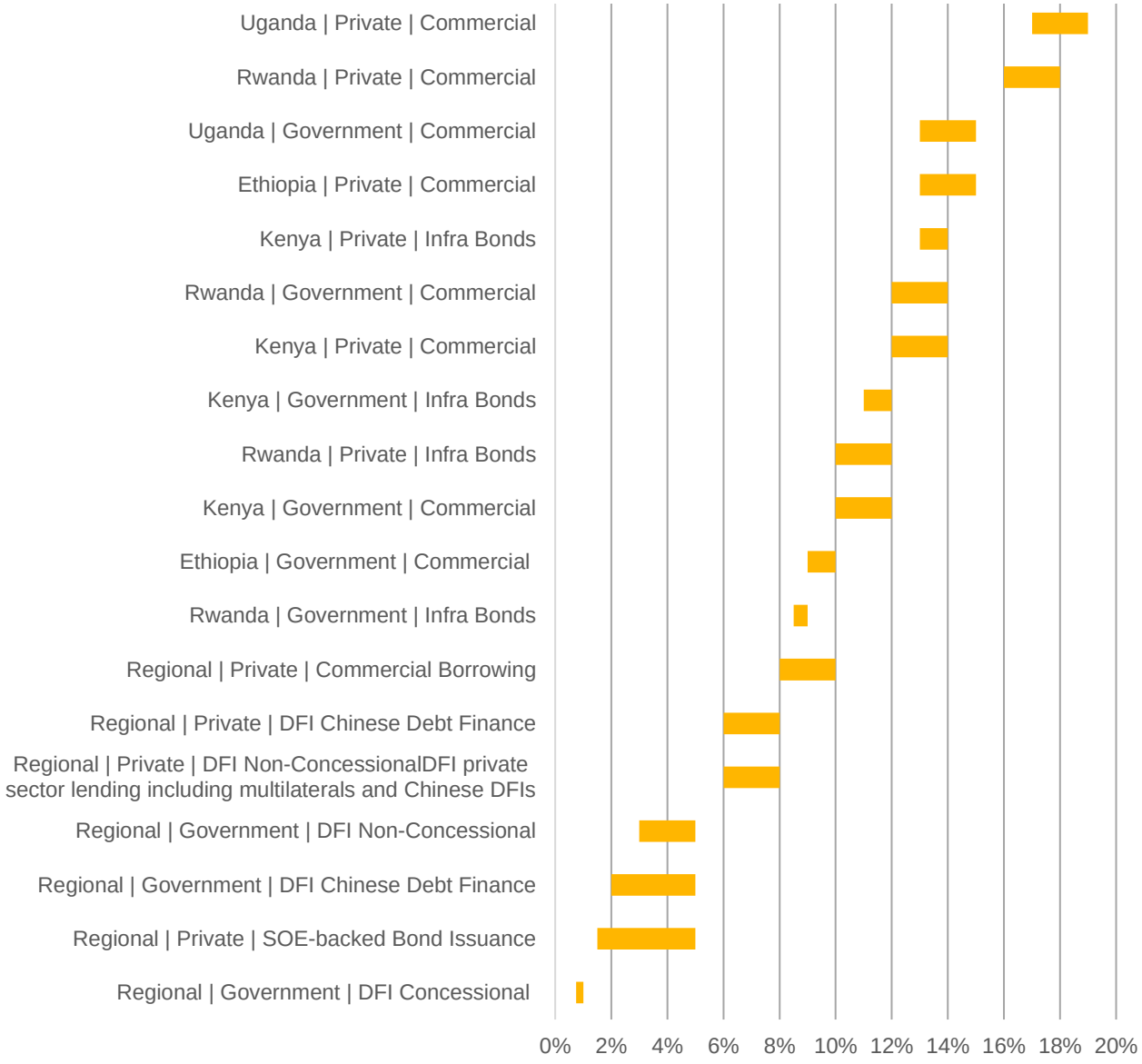
Comparison of relative costs of financing

As the discussion above highlights, the cost of finance available to government agencies and private sector developers across the region differs on account of the risk premium attached to most private investments. For equity investments, the industrial park sector is still too varied in performance to draw firm conclusions about the real cost of capital. For debt investments, however, the table below summarises the discussion above.

Figure 25. Sources and indicative costs of capital across the region according to source and destination

Source of Capital	Destination of Capital	Cost of Capital (%)			
		Ethiopia	Kenya	Rwanda	Uganda
Commercial Loan in local currency	Govt. Agency	9 – 10	10 – 12	12 – 14	13 – 15
	Private Developer	13 – 15	12 – 14	16 – 18	17 – 19
Infrastructure Bonds in local currency	Govt. Agency	n/a	11 – 12	8.5 – 9	n/a
	Private Developer	n/a	13 – 14	10 – 12	n/a
DFI concessional lending (e.g. IDA)	Govt. Agency				0.75
DFI non-concessional lending (e.g. IBRD, AfDB)	Govt. Agency				3 – 5
DFI private sector lending including multilaterals and Chinese DFIs	Private Developer				6 – 8
Chinese SOE-backed bond issuance is US and EU markets	Private Developer				1.5 – 5
External commercial borrowing	Private Developer				8 – 10
China Exim Bank loan	Govt. Agency				2 – 5
UK Export Finance	Govt. Agency				2 - 5

Figure 26. Cost of capital for different sources and destinations of debt financing



As the graph demonstrates, industrial parks can access a wide range of different financing costs for their debt. For example, illustrative modelling suggests that, for a 40ha industrial park drawing $50m of upfront investment and with a 50:50 debt to equity structure, the net present value of the transaction could range from $1m through to $21m depending on the source of the debt finance.[69] This is illustrated on the next page.

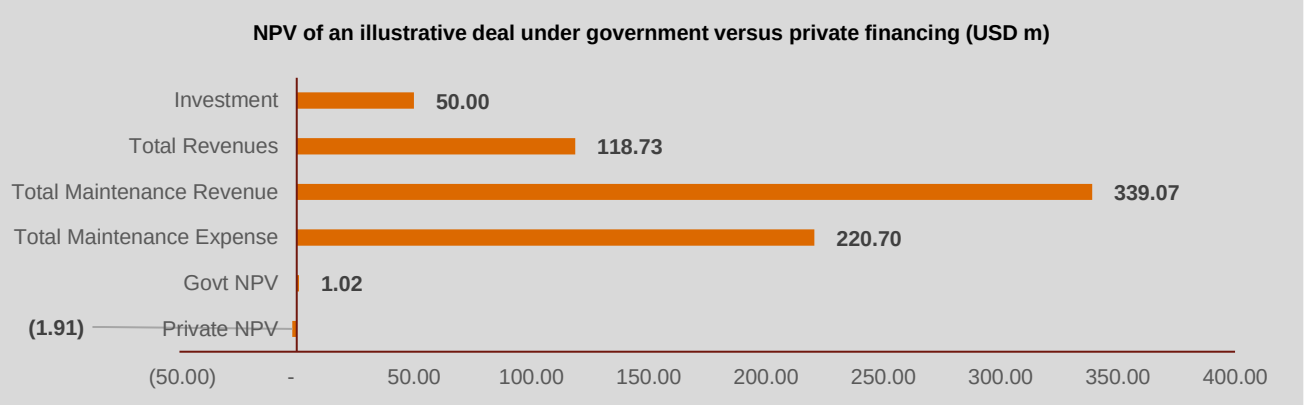
[69] PwC calculations.

Figure 27. Impact of financing costs: an illustration

In most discussions with the private sector on industrial park development it was made amply clear that financing cost has a massive impact on the ability of the private sector to invest in projects. Local developers also specifically indicated that the key advantage that overseas firms have is their access to cheaper capital.

All other factors being equal, the difference in the cost of capital for governments as compared to the private sector leads to a considerable difference between the NPV of industrial park project developed by the respective parties. The following illustrative deal analysis highlights the extent of the difference.

Based on the assumptions listed below, an investment of USD 50m generates an NPV of USD 1m for the government entity, as compared to an NPV of USD -1.9m for a private investor. A government body would therefore need to subsidise the private sector to the extent of USD 2.9m just to bring the investor on a par with the cost of the project under a government procurement. This is around 6% of the total project cost.

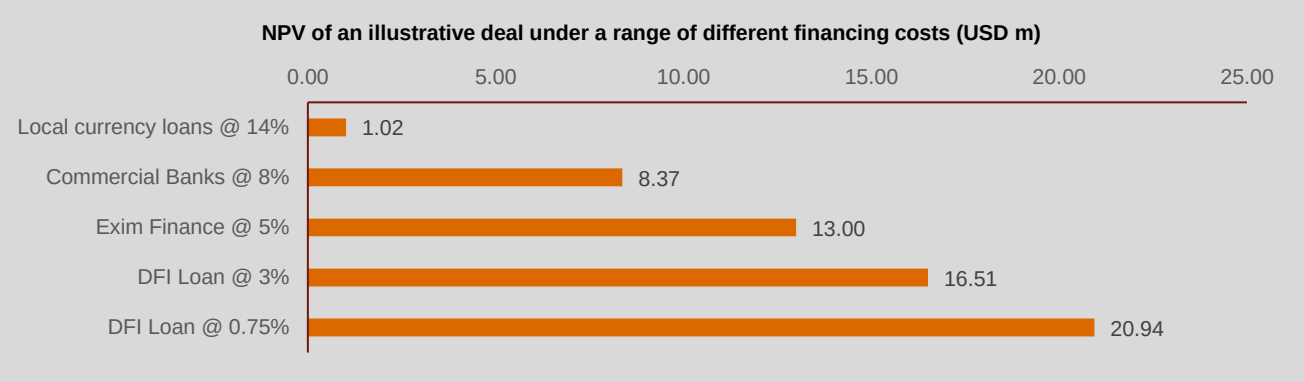


The assumptions made in this case are:

- Park area of 40 hectares with an investment of USD 50m followed by average sale revenue of USD 450/sq. m leading to a total income of USD 118 Million
- Annual maintenance income amounting to 5% and concurrent maintenance expenses
- Cost of debt is 14% for government (i.e. the government is assumed to achieve borrowing according to prevailing rates for borrowing in its own currency) and 18% for private (this is indicative based on typical market data), with a capital structure of 50:50, and an assumed cost of equity of 23%

In addition to the borrowing cost the private developer would also have a higher returns expectation. Thus there would likely be a higher need for equity returns. The Government may need to support any private investor with cheaper finance or may need to subsidise their capital expenditure.

In reality, governments may also have access to significantly cheaper funds, as the section above discusses. The graph below therefore also sets out a range of NPV outcomes under different cost of capital situations.



The graph shows that government is, as expected, in a superior position to finance the project. These theoretical calculations, however, must be set against real differences in non-financing expenditure that may accrue under different development models – and of course the hard limits on further sovereign borrowing that may apply in some countries.

Financing parks during and after development

Sales or rental of developed land and structures, as well as industrial park management services, are the principal revenue streams available to a developer/operator of an industrial park or SEZ. These revenue streams can begin from near the outset of park development, as anchor tenants are identified. The section below provides some practical recommendations for maximising such income.

Capturing value appreciation from developed land

Sale or lease of developed land is the primary source of revenue for park developers in sub-Saharan Africa.

A phased approach to development therefore enables developers to capture the benefits of land value appreciation that may have begun since the introduction of the park. For example:

- In Kigali SEZ, **Rwanda**, for example, sale prices have increased from around $23/sqm in 2010 to $49/sqm in 2017, effectively a compound annual growth rate of over 11%;
- In Hawassa town, **Ethiopia** around the park, the price of land has risen from around $21/sqm to $27/sqm in 5 – 7 years;
- In Nairobi, **Kenya**, between 2014 and 2016 the price appreciation of industrial sheds has been 5.6% on average, and as high as 7.1% in some areas.

Diversifying income and risk through integrated development

For larger parks involving very significant upfront capital expenditure, pure rental revenue and land sales are unlikely to cover the costs of building and financing the development.

A prevalent model in China, therefore, is integrated city development that includes initial industrial park development with residential and commercial real estate later on. The government typically grants a large plot of land (e.g. over 100 hectares) to the developer, who initially develops part of that into industrial park land. As infrastructure and industries are developed, the value of non-processing parts of the site appreciate in value, and the developer then builds residential and commercial assets to sell at a premium. Residential and commercial plots may also give rise to slightly higher rental income streams. For example:

- Specific **Chinese** examples include Gu'an City development by China Fortunate Land Development Co and Shekou area by China Merchant Group;
- The CALIC consortium in **Nigeria**'s Lekki Industrial Park aims to realise returns through commercial and residential real estate over a 20 year period. Interviews confirmed that these additional uses were key to making the project commercially viable. Proximity to the new airport and Dangote Group's upcoming Petrochemical Park starting to make this an attractive proposition;
- Similarly in **Ethiopia**, IPDC is currently evaluating plans (developed through assistance from JICA) to re-configure the Bole Lemi, Kilinto and ICT area as an integrated smart industrial city with a mix of industrial, commercial and residential uses – aimed specifically at enhancing the commercial attractiveness of the area (and sites therein) as a whole;
- In Nairobi Mombasa Road, industrial sheds provide a yield of 6% whereas office space projects provide an yield of 7% to 9%.

Driving revenue from industrial park management

Maintenance charges (also referred to as service charges) are required in order to fund the sustainable management of any industrial park area, including maintenance of key infrastructure, funding of park-sponsored support services such as the one-stop shop, ongoing working capital needs and opportunities for

park expansion/enhancement. This may be structured on a 'cost plus' basis, with developers typically applying a 25% - 30% margin on costs incurred.[70]

However, this has not been uniform practice across the region; both KSEZ Phase 1, in **Rwanda**, and KIBP, in **Uganda**, have omitted to charge maintenance charges thus far. In some instances, there may have been a perception that maintenance charges might dissuade potential investors from taking up plots. In practice, however, the presence of maintenance charges indicates a sound management model and should give investors confidence that the park's infrastructure will be sustainably maintained.

[70] A key question is whether or not the park developer should also act as an intermediary between utility companies and tenants. Enabling park development companies to charge margins on e.g. power supply inputs or waste or discharge facilities would increase the commercial attractiveness of the opportunity to park developers, but at the potential risk of driving up overall costs for tenants and reducing the country's competitiveness.

Summary of recommendations from this section

No.	Recommendation
1	Governments should **benchmark planned costs** for industrial park developments against comparable development costs from the region. This benchmarking should be done against parks which are similar in scope, complexity and deal structure. Ministries of Finance should be sceptical of park development costs which look unusually low, as they are likely to result in cost over-runs.
2	Government appraisal processes should ensure that when selecting a source of finance, officials must consider the **impact on the non-financial input costs of the project**. For example, if a source of finance e.g. export finance is available at competitive rates, but comes with pre-specified developers, this is likely to push up overall cost. Maintaining competition between developers is likely to deliver better value for money than selecting a slightly concessional source of policy finance.
3	The barriers to private sector development of parks are high, because of the private sector's comparatively high costs of finance. Governments should therefore use pre-development of parks, guarantees, joint venture arrangements, flexible zoning rules, and so on to enable private park developers to have a credible chance of making a commercial success of the park, if they wish to pursue a private sector route to park development. They should also enable park developers to participate in some of the land value appreciation, by **sharing rewards in the structure** of the transaction.

7. Project Transacting (2): Procurement and contracting

Procurement considerations

Government ministries, agencies and other public 'contracting authorities' must expend the public resources over which they have stewardship with due regard to value for money for the national taxpayer. Robust, competitive tendering, which attracts interest from the international as well as national private sector, is the best way to achieve this.

By the time that governments (or project developers) reach the **project transacting** stage of the project lifecycle and look to procure the development of a proposed park, a number of important procurements will **already** have taken place.

The importance of these smaller, preparatory procurements should not be overlooked. The table below illustrates this.

Figure 28. List of procurements preceding the project transacting stage

Procurement	Indicative costs
Strategic programme planning: professional advice to support the development of a national industrial parks strategy	$150,000 - $400,000
Project identification: professional advice to draw up a Pre-Feasibility Study for one or multiple parks	$200,000 - $1,000,000
Project structuring: Professional advice to draw up full Feasibility Studies for any proposed parks,[71] incorporating considerations of e.g. hydrology, topography, utility needs, ESIA and market demand	$800,000 - $2,000,000
Project structuring: Consultancy to support investor soundings and roadshows, consultations with the private sector, etc. with a view to refining the project structuring	$150,000 – $900,000
Project transacting: Hiring of transaction advisors to advise government through PPP structuring and developer procurement process	$500,000 – $1,000,000

As the table implies, international experience suggests that the public sector's value for money objectives can best be met through:

- retaining professional transaction advisors, with a sound understanding of project financial structuring, to advise on the design of the transaction. Governments should also, if available in the country in question, engage the services of the national PPP unit at this point in time; and
- running investor soundings and investor roadshows, with potential investors, tenants and contractors, in order to refine the project structure and to ensure it is market-responsive prior to engaging in the outright procurement of the park development or construction.

At this point in the process, the major remaining procurement concerns are in respect of:

- basic onsite and 'to site' infrastructure, where industrial parks are initially developed by the government (this includes substations, transmission lines, roads, rail spurs etc);
- overall development of the park, including structural build-out;
- preparatory arrangements for key central services on site e.g. banking, catering, customs, logistics

[71] Assuming they are straightforward industrial parks, not multi-use, large scale urban developments, which are an order of magnitude larger in scale and cost.

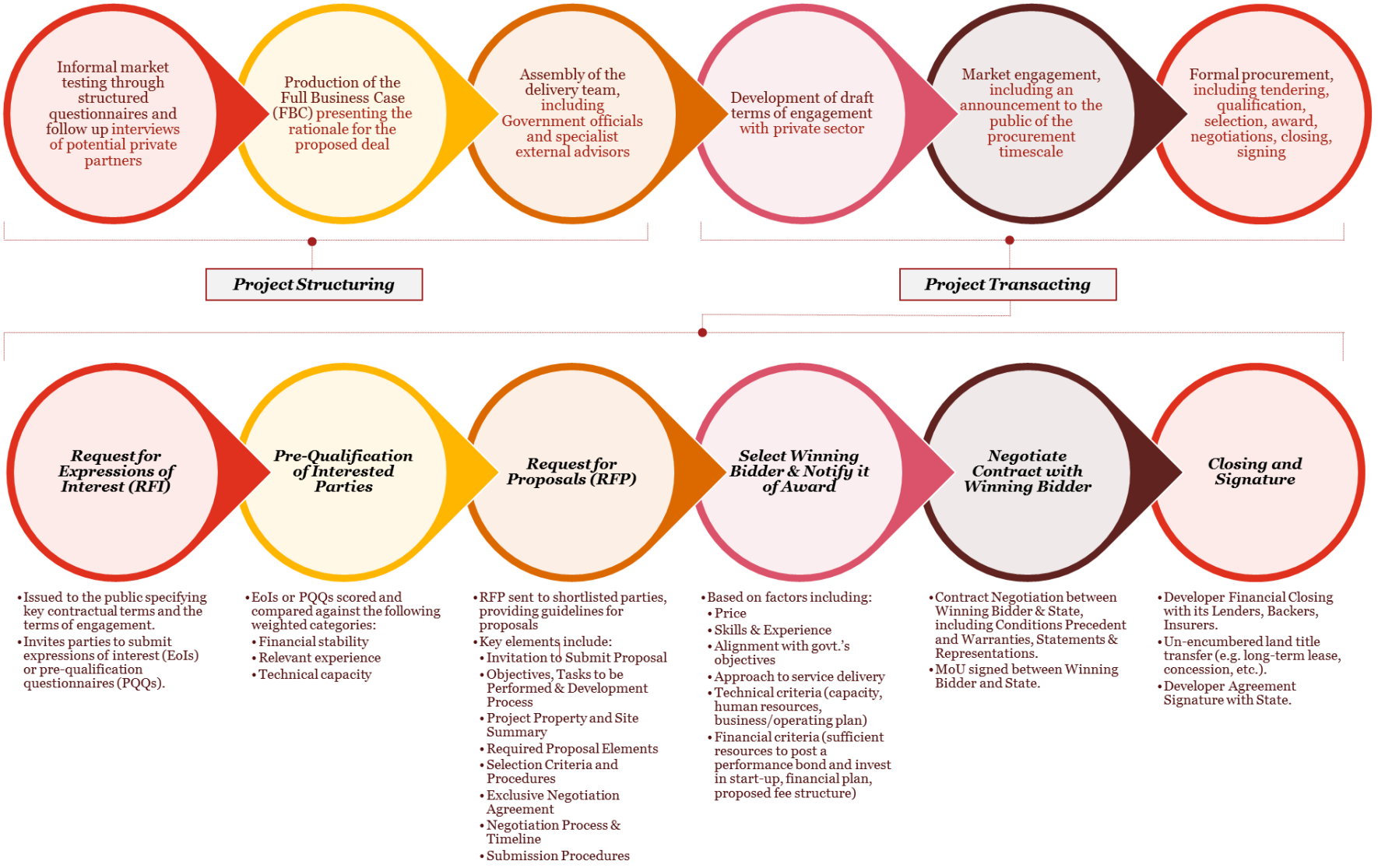
- operations services under a concession, DBFO or joint venture; and
- any further professional advice needed in transacting or subsequent monitoring of the performance of the government's contracts (for example, commercial assurance).

To carry these out effectively, governments should consider the following recommendations:

- The provision of adequate project and procurement information (including publishing the Pre-Feasibility Studies and full Feasibility Studies). This will result in larger numbers of technically well qualified and financially capable bidders expressing interest in the procurement (typical content and indicative cost of these studies are listed in the table overleaf);
- A procurement focus on bidders' technical capabilities, financial wherewithal, implementation team, relevant past experience and, above all, specified measurable outcomes and service levels to beneficiaries of the works, rather than on cost;
- International open/competitive tenders and bidding processes – which, through competitive pressures, deliver greater value for money;
- Proper due diligence on short-listed bidders, including inspection visits to their headquarters and home jurisdictions during contract negotiations;
- Phased 'land options' granted to developers based on performance and, in particular, their ability to 'draw down' land for development and ensure its occupancy according to contractual milestones, rather than outright and wholesale transfer of title to an overall industrial park site; and
- Flexible contracts, with periodic revisions and mechanisms to allow small variations from the scope of work, at the request of either the contractor or (on a compensated basis) by the contracting authority, in such a way that favours innovation and the continuous search for contract efficiencies (for instance through sharing cost savings with the contractor). Bills of quantities may be useful in this context.

The ideal procurement chain, allowing for the best application of these principles, is set out on the next page.

Figure 29. An optimal procurement chain



While all of this is undoubtedly technically demanding, time-consuming and has cost implications, these considerations pale in comparison with the possible negative consequences of the tens or hundreds of millions of dollars than can be wasted through poorly identified or structured projects, or the procurement and contracting of the wrong project developer.

Contracting authorities also need to be realistic about their capacity and staff resources. Limited staff capacity to handle large-scale simultaneous procurements will result in poor value for money outcomes. This should be considered for instance in the case of Rwanda (with its 10 planned industrial parks) or in Uganda (with its 22 planned IPs, 8 under development, and Presidential directive tasking UIA to develop 5 industrial parks each year).

Failure to handle procurement successfully has led to a number of negative past experiences. These have for instance included the necessity for the Ghana Free Zones Board (GFZB) to step in in 2005 and revoke the 1999 concession to Malaysia's Business Focus Group for the **Tema EPZ**, for restructuring and reassignment to E-Process International S.A. with World Bank assistance. After concerns expressed by the Government of Japan and by multilateral donors, **Kenya**'s Office of the President in late 2016 reportedly reversed a proposed sole-source contract to the Chinese firm prepared by the Ministry of Industry for the development of the **Dongo Kundu SEZ** in Mombasa. More recently, DP World's contract to operate the Djibouti terminal has been revoked by the Djiboutian government.

More encouragingly in this regard, **Ethiopia** decided on this basis to move away from a 2011 plan to build industrial parks in every state and potentially even in each district, due to concerns and caution about the ability to properly structure these projects, as well as ensure their cost efficiency. Even so, Ethiopia's first generation public industrial parks (Hawassa, Mekelle, Bole-Lemi and Kombolcha) are not sustainable from a financial point of view because of under-pricing and errors in initial specifications. Adama Hunan Industrial Park appears to be over-priced due to its sole-sourced construction contract to CGCOC. The IPDC recognises this; clearly, the wider bilateral relationship with China, including the prospect of relocation by Chinese manufacturers, may have been a factor in the design of this deal. The experience to date, coupled with debt constraints, is already leading IPDC to question the model of public industrial parks altogether. Generally, Ethiopia has seen the private sector more efficient in developing their facilities and industrial parks. For instance, Velocity's unit development cost was a third of that of the Chinese-built public industrial parks. These issues and lessons are especially important because of the high pressure on public finances in most Sub-Saharan African countries.

Contracting considerations

As an overarching principle, contract documentation should be structured so as to mitigate risk to the public sector.

Standard Developer Agreements, sanctioned by the relevant authority (such as the parks regulator or the national PPP unit), are a valuable way to ensure consistency across public procurement and contracting.

As a minimum, these should include **contractual provisions** for:

- Financial risk (including: interest rate risk; exchange rate risk; creditworthiness guarantees; performance securities (EPC contractors typically give a 10-20% performance guarantee to the financers);
- Standby funding arrangements; minimum developer debt-to-equity ratio warranties; etc.);
- Construction/completion delays;
- Cost overruns, including change control procedures and an extensive bill of quantities;
- Utility charge mark-ups in general and specifically, increases to public utility charge over the course of the contract

- Lack of coordination with/between adjacent/dependent projects/facilities;
- 'Standard of delivery' risk;
- Environmental risk;
- Legal and political change risk (e.g., through a legal stabilisation clause, arbitration clauses, political risk insurance requirements, etc.);
- Incremental, scalable and event-based liquidated damages; termination by Government with buy-out of outstanding project debt (or equity in an SPV); and government step-in-clauses with developer termination transition assistance;
- Insurances (including for business interruption) as well as force majeure;
- Use of IFRS-GAAP accounting.

Furthermore, recent international research on the performance of PPPs and Developer Agreements shows the importance of the **following contractual approaches** in order to deliver optimal contract outcomes:

- Showing flexibility on terms, allowing for terms of 15 – 60 years (rather than adhering only to 25 – 30 year agreements);
- Equity-sharing, in particular the use of minority stakes by government, and the use of 'golden share' stakes which give minimal equity participation but reserve certain important rights to the government, such as veto powers;
- Outcome-based rather than input-based specifications (like ISO9001 service standards), in order to reduce investor risk and improve investor appetite;
- Land 'absorption' or 'draw-down' rates, with dependent phased-in options on more land;
- Government accepting the risks arising from unforeseeable general changes in law
- Monitoring through frequent mandated engagement, substantial reporting (including on returns, dividends), and logging of all issues into a PMO system;
- Built-in Contract Review, Change (infrastructure, use, refinancing), and Optimisation Mechanisms (e.g., Onsite office; Monthly Developer Reports; Annual User Satisfaction Surveys and/or Third-Party Performance Assessments; Annual contract reviews; etc.).

To ensure adherence to these clauses throughout the contractual lifecycle, park development authorities should have permanent legal staff embedded within the institution, and significant procurement expertise. They should also have a specialist project management unit with expertise across both contract oversight and portfolio and project management.

Summary of recommendations from this section

No.	Recommendation
1	Governments should invest due resources in the **proper planning and structuring of park development**. This includes early consultation with the private sector and utilities and across government, including regionally. Where initial studies have been carried out, Governments should identify what further work is required to turn them into full Pre-Feasibility and then Feasibility Studies, meeting international standards, and engage professional expertise to fill the gaps identified.
2	Governments should **specify, and publish, their intended procurement process** for park development partners. This will provide clarity to the market and foster competition and transparency. They should consider how international construction companies can build up local capacity and skills.
3	Governments should develop with professional legal advice **Standard Developer Agreements**, that will enable them to contract with private developers on a consistent and robust commercial basis.

8. Project implementation: managing and regulating parks

Managing parks under development and in operation

As explained in previous sections of this report, international experience in general suggests that private sector industrial park **operators**, coming as they do from a real estate facilities management background, know their business and clients best, are the most efficient, and deliver the highest levels of user satisfaction, financial sustainability, and socio-economic outcomes.

Countries like **Kenya** and **Madagascar** have thus largely eschewed any idea of State development of industrial parks or SEZs. A few 'legacy' State-operated sites however still exist in Kenya, including the EPZA's publicly-run Athi River EPZ, as well as the separate 'Kenya Industrial Estates' incubation facility, with its industrial sheds for SMEs on government owned land. While a number of countries in Africa, just as elsewhere around the world, have opted to establish or maintain State-owned industrial park development corporations, some are now revising their view of this model. In **Uganda**, the UIA and UFZA together operate public industrial parks, such as KIBP (which has insufficient capital to put in basic infrastructure), but also regulate private ones, such as Liao Shen and Masaka. **Ethiopia's IPDC** and **Lesotho's LNDC** are currently investigating divestiture of at least some of their public zones (such as Bole-Lemi and Kilinto in Ethiopia, and Tikoe in Lesotho), due to their lack of financial sustainability. In **South Africa**, all of the Industrial Development Zones (IDZs) were established by legal entities belonging to the Provincial Governments that hosted them, like the Coega Development Corporation (CDC) in the Eastern Cape. Their financial challenges are also widely recognised. The case of **Rwanda**'s PPP-owned 'Prime Economic Zones' (PEZ), the developer of the Kigali SEZ, or Nigeria's **Lekki Investment Co. Ltd**, represent another approach, as they are in fact State-dominated PPPs. However, PEZ is also facing financial sustainability issues regarding Phase 1 of Kigali SEZ. Either end-unit investors of all of the cited public zones, or civil society in their host communities or workforces, have registered complaints in terms of their degree of satisfaction. So too, in certain instances, have the operators of other competing private zones, especially where there is an obvious conflict-of-interest created by dual State regulator-operator bodies such as Kenya's EPZA, or Uganda's UIA and UFZA.

There are a number of reasons advanced for setting up the State-owned or State-invested development corporations, notably in order to get rapid traction on industrial park or SEZ development in economies lacking any experienced private industrial park developers, or foreign players particularly interested in playing in the space. However, the argument is not particularly compelling, based on international benchmarks, in markets like **South Africa, Nigeria, Ethiopia, Uganda and Rwanda**, with their relatively mature construction and/or facilities management industries. In practice, the continued ambiguity over private and public roles risks crowding out private developer firms and creating inefficiency in the use of public resources. In this connection, divestiture of State equity should be considered, for instance through flotation on the Stock Exchange or some similar approach. Indeed, it should be noted that Ethiopia's IPDC has been structured as a SOE with the explicit possibility of selling equity to eventual private shareholders, as and when the market is ready, and that it is furthermore already considering divestiture of public zones, just four years after having been established.

Regardless of the governance model adopted, the multiplicity of secondary agencies and even of private utilities companies which must be coordinated with, in order to ensure appropriate provision of infrastructure and the full suite of government services to investors in industrial parks and SEZs, means that several other good practices are advisable, including:

- Inter-Agency Industrial Park Steering or Coordination Committees - as has been established in **Rwanda**;

- Inter-Agency Industrial Park Memoranda of Understanding (MoUs) and/or Service-Level Agreements (SLAs) - as have been adopted in **South Africa** for its SEZs; and
- Inter-Agency and private sector representation on Industrial Park and SEZ Authority Boards -as has for instance been provided for in the context of **Kenya's SEZA**.

Regulating parks

The framework for the governance of industrial parks involves several actors, with different roles and responsibilities. Whereas the management or operation of industrial parks is a facilities management question in the remit of the industrial park operator, regulatory oversight is (as a matter of best practice) a government function. There are important reasons for this distinction, having, amongst others, to do with the avoidance of conflicts of interest, institutional efficiency and technical specialisation. Historically, many countries adopted the model of the single, state-owned 'SEZ Developer-Owner-Operator-Regulator'; this model has now been discredited and is rarely still in use. In contract, good practice industrial park programmes should clearly outline the specific and differing governance responsibilities of the various stakeholders – as described below.

Figure 30. Summary of roles and responsibilities in a SEZ/Industrial Park Programme: Best Practices

Stakeholder	Primary responsibilities
Ordinary Government Agencies	• Assemble land • Establish land use guidelines • Develop offsite infrastructure • Training/workforce development and social services
Industrial Parks Regulator	• **Designate SEZs/industrial land:** Conduct strategic planning and prefeasibility studies, select and designate public and (based on petitions) private land as SEZs/industrial land, and license public or private land owners or their agents as SEZ or industrial park developers/operators. • **Facilitate government services:** Facilitate licensing, permitting, and regulatory services within the industrial parks/SEZs, particularly relating to land use, business licensing, environmental permitting, building permitting, labour regulation (including foreign work permits), and inspections; may also include business registration, utility regulation, and dispute resolution. The regulator may set fees commensurate with the cost of service delivery in these areas. • **Monitor compliance:** Monitor and regulate compliance with the industrial park/SEZ legal framework, including SEZ/industrial policies, standards, and requirements, and enforce compliance through appropriate penalties independently from other public agencies.
Developer	• **Onsite final Development master-planning**: Create a final land-use master plan and prepare the land accordingly (grading, levelling, and other preconstruction activity). • **Provision of onsite infrastructure and suprastructure**: Internal road networks, drainage and sewerage, and conduits and infrastructure for utilities.
Operator (Often the same entity as the Developer or one of its sub-contractors)	• **Facility leasing:** Manage lease and rental agreements with investors and assume responsibility for main services of the zone (e.g. maintenance, security). • **Utilities provision:** Ensure provision of onsite utilities (electricity, gas, water, telecommunications) through own provision or via domestic providers • **Provision of other value-added services:** May include a wide range of services, such as business and training centres, medical and child care services, transport, and recruiting. • **Marketing:** Experienced private developers often have a network of multinational clients across a range of industries to which they can market new SEZ/industrial park opportunities. Note that the SEZ authority/regulator and other parts of government (a national or local investment promotion agency) typically carry out some marketing activities.

Around Africa and indeed around the world, different State actors have been attributed the role of industrial parks **regulator**.

In most advanced industrial countries, where resources are less scarce, the role is shared by a variety of actors, including the hosting municipal government, town and country planning authorities, environmental protection

agencies, ministries of public works, ministries of power and energy, often the ministry of finance (as a landowner, regulator of PPPs and procurement, and oversight body for land and fiscal records), and others.

In developing economies, the industrial park regulator is more frequently a single body, which may be the Ministry of Industry for more conventional industrial parks, or the Investment Promotion Agency or a dedicated regulator, if incentives are offered in industrial parks, making them in effect some sort of special economic zone. Due to the need to mitigate project delivery risks, difficulties in inter-agency coordination, as well as possible duplication of efforts and expenditures under separate programmes, this is a sensible approach.

In the **DR Congo**, the primary entity responsible for SEZ regulation is the Ministry of Industry, just as it is in **South Africa**, through the DTI. In **Rwanda** and in **Ethiopia**, it is their investment promotion agencies, respectively known as the RDB (the SEZAR unit) and the EIC. **Kenya** and **Botswana** on the other hand, have set up fully independent Special Economic Zone Authorities. Kenya also has a distinct EPZ Authority, Similarly, in **Uganda**, regulatory responsibilities are split; the Uganda Investment Authority (UIA), which acts as the national investment promotion agency, regulates private industrial parks, while the Uganda Free Zone Authority (UFZA) however acts as the regulator of the country's EPZs. President Musevni announced in August 2018 an intention to merge the two however.

Role	Rwanda	Uganda	Kenya	Ethiopia
Industrial Park Policy	MINICOM	Ministry of Trade, Industry and Co-operatives	Ministry of Industry, Trade and Co-operatives	Ethiopian Investment Board
Investment Promotion	RDB	UIA	KenInvest	EIC
Public Park Development	MINICOM District Councils PEZ	UIA (Industrial Parks) UFZA (EPZs)	EPZA (Athi River only)	IPDC
Regulatory Agency	SEZAR (within RDB) (Industrial Parks)	UIA (Private Parks) UFZA (EPZs)	SEZ Authority EPZ Authority	EIC

Figure 31. Respective roles of different agencies in Rwanda, Uganda, Kenya and Ethiopia

There is a lack of consensus on the optimal model for regulation, as there are questions as to which institution has the most relevant mandate, the most relevant expertise, the most or best resources, 'ownership' of the ideas, as well as the greatest ability to influence other stakeholders and deliver. Sorting out the different degree of authority of the Ministry of Trade and Industry (Minicom) and of the RDB in **Rwanda** has thus been a challenge, for example. So too has been the division of IPDC and EIC roles and responsibilities in **Ethiopia**. In **Kenya**, the EPZA had originally lobbied strongly to be responsible for SEZs, before it was decided otherwise by Parliament.

One consideration is important to bear in mind in this arbitrage of institutional roles. Regulators cannot, if they are to protect the public against any potential socially or environmentally undesirable business practices by the parties they regulate (i.e., the industrial park developers and operators), share the 'promotion and facilitation' functions or organisational culture of investment promotion agencies. The former must sanction and fine, whereas the latter must attract, help and aid. Moreover, a regulator must have independence. There is thus arguably a built-in challenge in terms of the Ethiopian and Rwandan institutional approach to how industrial parks should be regulated. Indeed, **Rwanda's SEZAR**, the division of the RDB responsible for SEZ regulation, has become acutely aware of the limits of its regulatory powers in the facilitation-minded, 'deal-making' RDB

culture. The UIA has also been slow to act on the provisions in its leases of land at KBIP to take action and withdraw plots from businesses who have not developed the land – despite clear breaches.

Moreover, the regulation of an EPZ, SEZ or an industrial park do not require radically different skillsets; and thus, having an authority for each may not be efficient. While EPZ or SEZ acts can be applied by specific departments or agencies at the time of park development, a single agency can just as easily be responsible for issuing an SEZ or EPZ license. Such an agency would concentrate the needed in-house abilities in construction supervision, procurement, financial closure, land acquisition, zoning etc. The agency can also coordinate and work with other external agencies for support, where required. Some countries, like **Rwanda** and **Tanzania**, have therefore begun to unify SEZ and EPZ regulation under a single entity.[72]

[72] A case can however be made that the schemes are sufficiently different, especially with their infrastructure-free 'single factory zone' investors, to warrant separate regulators. This latter approach has been the one followed, for instance, by **Kenya** and **Mauritius**.

Summary of recommendations from this section

No.	Recommendation
1	Where the state intends to play an active role in park development, it should set up a **specialist unit,** staffed with infrastructure and real estate experts and clear liaison with the investment promotion agency referring tenants, who are equipped to procure and oversee major EPC contracts. This unit should typically be an executive agency, implementing policy as set by a superior Ministry. Where park development is to be left to the private sector, such a unit may have a pure liaision role.
2	Where SEZ, EPZ and/or industrial park regulation is currently overseen by different agencies, these agencies should be amalgamated. The regulatory function played by these bodies is sufficiently similar to be carried out effectively by a single entity. **Conversely, Governments should consider whether regulatory agencies should be formally separated** from investment promotion agencies, where their industrial parks programme is of sufficient scale to warrant two separate entities.

9. Conclusions

While this report contains a wide range of different recommendations and examples of good practice, below we summarise the key recommendations in terms of action points for governments in the near term, as they seek to optimise their approach to industrial park development.

Summary of recommendations from this report

No.	Recommendation
1	Governments should develop a **national industrial parks strategy**, either as a standalone policy or as part of a wider economic strategy (such as Ethiopia's GTPII). Many African governments already have such a strategy. Where a strategy is already in place, governments should audit it against the recommendations in this report
2	Governments should undertake **a detailed and robust assessment of future investor demand** for industrial land at the national level, and compare it carefully against their park development plans. Where they identify a risk of over-supply of industrial park land, this should be mitigated by phasing the timing of park development more gradually
3	Governments should develop **minimum standards and processes for project identification**, which could be supported by a template Pre-Feasibility Study that must be completed for any proposed new site or batch of sites. • Where such standards already exist, governments should audit them against the recommendations in this report. • Where Pre-Feasibility Studies have already been completed, they should be assessed against the recommendations in this report, and if necessary, revisited and strengthened.
4	Close and continuous cross-government liaison (including with regional governments, sectoral agencies and with key infrastructure providers – roads, utilties, fire security and basic services providers – sanitation, health, housing, solid waste) is critical. Governments should consider establishing formal cross-Government committees and oversight bodies to provide for this.
5	Governments should **review national legislation and regulation to ensure that all models of park development are legal and feasible to park developers**. This will maximise the ability to match the right deal structure to the right park opportunity.
6	Governments should develop guidance for the deployment of public investment in park development. The guidance should in particular provide a **framework for understanding when to provide public subsidy**. . It should insist on positive full Feasibility Studies being in place before moving to park tender and build. This will ensure public investment is targeted at the most strategic areas and optimise outcomes for the public sector. The guidance should also mandate the use of phasing to mitigate the risks of upfront investment.
7	Where governments are looking to the private sector to develop parks, they should **provide a helpful 'roadmap'** setting out the full sequence of steps – legal, regulatory, physical – that developers will need to go through in order to successfully launch a park. This will give developers confidence and clarity, and will also enable governments to see how existing processes can be streamlined.
8	Governments should develop **minimum standards for approving public investment in park development.** A government Business Case and a full, international standard Feasibility Study should be minimum criteria for the approval of such investment, encompassing hydrology, topography, utility needs, ESIA and market demand.
9	Governments should seek to **identify key anchor investors for proposed new parks**. Specialisation should take place around this anchor tenant.
10	Governments should adopt and **publish a suite of common approaches to maximising the commercial and economic viability of parks**, including reducing factor costs, boosting labour productivity, enhancing linkages to the local economy, and allowing developers flexibility in allocating a proportion of the park to non-industrial usage. They should limit pre-building sheds to the minimum possible to attract tenants, however. This guidance should inform all future park development projects.
11	Governments should specify the **minimum social and environmental standards that must be applied to any new park development**, drawing on both national legislation and existing international frameworks.
12	Governments should **embed consideration of social housing and other infrastructure needs** into the approval processes for major industrial park development. Failure to do so may lead to displacement, unrest and

	inequitable outcomes for local populations.
13	Governments should **benchmark planned costs for industrial park developments** against comparable development costs from the region. This benchmarking should be done against parks which are similar in scope, complexity and deal structure. Ministries of Finance should be sceptical of park development costs which look unusually low, as they are likely to result in cost over-runs.
14	Government appraisal processes should ensure that **when selecting a source of finance, officials must consider the impact on the non-financial input costs of the project**. For example, if a source of finance is available at competitive rates, but comes with pre-specified developers, this is likely to push up overall cost. Maintaining competition between developers is likely to deliver better value for money than selecting a slightly concessional source of policy finance.
15	The barriers to private sector development of parks are high, because of the private sector's comparatively high costs of finance. Governments should therefore **use pre-development of parks, guarantees, joint venture arrangements, flexible zoning rules**, and so on to enable private park developers to have a credible chance of making a commercial success of the park, if they wish to pursue a private sector route to park development. They should also **enable park developers to participate in some of the land value appreciation**, by sharing rewards in the structure of the transaction.
16	Governments should invest due resources in the **proper planning and structuring of park development**. This includes early consultation with the private sector. Where initial studies have been carried out, Governments should identify what further work is required to turn them into full Pre-Feasibility or Feasibility Studies, meeting international standards, and engage professional expertise to fill the gaps identified.
17	Governments should **specify, and publish, their intended procurement process for park development partners**. This will provide clarity to the market and foster competition and transparency. They should consider how international construction companies can build up local capacity and skills.
18	Governments should develop **Standard Developer Agreements**, that will enable them to contract with private developers on a consistent and robust commercial basis.
19	Where the state intends to play an active role in park development, it should set up a **specialist unit**, staffed with infrastructure and real estate experts who are equipped to procure and oversee major EPC contracts. This unit should typically be an executive agency, implementing policy as set by a superior Ministry. Where park development is to be left to the private sector, such a unit may not be required.
20	Where SEZ, EPZ and/or industrial park regulation is currently overseen by different agencies, these agencies should be amalgamated. The regulatory function played by these bodies is sufficiently similar to be carried out effectively by a single entity. Conversely, Governments should consider whether regulatory agencies should be formally separated from investment promotion agencies, where their industrial park programme is of sufficient scale to warrant two separate entities.

Annexes

Annex A. Intended purposes of industrial parks

Industrial parks are seen to play a number of important functions in supporting the national economic development agenda. In practice, the track record of parks across Africa in delivering on these perceived benefits is mixed; much depends on the implementation. The primary objectives are discussed in more detail below.

Clustering and agglomeration

Manufacturing and service industries tend to be geographically concentrated in proximity to cities and other naturally evolved clusters, both in developed and developing economies.[73]

Industrial parks and SEZs promote the formation of such clusters in order to ensure that the benefits of geographic concentration can accrue to the enterprises within the park, and to the broader surrounding economy.

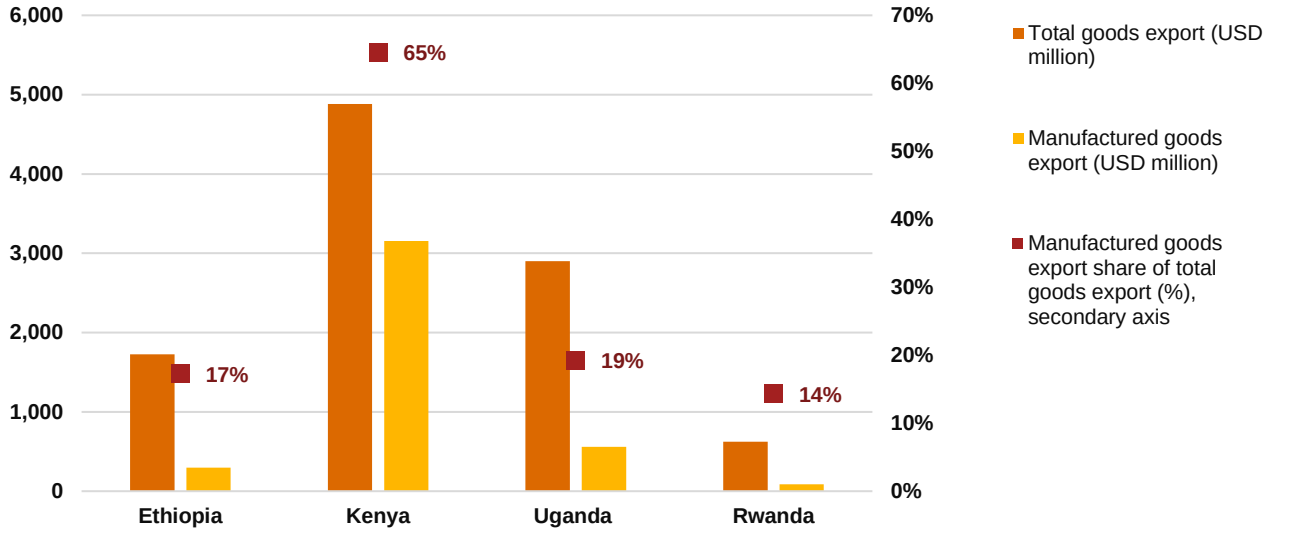
Export competitiveness for secondary economic sectors

Currently, a substantial proportion of regional exports is in the form of primary commodities such as metals and minerals, whose production requires very limited processing.

By contrast, in three out of the four focus African economies in question, manufacturing contributes to less than 20% of total exports (see graphic).[74] This is an indicator that these countries are in an early stage of their economic transformation.

[73] For example, in France, UK and the USA, 75-95% cent of industrial output is clustered or geographically concentrated, while in Vietnam, large anchor firms are surrounded by thousands of small enterprises, as seen in the major industrial clusters near Hanoi and Ho Chi Minh City. Source: World Bank, 2009
[74] UN Comtrade Database, 2016.

Figure 32. Manufacturing export profile by country



Industrial parks promote the development of processing, manufacturing and other secondary sectors, through enhanced trading conditions such as lowered taxes, tariffs or visa barriers and perhaps most importantly, more reliable utilities.

This in turn enables a country to capture a greater proportion of the global value chain, with associated fiscal and employment benefits. The benefits of such an approach can already be seen in nascent sectors burgeoning in East Africa, such as agro-processing, textiles, leather, apparel, wood processing, and so on.

The current contribution of African industrial parks to manufacturing exports is limited. However, this is expected to change gradually, as governments across the continent pursue more aggressive export promotion policies and sign up to key trade agreements, such as AGOA. In the much longer term, agreements such as the CFTA will also enhance progress in this area.

Sector diversification and resilience

By enhancing the trading conditions available to secondary sector businesses, governments also promote sector diversification.

Over time, the growth of basic secondary sectors may lead in turn to the development of more advanced sectors, such as chemical processing, pharmaceuticals, and assembly of ICT, automobiles and heavy machinery.

In this context, industrial parks can also specifically support the development of local SME supply chains, through backward linkages and knowledge or intellectual property transfer.

This process of diversification and interconnection increases the resilience of the wider economy, through reduced exposure to primary commodity prices, which are relatively volatile, and the development of a distributed, competitive economic marketplace.

Investment promotion

Industrial parks provide high-profile investment destinations, which may often be backed by clear government support, professional international marketing and a strong sense of economic ‘momentum’. This in turn helps to garner interest from international investors, provided the underlying economic rationale for investment is sound.

Parks therefore have a key role to play in attracting foreign direct investment. Typically, the business drivers for investors in African IPs can be classified as follows:[75]

- ***Market-seeking FDI*** – This applies to investors whose business case is based on serving the local (domestic) and regional markets. This type of FDI mainly depends on the characteristics and fundamentals of local and regional markets. Examples of this include the pharmaceutical investment in Kilinto IP in **Ethiopia**, or planned food and agro-processing parks in **Ethiopia** and **Rwanda**.
- ***(Natural) Resource seeking FDI*** – This applies to investors interested in accessing and exploiting key abundant natural resources or commodities of a host country at a relatively lower cost. Examples would include **Zambia** (copper), **Nigeria** (oil), **Ghana** (gold) and **Botswana** (diamond).
- ***Efficiency seeking FDI*** – This type of FDI is attracted to markets which offer investors efficiency in their production value chain. This is mainly driven by factor cost, quality and access (labour, land, infrastructure etc.). Examples would include investments in IPs focusing on industrial products such as leather, garments, textiles etc. across all four of the focus countries – **Ethiopia, Kenya, Rwanda,** and **Uganda**.

Job creation

Industrial parks are often perceived as being a tool to accelerate job creation. By clustering such job creation in one area, this also enables governments to create visible signs of their proactive support for economic development.

In fact, there is quite limited empirical evidence that industrial parks make a significant positive contribution to job creation beyond what would have taken place through organic, economy-wide growth.[76]

FIAS notes that there are two types of employment (direct and indirect) that arise from parks and SEZs. The ratio of indirect to direct jobs varies significantly between 0.25 in **Mauritius** to 0.7 in **Madagascar** and 2.0 in **Honduras**. This may suggest that the impact of industrial parks in terms of job creation is dependent on how well the government integrates the park's activities with wider local supply chains and SMEs.

[75] Source: Manufacturing FDO in Sub-Saharan Africa: Trends, Determinants and Impact, World Bank, 2015
[76] Kingombe and De Velde, similarly argue that SEZs in Africa, for the most part, have not had any positive impact on employment, with positive employment effects witnessed only in Mauritius and South Africa. African SEZs with a focus on textiles seem to do better than others in terms of job creation.

Annex B. Financial Model

A Financial Model accompanies this report and can be made available upon request.

Annex C. Glossary

Acronym	Full name
$	United States Dollars
AfDB	African Development Bank
AGOA	African Growth and Opportunity Act
BCG	Boston Consulting Group
BOT	Build Own Transfer
BPO	Business Process Outsourcing
CADF	China-Africa Development Fund
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CCECC	China Civil Engineering Construction Corporation
CDC	Commonwealth Development Corporation
CETP	Common effluent treatment park
C-EXIM	China Export-import bank
CFLF	China Fortune Land Development
CFO	Chief Financial Officer
CFTA	Continental Free Trade Agreement
CGCOC	CGC Overseas Construction Group Co
DBFO	Design Build Finance Operate
DBFOOT	Design Build Finance Own Operate Transfer
DBFOT	Design Build Finance Operate Transfer
DFI	Development Finance Institution
DFI	Development Finance Institution
DFID	Department for International Development
DRC	Democratic Republic of Congo
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIZ	Eastern Industrial Zone
EPC	Engineering, Procurement and Construction
EPZ	Export Processing Zones
ERR	Economic Rate of Return
ESIA	Environmental and Social Impact Assessment
ESIA	Environmental and Social Impact Assessment
EU	European Union
FBC	Full Business Case
FDI	Foreign Direct Investment
FIAS	Facility for Investment Climate Advisory Services
FM	Facilities Management
FTZ	Free Trade Zone
G2G	Government to Government
GDP	Gross Domestic Product
GFZB	Ghana Free Zones Board
GKIP	GK Industrial Park
GNI	Gross national income
Ha	Hectares
IAV	Industrial Added Value
ICOR	Incremental Capital Output Ratio
ICT	Information and communications technology
IDA	International Development Association
IFC	International Finance Corporation
IP	Industrial Park
IPDC	Industrial Parks Development Corporation
IPO	Initial Public Offering

IRR	Internal Rate of Return
JTC	Jurong Town Corporation
JV	Joint Venture
KIBP	Kampala Industrial and Business Park
KSEZ	Kigali Special Economic Zone
kWh	Kilowatt hour
LCU	Local currency unit
LIBOR	London Interbank Offered Rate
LNDC	Lesotho National Development Corporation
M&A	Mergers and Acquisitions
M&O	Management and Operations
MiA	Made in Africa
MIGA	Multilateral investment guarantee agency
MINAGRI	Ministry of Agriculture
MINECOFIN	Ministry of Finance and Economic Planning
MINICOM	Ministry of Trade and Industry
MININFRA	Ministry of Infrastructure
MINIRENA	Ministry of Environment
MoU	Memorandum of understanding
MW	Mega-watt
NBFI	Non-banking Financial Institution
NPV	Net present value
OPEX	Operating Expense
PEZ	Prime Economic Zones Ltd
PMC	Project Management Contracts
PPP	Public Private Partnership
PwC	PricewaterhouseCoopers
RDB	Rwanda Development Board
REER	Real Effective Exchange Rate
REG	Rwanda Energy Group
REIT	Real Estate Investment Trust
REMA	Rwanda Environment Management Authority
RoI	Rate of Interest
RRA	Rwanda Revenue Authority
RSE	Rwanda Stock Exchange
RTDA	Rwanda Transport Development Agency
RURA	Rwanda Utilities Regulatory Authority
RWF	Rwandan Franc
SEA	Strategic Environmental Assessment
SEZ	Special Economic Zones
SEZAR	Special Economic Zones Authority Rwanda
SIA	Social Impact Assessment
SITP	Scheme for Integrated Textile Parks
SOE	State owned enterprise
SPV	Special Purpose Vehicle
SWM	Solid waste management
TEDA	Tianjin Economic-Technological Development Area
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organisation
VfM	Value for Money
VSIP	Vietnam Singapore Industrial Park
WASAC	Water and Sanitation Corporation
WTP	Water treatment plant

Annex D. References

References are given throughout this report. The below list is non-exhaustive and includes hyperlinks to some of the most relevant literature.

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Annex E. Examples of national strategic programmes for industrial parks

National programme development

Kenya's new SEZ programme has been appropriately established at a 'strategic' level, rather than as an afterthought following the designation of sites. Indeed, although there are strong candidates (such as the Dongo Kundu site at Mombasa Port or the proposed Lapsset SEZ at Lamu), formal designation of any new SEZs is still pending, as each project will be subject to a uniform and rigorous administrative screening process. Some projects may fail to pass. For instance, it is unclear whether the **Konza Techno-City** will be able to secure sought-after SEZ designation. The City is located 80km outside of urban Nairobi, for reasons which are not economically clear.

Botswana, in preparing the launch of its recent SEZ programme is a good example of a country having prepared an SEZ strategy based in equal measures on an advance strategic understanding of its clusters, their geographies, and how sector-specific SEZ solutions might help in this context.[77] **Ethiopia's** IPDC is currently developing a revised national strategy for industrial parks, building on GTPII. Most Sub-Saharan African countries, in contrast, have not undertaken this.

In contrast, countries such as **Rwanda, Mozambique, Nigeria, Ghana, Mali** and the **DR Congo** have all, to a large extent, been more focused on getting specific state-promoted projects at specific sites up and running as quickly as possible. Strategic national economic or market contextualisation has been more limited. The **DR Congo**'s approach to SEZs, for instance, was based on aggregate national production and trade data, with less attention paid to regional and sub-regional differences, real estate market, connectivity issues, and so on.

Institutional alignment and capability

An example of a good, consensus-based strategy and policy-formulation process can however be found in the process having, from 2011 onward, led to **Kenya**'s new SEZ programme (developed by the Ministry of Trade, Industry and East African Affairs, in collaboration with the PM's Office, under a national '*harambe*' approach). **South Africa**'s new SEZ programme was similarly built on wide consultations, under a national '*indaba*' approach. There is emerging evidence of improving public sector capacity and knowledge in areas such as PPP transaction structuring, especially in **Kenya** and now also in **Ethiopia**, which in turn indicates growing awareness of private sector business models and investor requirements. In the case of the latter, this also denotes a marked increase in engagement with private sector models in recent months.

Defining the role of the public sector

Tanzania, **Lesotho** and **South Africa**'s aging and financially struggling industrial parks and the long delays in Zambia's Lusaka Multi-Facility Economic Zone getting up and running (now achieved) demonstrate the risks of the state attempting to act as a market participant. Because of the underlying challenges to the commercial viability of the parks, insufficient investment has been made in infrastructure renewal and expansion. By contrast, various countries, including **Kenya, Ethiopia, Madagascar** and **Nigeria**, to name a few, have in recent years begun to host private industrial parks. Private sector operators have strong incentives to run parks on commercially sustainable grounds.

Framing industrial parks as one tool among many

So far, few Sub-Saharan African countries have adopted a formal policy distinguishing between industrial parks, EPZs and SEZs, and their potential complementarities, although many countries have evolved a variety

[77] http://botswanatradeportal.com/kcfinder/upload/files/Botswana's%20SEZ%20Policy.pdf

of different programmes over time. In certain countries, such as the **DR Congo** and **Senegal**, this has led to confusion over the relative advantages of, as well as competition between, aging 'Free Ports' and new SEZ schemes. The EAC is similarly struggling to produce a regional community policy distinguishing between these different policy tools.

Annex F. Park development models

Fully private

Concept: Land is acquired through private purchase (albeit usually with some form of central or local government agreement or understanding). All physical infrastructure is developed by the private developer. Commonly, this developer may also be an anchor investor, looking to build a park around its own operational base. The park benefits from nationally determined incentives for special economic zones, such as tax exemptions, accelerated visa processes, and so on. Such models are beginning to develop across the continent.[78]

East African examples: Eastern Industrial Zone, Ethiopia; Vogue Industrial Park, Ethiopia

Role of Government: Approval of land transaction and proposed land use; approval of qualification as a special economic zone; preferential tax, customs or immigration services; social and environmental impact approvals; in some cases, provision of utilities into the park on a paid basis (e.g. electricity, water).

Role of the Private Sector: Land acquisition, development and operation, including sourcing of international investors to occupy the park. Private sector also benefits from all revenues and capital value appreciation of the site over time.

Opportunities for the Government: Opportunity to get desired outcome through very limited spending. Maximised efficiency and value for money through tapping into the private sector's procurement expertise. Limited burden on officials' time in central government.

Risks for the Government: Limited control over choice of sectors and over standards. Private sector actors may cause wider social impacts which Government is forced to mitigate – e.g. displacement; pressures on surrounding short-supply infrastructure such as housing and utilities.

Dependencies: Commercial attractiveness to private developers given very high upfront risks and likely high financing costs for the private sector.

[78] For example, Chinese company Jiangsu Yongyuan has privately developed **Ethiopia**'s first major and currently largest park, the Eastern Industrial Zone (EIZ). As of May 2018, EIZ has accumulated US$105M of capital investments in park development, most of it is in infrastructure. 4 sq km has been leased (none sold- Ethiopia does not permit the sale of land), attracting US$389M of investments from 83 tenants (into their respective plants), of which 75 are Chinese-funded. Cumulative production GDP is US$871M, including US$57M for the first 4 months of 2018. It is employing 15,885 workers, of which 14,771 are non-Chinese. Yongyuan put up its own capital for the development, and did it in phases. A second phase is now planned.

Co-operative

Concept: A local chamber of commerce or trade association comprising the occupants of the industrial park develops and/or operates the project, typically through a SPV of which all occupants are members/shareholders. Government may provide land and other basic infrastructure on a free or subsidised basis in order to improve the financial performance of on-site investors. The SPV may run its own park operations or simply outsource them to a management company.

East Africa examples: Cooperative industrial parks, which have been studied by MINICOM as a model for 'second city' industrial park development ***and*** operation in Rwanda, are largely an Indian phenomenon.[79]

Role of the Government: Designation of land as a special economic zone; approval of planning permissions; subsequent regulation. The Government (or local government) may also take a share in the co-operative SPV in order to maintain some level of oversight of its operation. Where the Government wishes to catalyse investment it can also choose to supply the basic site infrastructure at its own cost (but this requires public expenditure without financial return to the state).

Role of Private Sector (i.e. the co-operative SPV): Development of the site; subsequent operation including negotiation of sales and rentals, upkeep and upgrading of the site, expansion decisions, etc.

Opportunities for the Government: Limited upfront investment, as in a fully private model. Golden share arrangements (where Government holds a small percentage share but with special voting rights, such as veto powers) may also protect Government interests. Concession of the land to the co-operative on a lease basis may enable Government to recoup capital value appreciation of the site after e.g. 25 – 40 years. The co-operative ownership model cuts out one 'layer' of margin that would have been taken by a project developer/owner in a fully private model, thus reducing overall costs for investors into the park.

Risks for the Government: Lack of a specialist developer; organic development. Results have been mixed, owing to such risks as lack of contracting, construction and/or facilities management expertise. It would appear as though MINICOM has, at this time, moved away from promoting the model as the way forward for any Rwandan industrial parks, except in the case of the Kicukiro SME Park, where tenants have each bought their own plots, leaving space for publicly funded infrastructure to be put in place by MINICOM and the District Council (i.e. basic road, power, water, sewerage and fibre optic systems, greenspace and perimeter fencing).

Dependencies: Experienced tenants with good relationships; clear legal and regulatory environment to resolve disputes between tenants.

[79] In India, such parks include the ILSF industrial parks, SITP Integrated Textile Parks and APES Apparel Parks.

Developer concessionaire

Concept: Government divests designated land to a private sector developer. Typically, this is done following some initial public value addition (e.g. providing the park's basic onsite infrastructure such as earthworks and levelling, perimeter fencing and access gates, arterial roads, and utility grids). Divestiture can be under a long lease arrangement (e.g. 25 – 40 years) which enables public sector to recoup capital value appreciation of the land in the future. To align risk and reward between the Government and its developer partners, the PPP contracts may include provisions for the state to earn a percentage share of the private developers revenues. Asset-backed lease concessions are perhaps the most common form for contracting in private sector industrial park expertise from developers.[80]

East African examples: Ehoala Business Park, Madagascar; Liao Shen, Uganda; under consideration for Kibaha Textiles Park, Tanzania.[81]

Role of Government: Initial land acquisition (where not already owned by the state); basic site preparation; designation of the land as a special economic zone; public procurement of a private sector developer; negotiation of the PPP transaction; oversight of park development and subsequent regulation.

Role of Private Sector: Competitive tender for developer opportunity; purchase of the leasehold entitlement to the site. Development of the site and all subsequent operations. Distribution of state's share of the park's revenues (or simple lease payments back to the state). At end of lease, transfer of land back to the Government.

Opportunities for the Government: Opportunity to get desired outcome through reasonably limited spending on land; basic site preparation is only a fraction of total site development. May significantly reduce private sector risk by carrying out much of the upfront land preparation, thereby attracting private sector interest. Greater control of the project upfront enables state to specify the park's specialisation and tie it to wider national economic strategy.

Risks for the Government: Bid process may fail if the demand for the industrial park is not established, leaving public sector's upfront investment at risk. The later in the site development that the private sector is engaged, the higher the risk that no single entity has a full view of the total park lifecycle and therefore its value for money and financial feasibility. It also represents supply rather than demand driven infrastructure spending.[82]

Dependencies: Park viability and availability of developer bidders. Good track record of PPPs in the country which can give private investors confidence that the model is tried and tested.

[80] This model equates to the 'OOT' model in the September 2016 CRISIL report to MINICOM.
[81] A few further examples include the Punta Arenas Free Zone in Chile, the Dulal SEZ in Bangladesh, the Panama Pacifico Special Economic Area in Panama, the planned Ancón Industrial Park in Peru and the Ehoala Business Park in Madagascar.
[82] These models have for instance been used at the ICAD-1 in Abu Dhabi, Kaliakoir Hi-tech Park in Bangladesh, and as the basis for the Doha Airport Free Zone in Qatar (the latter project being currently under development).

Joint Development through a public-private SPV

Concept: Two or more Government and private actors form a Special Purpose Vehicle (SPV), with differing levels of equity participation. The SPV then undertakes the full project lifecycle (design, build, finance, operate). Through their joint shareholdings, public and private sectors' interests in the commercial success of the project are broadly aligned. The SPV may be obliged to transfer the park back to the Government at the end of a specified lease term (e.g. 25 – 40 years, but globally anywhere between 15 and 99 years), as in other models.

East African examples: Lekki Free Trade Zone, Nigeria. In Rwanda, PEZ was established as a public-private SPV to develop and operate the Kigali SEZ.[83]

Role of Government: Procurement of equity partner(s) for the SPV; standard zoning and permissions approvals; arms-length management of investment stake in the SPV; regulation, which should be carried out by a different authority to that which holds the investment.

Role of Private Sector (including the actual SPV): Competitive tender for the equity participation; transaction; development of the site; operations. Management of the SPV and distribution of profits. Ideally, the SPV be private sector led (i.e. private sector should generally hold a majority stake). The lead firms in the SPV should have the requisite construction and facilities management sector experience and should have a firm grasp of the overall commercial modelling.

Opportunities for the government: Potential investment upside, cost sharing, greater day-to-day control of outcomes, private sector efficiency and disciplines. JV-based SPVs are generally considered, amongst practitioners, to be the best model and the 'gold standard' for industrial park project financing and operations. They are the only model that Development Finance Institutions (DFIs), commercial, investment and merchant banks, as well as institutional investors and non-bank financial institutions (NBFIs) alike are interested in. This is because they are intrinsically geared toward risk hedging through debt syndication, equity, quasi-equity and mezzanine financing solutions. Because Government typically has access to a lower cost of capital, they may also reduce overall cost of financing. Government involvement may also justify provision of guarantees on the SPV's debt financing, further lowering cost of capital.

Risks to Government: Standard market risk of industrial park failure; procurement risk at the stage of selecting equity partner(s). Initial capex is high and the Government must also match further investments to retain its equity position. Government's position can however be reduced over time, and could even be gradually reduced down to a simple 'golden share' arrangement, whereby Government only retains veto powers over certain park decisions, or the power to insist on certain technical standards. The SPV model is legally most complex solution and numerous mistakes can be made in structuring such projects. There is also conflict of interest risk if the same authority acts as both regulator and equity participant in the SPV.

Dependencies: Park viability and availability of developer bidders. Good track record of PPPs in the country which can give private investors confidence that the model is tried and tested.

[83] Other examples of JV-based SPVs include the industrial parks promoted by Singapore's Surbana-Jurong Corporation since 2011 (including for instance the SPVs established for Kyaukphyu SEZ in Myanmar, and the China-Singapore Suzhou Industrial Park), the Iquique Free Zone in Chile, the Adama Industrial Park in Ethiopia and the new Sumitomo Economic Zone in Bangladesh.

Outsourced management under an operating contract

Concept: The park is publicly developed and ownership remains in the public sector, either through central or local government or through a state-owned enterprise.[84] Management of the park however is transferred to a private facilities management company. Under a full transfer, Government transfers all responsibility to a private operator, who finances its operations against annual land lease and concession fees, managing and retaining value from all rental and sale transactions within the park, for the period specified in the concession (typically 25 – 40 years). The operator may also be charged with managing occupancy of the park, and be rewarded accordingly in proportion to the revenues they are able to accrue. Under a less comprehensive model, the public sector simply contracts out day-to-day management of operations to a facilities management company, who collects and distributes revenues on behalf of the Government, charging a fixed management fee in return.

East Africa examples: Ethiopia-Hunan Adama, Ethiopia

Role of the Government: Appropriation and site development of land; designation as a special economic zone; development of the park and sourcing of initial investors; procurement of a park operator. Regulation of the park, preferably by a separate government agency to the one which holds the ownership of the park.

Role of the Private Sector: Operation of the park.

Opportunities for the Government: Scope to procure a quality operator and save on running costs. Full control of the park development. Financing costs may be lower due to Government's ability to obtain lower rates of interest from DFIs and commercial banks, compared to the private sector.

Risks for the Government: Potentially more costly (in particular if contractors are compensated through management fees, as opposed to through revenue or profit sharing arrangements).[85] State bears all upfront financing costs and capital risk, and it represents a supply- rather than demand-driven approach.

Dependencies: Public sector park development capability; procurement skills to negotiate appropriate management fees and risk-sharing contract model with the private operator.

[84] Such as the Industrial Parks Development Corporation in Ethiopia.
[85] Management contracts for industrial parks have been used, at one time or another, in Aqaba SEZ in Jordan, the Tomsk IT Zone in Russia, the Pshkov Manufacturing Zone in Russia, the RIICO/CSIO Agro Food Parks in Rajasthan, India, CFLD's and TechCode's Gu'an New Industry City and Business Incubator in China, the Honeywell and Integral UK Manchester University Incubator, the Parkserve Ltd. Management Contract for Discovery Park in the UK, and the GK Industrial Park (GKIP) in Tiruchirapalli (Trichy), in Tamil Nadu, India.

Public development followed by privatisation

Concept: The park is publicly developed and initially operated by the public sector (or by the private sector under an operations contract, as under the previous model). However, once viability is established and a reasonable portion of the park has been occupied, the Government divests its stake to a private park developer/owner. This can be done under a long lease agreement (e.g. 25 – 40 years) so that the Government benefits from capital value appreciation in the future.

East African examples: Under consideration for Bole Lemi II and Kilinto, Ethiopia. Could be an appropriate model for Kigali SEZ.[86]

Role of the Government: Appropriation and site development of land; designation as a special economic zone; development of the park and sourcing of initial investors. Regulation of the park, preferably by a separate government agency to the one which holds the ownership of the park. Negotiation of sale agreement with private developer/owner, once established.

Role of the Private Sector: Purchase of operating park from Government; future operation, maintenance and expansion. Transfer or re-purchase from Government at end of initial concession period.

Opportunities for the Government: Complete control on the development and scope to lower costs for investors and be deterministic about sectoral focus; ability to monetise the investment through sale once developed. May be a suitable model where Government wishes to focus on high impact, high risk parks, which the private sector would not develop at its own risk. Once the business model is proven, the asset can be sold, enabling the public body to move onto the next project. This is the model being followed by IPDC in Ethiopia.

Risks for the Government: High risk option in terms of upfront public capital deployed and the need to engage in day to day operations in the early stages. Biggest risk is at point of privatisation; having taken on much of the upfront risk, the Government may under-value its own stake and sell to the private sector at too low a value. Prior to sale, conflict of interest may arise where same Government entity is both owner and regulator.

Dependencies: Government agency with relevant project management skills; budget; privatisation skills.

[86] An example of industrial park divestiture or privatisation includes that of Promotora Industrial SLRC in Mexico in 1992, which had originally been established as a PPP in 1980. Another example is that of the Blue O'pen Consortium's redevelopment PPP for the previously public Blue Gate Antwerp industrial park, in the Netherlands.

Fully public

Concept: Public sector, usually through a state-owned enterprise, develops, finances and manages the park. Private sector is only involved for specific technical work, such as the EPC contract for the park build. Using public resources is most common approach to developing IPs across the region. Many African countries have opted for this model, in particular where there has been a lack of credible and interested private sector actors. In Ethiopia, for instance, the government set up the Industrial Park Development Corporation of Ethiopia (IPDC) in 2014 with a specific mandate to specialise in developing parks using public funds.

East African examples: Bole Lemi I and II, Ethiopia; Hawassa, Ethiopia; Athi River, Kenya; KIBP Kampala, Uganda; Diamniadaio, Senegal.[87]

Role of the Government: All roles are taken by Government.

Role of the Private Sector: Limited (except of course as tenants); construction firms may participate in the EPC contracts during the build phase.

Opportunities for the Government: Complete control on the development and scope to lower costs for investors and be deterministic about sectoral focus.

Risks for the Government: Most expensive option and the need to engage in day-to-day operations; lack of government expertise and experience in these areas; conflict of interest as operator and regulator; entirely supply-driven approach with limited testing of private sector demand for participation.

Dependencies: Government agency with relevant project management skills; budget; clear alignment with national economic strategy.

[87] Diamniadaio International Industrial Park in Senegal is the first and only real industrial park in the country, and a key pillar of country's National Development Plan. Again, it was mainly driven by the public sector. Phase I is 15 hectares, located near a harbour, new airport and highway. Its development contract was around $46m. Park location selection, industrial positioning, land procurement, and investments are done by the Senegalese government. CGCOC won the EPC contract to build and develop the park. The Senegalese government is responsible for operations, with assistance from CGCOC.

Annex G. Sources of capital – stock exchanges

Rwanda Stock Exchange (RSE): Incorporated in 2005, RSE officially opened in 2011. As of date RSE trades in the shares of 8 companies: 5 local and 3 cross listings from Kenya, apart from 3 govt. instruments. RSE operates in close coordination with Nairobi Stock Exchange in Kenya, Dar-e-Salaam Stock Exchange in Tanzania and the Ugandan Securities Exchange in Uganda.

Figure 33. Listings on the Rwanda Stock Exchange

Listings in RSE, July 2018	
Bank of Kigali	BK
Bralirwa	BRL
Crystal Telecom	CTL
Equity Group	EQTY
I & M Bank Rwanda	IMR
KCB Group	KCB
Nation Media Group	NMG
Uchumi SuperMarkets	UCHM

Uganda Securities Exchange: Started in 1997, USE reports to the Bank of Uganda. At present, 17 local and East African companies are listed on USE. In 2010, USE was the best performing stock exchange in East Africa. British American Tobacco Uganda (BATU) and Bank of Baroda were among the first IPOs in USE around the year 2000[88]. Since then, USE has witnessed only two major IPOs, of Umeme Limited, a power distribution company holding a 20 year old electricity concession in Uganda (November 2012, $69m), and India-based CIPLA, a pharmaceuticals company (September 2018, $34m).[89] Umeme also ran a Follow-On offering in 2014 which raised $96m.[90] In late 2016, there was an IPO held in Uganda Securities Exchange itself, which raised $32m..

Nairobi Stock Exchange (NSE): Started in 1954, NSE is the oldest and largest stock exchange in East Africa. In 2014, it became the second African exchange after Johannesburg Stock Exchange to become self-listed. There are about 70 companies listed in the NSE: Stanlib Fahari is the only Real Estate Investment Firm and there are nine manufacturing & allied firms. In addition there are a few holding companies which have real estate interest. In the last 4 years, NSE has raised $ 318 million through IPOs and FOs, as described in table below:

[88] Uganda Securities Exchange Historical Data https://www.use.or.ug/listed/batu
[89] Reuters Oct 12, 2012 https://www.reuters.com/article/uganda-umeme-ipo/update-1-uganda-power-firm-umeme-prices-ipo-at-275-shillings-per-share-idUSL5E8LCF5V20121012
[90] East African, Jan 23, 2016 http://www.theeastafrican.co.ke/business/IPOs-in-2016-could-boost-turnover-on-USE/2560-3046142-g2ucgg/index.html

Figure 34. IPOs and FOs in Nairobi Stock Exchange from 2013 to 2017[91]

Year	No. of IPOs	Capital Raised (Million $)	No. of FOs	Capital Raised (Million $)
2013	0		0	0
2014	1	7	2	46
2015	1	35	0	0
2016	0		3	272
2017	0	0	0	0
Total	**2**	**42**	**5**	**318**

Ethiopia Commodity Exchange (ECX): Ethiopia is one among 40 nations worldwide to not have a stock exchange. However, it has an active commodities exchanges started by a group of dedicated local experts. ECX trades majorly in coffee, sesame, haricot seeds, maize and wheat. It has warehouses in 7 major Ethiopian cities and settlements are carried out by 6 banks.

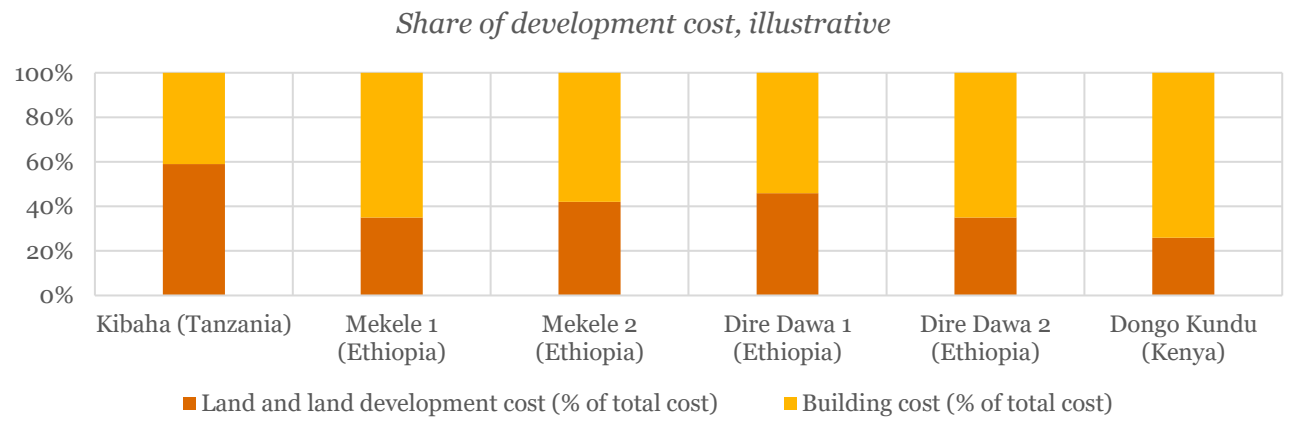
East African Capital Market Integration: Burundi, Rwanda, Uganda and Tanzania are part of an East African Capital Markets Integration (CMI) project, wherein the trading platforms of these four countries would be linked so they would run as a single market in real time. This would drastically reduce the time taken for trading in cross-listed shares from over 30 days to within just 3 days.[92] Kenya recently opted out of this, citing reasons of poor infrastructure.

[91] PwC; 2017 Africa Capital Markets Watch.
[92] East African, Jan 15, 2018 'Why Kenya opted out of EAC project to link stock markets' http://www.theeastafrican.co.ke/business/Why-Kenya-opted-out-of-EAC-project-to-link-stock-markets-/2560-4264080-nx9qttz/index.html

Annex H. Unit cost of build and operations

Available data from across a selection of IPs in the region suggests that land and land development cost (which includes cost of development of roads and utilities – water, electricity, sewage, ETP and ICT infrastructure etc.) represents a significant share of the overall project development cost.

Figure 35: Share of development cost, illustrative



Source: PwC research; based on available literature

The majority of operational costs of industrial parks for developers are passed on through revenues derived from user charges – see table below for the indicative costs of operations of a typical industrial parks in Ethiopia, Kenya and Rwanda. A park with good occupancy levels is generally therefore able to recover its operational expenses; 70% is a typical 'rule of thumb' for these purposes. In some parks in the African region, such as Kigali SEZ Phase 1 and KIBP in Kampala, such a revenue recourse may however not exist, due to the nature of project financial structuring and in Ethiopia the IPDC has not yet set up a proper operational charging structure, in particular for zero liquid discharge facilities or groundwater charges for boreholes in private parks. Soon, there may be need to undertake major repairs and maintenance in these parks; lack of a corpus would force the park operator to either divert income from other assets or seek budgetary support from the Government.

Figure 36. Unit costs of operations in industrial parks; illustrative only

All amounts in USD per ha per annum

	Ethiopia	Kenya	Rwanda
Manpower	1,727	3,203	496
Insurance	274	329	198
Power and Water	33	3,137	53
Repairs and Maintenance	5,480	329	2,322
Communication	34	320	132
Total	**7,547**	**7,318**	**3,201**

For future industrial parks, as a good practice, maintenance fee provisions should be instituted at the point of sale or lease, so that the park facilities can be operated and maintained adequately.

Annex I. Common industrial park standards

Several frameworks have been developed to guide park developers and tenants on the requisite standards to attract international buyers. These are discussed below and include:

- Arup's fire, health and safety standards for garment factory sheds
- UNIDO's Eco-Industrial Parks implementation handbook
- The World Bank Group's International Framework for Eco-Industrial Parks
- China's Eco-Industrial Parks Performance Standards

Arup

Arup, the international engineering firm, has developed **fire, health and safety standards for garment factory sheds.** These have been used in Ethiopia and meet both Ethiopian Building Codes as well as international standards of building structural, fire and electrical safety. It is recommended that similar international best practices in design specifications be adopted across various park industries in Africa.

UNIDO

UNIDO has developed an Eco-Industrial Parks (EIP) implementation handbook,[93] which offers step-by-step practical guidance for key stakeholders (policy makers, developers, operators, utility providers, financing agencies, potential occupiers etc.) on the following key aspects of industrial park planning, implementation and management:

- *Scoping EIP interventions* - to identify and prioritize EIP activities which are most suitable and most effective for stakeholder groups to work on.
- *Awareness raising* - among key stakeholder groups in private and public sectors of the benefits and added value of EIPs and associated implementation processes.
- *Policy support* – to translate the EIP concept and associated practices into national policies and government decision-making processes.
- *Park management structures* - to take care of a range of topics required to develop and operate an industrial park sustainably, to attract investments and to provide attractive working conditions.
- *Technical support* - to enable upscaling resource efficiency and industrial synergies in EIPs
- *Performance monitoring and benchmarking* - to track progress of EIPs against set objectives and thus demonstrate environmental, economic and social outcomes in an efficient, transparent and accountable manner.

World Bank

The **World Bank Group's International framework for Eco-Industrial Parks** is an internationally accepted approach to promote sustainable and climate compatible development of industrial parks and could be piloted in the African context. The framework clearly outlines prerequisites as well as performance standards required for an IP to be classified as an EIP. Again, high environmental standards are likely to improve the attractiveness of the park to potential tenants.

[93] Source: https://bit.ly/2Kh6NQY

These prerequisites and requirements are classified under the framework across the following categories: park management performance; environmental performance; social performance; and economic performance. The following table captures some of the key performance indicators and indicative targets across these four categories:[94]

[94] Detailed list of prerequisites, performance indicators, descriptions and targets can be found here: https://openknowledge.worldbank.org/handle/10986/29110

Figure 37. World Bank Int'l framework for Eco-industrial Parks – performance standards

Category	*Performance indicator*	*Unit [Target value]*
Park Management	Proportion of firms in the industrial park to have signed a residency contract/park charter/code of conduct (depending on what is legally binding on park firms according to the existing legislation in the country1); and additional legally binding arrangements that empower the park management entity to perform its responsibilities and tasks and charge fees (sometimes absorbed in rental fees) for common services. This may include transparent fees for services pertaining to the achievement of EIP performance targets.	Percentage of firms [**100%]**
Park Management	The resident firms indicate satisfaction with regard to the provision of services and common infrastructure by the park management's entity (or alternative agency, where applicable).	Percentage of firms [**75%]**
Park Management	Park management entity regularly monitors and prepares consolidated reports regarding the achievement of target values as documented in this framework) to encompass the following: • Environmental performance; • Social performance; • Economic performance; and • Critical risk management at the level of the park.	Frequency of reports [**Every 6 months]**
Environmental Performance	**Environmental/Energy Management Systems (EMS and EnMS, respectively)**: Proportion of resident firms, with more than 250 employees, which have an environmental/energy management system in place that is in line with internationally certified standards.	Percentage of firms **[40%]**
Environmental Performance	**Energy consumption**: Proportion of combined park facilities and firm-level energy consumption, for which metering and monitoring systems are in place.	Percentage of combined park & firm level energy consumption **[90%]**
Environmental Performance	**Renewable and clean energy**: Total renewable energy use in the industrial park is equal to or greater than the annual national average energy mix.	Percentage of renewable energy use in park relative to national average % **[≥ national average]**
Environmental Performance	**Renewable and clean energy**: Park management entity sets and works toward ambitious (beyond industry norms) maximum carbon intensity targets (maximum kilograms of carbon dioxide equivalent (kg CO2e) / kilowatt hour (kWh) for the park and its residents. Targets should be established for the short, medium, and long term.	kg CO2e/kWh [**in line with local norms and industry sector benchmarks]**
Environmental Performance	**Energy efficiency**: Park management entity sets and works toward ambitious maximum energy intensity targets per production unit (kWh/$ turnover) for the park and its residents. Targets should be established for the short, medium, and long term.	kWh/$ turnover [**in line with local norms and industry sector benchmarks]**
Environmental Performance	**Water consumption**: Total water demand from firms in industrial park which do not have significant negative impacts on local water sources or local communities.	Percentage of water demand **[100%]**
Environmental Performance	**Water treatment**: Proportion of industrial wastewater generated by industrial park and resident firms, which is treated to appropriate environmental standards.	Percentage of waste water treated/total waste water **[95%]**
Environmental Performance	**Water efficiency, reuse and recycling**: Proportion of total industrial wastewater from firms in the park are reused responsibly within or outside the industrial park.	Percentage of water reused/total water consumed **[50%]**
Environmental Performance	**Waste and material use**: Proportion of solid waste generated by firms, which is reused by other firms, neighbouring communities, or municipalities.	Percentage of solid waste reused/total waste **[20%]**
Environmental Performance	**Dangerous and toxic materials:** Proportion of firms in park, which appropriately handle, store, transport and dispose of toxic and hazardous materials.	Percentage of firms **[100%]**
Environmental Performance	**Waste disposal**: Maximum proportion of wastes generated by firms in the industrial park which go to landfills.	Percentage of waste to landfill **[< 50%]**
Environmental Performance	**Flora and fauna**: Minimum proportion of open space in the park used for native flora and fauna.	Percentage of open space **[5%]**

Environmental Performance	**Air, GHG emissions and pollution prevention:** Proportion of firms in park which have pollution prevention and emission reduction strategies to reduce the intensity and mass flow of pollution/emission release beyond national regulations.	Percentage of firms **[50%]**
Environmental Performance	**Air, GHG emissions and pollution prevention**: Proportion of largest polluters in industrial park which have a risk management framework in place that: (a) identifies the aspects which have an impact on the environment and; (b) assign a level of significance to each environmental aspect.	Percentage of largest emitters **[30%]**
Social Performance	**OH&S management system**: Percentage of all firms in the industrial park with more than 250 employees that have a well-functioning OH&S management system in place.	Percentage of firms **[75%]**
Social Performance	**Grievance management**: Percentage of grievances received by the park management entity which are addressed within 90 days.	Percentage of grievances **[100 %]**
Social Performance	**Grievance management**: Percentage of grievances received by the park management entity, which were brought to conclusion.	Percentage of grievances **(60%)**
Social Performance	**Grievance management**: Percentage of all firms in the industrial park with more than 250 employees that have a code of conduct system in place to deal with grievances.	Percentage of firms **[75%]**
Social Performance	**Harassment response**: Percentage of all firms in the industrial park with more than 250 employees that have a harassment prevention and response system in place.	Percentage of firms **[75%]**
Social Performance	**Primary social infrastructure**: Percentage of the surveyed employees' reporting satisfaction with social infrastructure.	Percentage of surveyed employees **[80%]**
Social Performance	**Industrial park security**: Percentage of reported security and safety issues that are adequately addressed within 30 days.	Percentage of reported security and safety issues **[100%]**
Social Performance	**Capacity building**: Percentage of all firms in the industrial park with more than 250 employees with a program for skills/vocational training and development.	Percentage of firms **[75%]**
Social Performance	**Capacity building**: Percentage of female workforce who benefit from available supporting infrastructure/programs for skills development.	Percentage of female workforce **[≥20%]**
Social Performance	**Community dialogue:** Over 80 percent of the surveyed community members are satisfied with the community dialogue.	Percentage of surveyed community members **[80%]**
Social Performance	**Community outreach:** Number of outreach activities implemented by the park management entity annually that are regarded as positive by over 80 percent of the surveyed community members.	Number of outreach activities per year **[2]**
Economic Performance	**Local employment generation**: Percentage of total workers employed in industrial park who live within daily commuting distance.	Percentage of employees **[60%]**
Economic Performance	**Type of employment**: Percentage of total firm workers in industrial park employed through direct employment (that is, not employed on a fee-for-output basis or provided through a labor supply firm) and permanent contracts.	Percentage of employees **[25%]**
Economic Performance	**Local value added**: Percentage of resident firms using local suppliers or service providers for at least 80 percent of their total procurement value.	Percentage of firms **[25%]**
Economic Performance	**Local value added**: Percentage of total procurement value of park management entity supplied by local firms or service providers.	Percentage of total procurement value of park management entity **[90%]**
Economic Performance	**Investment-ready park for firms**: The ratio of rented or used space by resident firms compared to the total amount of available space earmarked for resident firms within IPs.	Average percent occupancy rate over 5 years **[50%]**

China Eco-Industrial Standards

Finally, **China has embarked on a systematic eco-industrial parks development programme** wherein both specialised ('sector-specific') as well as diversified ('sector integrated') industrial parks are considered for EIP certification. Specified standards[95] for these EIPs are listed below:

Figure 38. International (Chinese) eco-industrial parks performance standards

Category	*Ref*	*Metric*	*Unit*	*Value (Target)*
Economic Development	1.1	IAV per capita	104 RMB/P	≥ 15
Material reduction and recycling	2.1	IAV per industrial land occupancy	100 million RMB/km2	≥ 9
	2.2	Energy consumption per IAV	tce/10000 RMB	≤ 0.5
	2.3	Coefficient of elasticity on energy consumption	-	< 0.6
	2.4	Fresh water consumption per IAV	m3/10000 RMB	≤ 9
	2.5	Coefficient of elasticity on fresh water consumption	-	< 0.55
	2.6	Industrial wastewater generation per IAV	ton/10000 RMB	≤ 8
	2.7	Solid waste generation per IAV	ton/10000 RMB	≤ 0.1
	2.8	Industrial water reuse ratio	%	≥ 75
	2.9	Solid waste reuse ratio	%	≥ 85
Pollution control	3.1	Chemical Oxygen Demand (COD) emission per IAV	kg/10000 RMB	≤ 1
	3.2	Coefficient of elasticity on COD emission	-	< 0.3
	3.3	Sulphur dioxide (SO2) emission per IAV	kg/10000 RMB	≤ 1
	3.4	Coefficient of elasticity on SO2 emission	-	< 0.2
	3.5	Disposal rate of hazard solid waste	%	100
	3.6	Centrally provided treatment rate of domestic wastewater	%	≥ 85
	3.7	Safe treatment rate of domestic rubbish	%	100
	3.8	Waste collection and disposal system	-	Available
Management and administration	4.0	Extent of establishment of information platform	-	Established
	4.1	Extent of establishment of eco-industrial information platform	%	100
	4.2	Environmental report release per year	issue/ yr.	1
	4.3	Implementation of cleaner production audit in heavy pollution enterprises	%	100
	4.4	Extent of public satisfaction with local environmental quality	%	≥ 90
	4.5	Extent of public awareness degree with eco-industrial development	%	≥ 90

[95] Standard HJ 274-2009; revised in 2012

Annex J. Fact sheets

Bole Lemi I & II, Ethiopia

Industrial Park Specifications

Summary	
Industrial park name	Bole Lemi Industrial Park
Location	South eastern Addis Ababa
Size	Phase 1: 156 ha; Phase 2: 186 ha
Sector specialism	Apparel; leather
State of development	Phase 1 complete; Phase 2 in development
Developer	IPDC
Average plot size	11,000 m2

Bole Lemi is an Export Processing Zone situated 4km from the centre of Addis Ababa. Bole Lemi Phase 1 consists of 156ha and started operations in 2014. Bole Lemi Phase II is currently being developed with an area of 186ha. Bole Lemi is located near the ring road in Addis Ababa which entails easy access to the city and 863km from Port Djibouti.

IPDC is the owner and master developer of the park. Bole Lemi I employs 10,000 workers in the apparel, and leather product sectors. Phase II is planned to focus on apparel and leather products also. The two phases will share infrastructure and common administrative facilities. Phase I was built using local contractors which proved highly problematic in terms of quality. Phase II is planned to have 10 sheds of size 550m2 to meet demands from SMEs and 10 sheds of size 11,000m2. The total manufacturing area will constitute 66.6% of the entire project site, with 14.8% planned green area, 2.5% logistics and warehousing and 1.3% for services. Phase II is developed by the Chinese CGCOC Group. It is constructing serviced land as well as 3 demonstration sheds and administrative buildings, with the rest to be built by prospective tenants or investors. Phase II will be completed in December 2018.

Water in the park will be provided by Addis Ababa Water and Sewerage Authority and additional 4 boreholes will supply water. Power is provided from the main substation nearby which is funded by the Government of Ethiopia. Phase 2 has a planned waste water treatment plant.

Financing

Bole Lemi is a fully public park. The total cost of phase II is $158m USD which is funded by a World Bank loan to the Government of Ethiopia at a concessional rate of 0.75%. The contract to CGCOC was awarded through open and competitive international tender under World Bank procurement rules which took 2 years to finalise. The cost for one 11,000 m2 shed is USD c. 2.4million (67m Ethiopian birr). Tenants under Phase I were charged $1 per square metre per month, for phase II it is planned that this amount will be $3.31 per square metre per month.

Financing summary	
Funding model	Public – concessionary lending
Key funders	World Bank
Planned capital cost	$158m USD
Operational costs	Unknown
Ongoing revenue model	Leasing model

Bugesera Industrial Park

Industrial Park Specifications

Summary	
Industrial park name	Bugesera Industrial Park
Location	45km south of Kigali
Size	330ha (3 phases)
Sector specialism	Agro-processing
State of development	In development
Developer	MINICOM
Average plot size	0.06 ha to 8ha

The Bugesera Industrial Park is located in Bugesera district is located in the Eastern Province of Rwanda and borders with the City of Kigali the Capital City of Rwanda. The industrial park is located is located within half an hour drive from Kigali City Centre and also half an hour drive from the new international airport being constructed in the district. It is in close proximity to the regional market of Burundi. Potential target industries include agro-processing, various crops, construction materials, mineral processing and others.

The industrial park is planned in 3 phases, with a total of 330ha (100ha in phase 1). The planned number of large- scale industrial plots is 59 (50% of land use), medium scale industry plots 26 (4% of land use) and small-scale industrial plots 240ha (5% of land use). 60% of land in the industrial park will be industrial, 2% residential, 32% for amenities and 6% for offices and administration. The large scale industries will be located on the peripheries of the site and served by a ring road.

Financing

It is planned that the private sector will own 70% with equity participation by government of 30% and will be represented on the IP board. However this may have changed based on press announcements which refer to an Exim bank loan to the Government for the park or part thereof. The Bugesera Industrial Park will be developed and managed by a private sector enterprise – NDP COTRACTO Ltd and Real Contractors Ltd. This was awarded by competitive tender.

In the business plan, the funding model had not yet been decided. When owned and operated by Government, the price for land can be set at 100% of the cost price, which is 8,077 RWFs per m2 (about 13 US$).The price for land in the park can be set for a 100 years lease basis (similar to the Kigali SEZ). An alternative can be based on a yearly rent, which then should have an NPV over the 100 years period equal to the purchase price. If park was privately owned, the price of the land would be 22,584 RWF. It is not clear if the development cost includes sheds.

The estimated payback period is between 24-36 years with 23 years to fill the park in the medium scenario. In medium scenario there is an 11% IRR.

Financing summary	
Funding model	Public – concessionary lending
Key funders	World Bank
Planned capital cost	$158m USD
Operational costs	Unknown
Ongoing revenue model	Leasing model

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Hawassa, Ethiopia

Industrial Park Specifications

Summary	
Industrial park name	Hawassa Industrial Park
Location	Hawassa, 275km from Addis
Size	300ha
Sector specialism	Textile and apparel
State of development	Phase I operational
Developer	IPDC
Average plot size	Unknown

Hawassa Industrial Park is a government flagship industrial park, located 275km South of Addis Ababa. Djibouti port is located 965km away and plans are in place to extend the railway network to Hawassa, although financing has not yet been secured for this. There is an airport located in Hawassa. The park is managed by the Ethiopian Industrial Park Development Corporation (IPDC).

Hawassa became operational in 2017 and accommodates manufacturers in the textile and apparel industries, including fabric mill, garment and accessory manufacturers. It is a 300ha park designated as an eco-park and has effluent and sewerage treatment plants on site. During Phase 1, 100ha of pre-erected factory sheds were constructed which house 18 textile and apparel firms. The construction occurred in only 9 months. Once fully operational, the park will provide 60,000 jobs. Lack of affordable, good standard worker accommodation is a problem.

The Chinese construction company CCECC (China Civil Engineering Construction Corporation) were contracted to design, build and operate the park, including 52 factory sheds, a one stop services centre, shopping mall, custom office, residence and dormitories. The industrial park also houses a power transformer substation, road and water supplies which have been government provided and a state of the art zero liquid discharge system (important for the onsite mill). The land is owned and provided by the government.

Financing

The capital expenditure required for building Hawassa was $296 million USD. This was financed by the government of Ethiopia through earmarked funds from a sovereign debt issue of $1bn in Eurobonds.

Tenants in Hawassa pay a tenure fee of $2 per square metre in the first 5 years, then $2.5/sqm for years 5-7, and subsequently $3/sqm. Fees for zero liquid discharge facility are not yet finalised.

Financing summary	
Funding model	Public park – Eurobonds
Key funders	Government of Ethiopia
Planned capital cost	$296 million USD
Operational costs	Unknown
Ongoing revenue model	Leasing

Infinity Industrial Park, Kenya

Industrial Park Specifications

Summary	
Industrial park name	Infinity Industrial Park
Location	Nairobi
Size	200 acres
Sector specialism	Logistics, SMEs
State of development	Under development
Developer	Abacus Group
Average plot size	1-5 acres

The Infinity Industrial Park is a privately developed park, located off the Easter Bypass road in Nairobi. It is in close proximity to the Jomo Kenyatta International Airport and has good transport links to the Thika superhighway. The park is being developed by a private developer, Abacus Group which has strong links to India.

51 % of land is allocated to industrial plots, 25% for roads, utilities and infrastructure, 11% for SME sheds and the rest for retail and other amenities. The park is already overbooked and it is estimated it will create 15,000 jobs.

The development of Infinity Industrial Park will occur in two phases: Phase 1 entails the development of 50 acres for infrastructure and amenities and 125 acres of land for industrial plots and industrial sheds. 200 industrial sheds for SME blocks will be located on 22 acres of land, expected to host 800-1,000 SMEs and 103 acres of land will be reserved for 1-5 acre industrial plots. The completion of phase 1 is expected in March 2019. Phase 2 entails the development of 20 acres of commercial space and wholesale market.

All plots in the park will have power supplied from the local power station, water, security and data connections. There is 24 h security patrol on site, designated waste management treatment plants as well as a hospital and fire station. The government has financed a 2km road from the main road to the site.

Financing

The total capital cost of the park is at $100m USD. The land cost is 81,151 USD per acre and construction costs are at $2,500 per m2. The cost of power in the park is 19m Kshs (190k USD).

The private developer has financed the $27m USD cost to date from private resources. Due to difficulty of obtaining commercial loans or Chinese financing, an impact fund venture is under discussion to obtain an 85% equity stake and compensate all previously incurred costs. The remaining 15% will be debt financing.

Industrial sheds will be sold or leased on a long-term basis to industries, manufacturing plants and distributors. Land rate and service charges will be collected annually from plot owners and tenants.

Financing summary	
Funding model	Equity and debt finance
Key funders	Abacus Group; Impact Fund Venture
Planned capital cost	$100 m USD
Operational costs	Unknown
Ongoing revenue model	Lease or sale of plots

Kampala Industrial & Business Park, Ug.

Industrial Park Specifications

Summary	
Industrial park name	Kampala Industrial and Business Park
Location	15km East of Kampala
Size	890 ha (2,200 acres)
Sector specialism	Agro-processing; light, mixed and heavy industry
State of development	Operational
Developer	300 investors
Average plot size	Kampala Industrial and Business Park

The Kampala Industrial and Business Park (KIBP) is the largest planned industrial park in Uganda. It is located 15km east of Kampala on the Kampala-Jinja Highway. The Uganda to Mombasa railway line runs through the park with a station designated in the park. KIBP was created in 1997 through government legislation and is owned and managed by the Ugandan Investment Authority. The park is currently operational and is divided into 4 zones: agro-processing, light industry, mixed and heavy industry. 21 businesses are currently in operation within the KIBP, directly employing 11,000 Ugandans. Sub sectors in the park include agro-processing, mineral processing, ICT, logistic, warehousing and tourism promotion activities. Industries located in the park include a cement plant, a coffee processor, a seed company, a bottling company and steel manufacturing. Approximately 70 more companies have commenced physical construction (they build their own sheds/units) creating an additional 17,000 indirect short term contract/technical jobs. 139 projects are still processing their paperwork including environmental impact assessments (EIAs), architectural designs, land titling, geotechnical and hydrological studies. The land is swampy which makes construction costs high.

The Ugandan government owns all the land in the KIBP and is funding road construction although this has been dramatically delayed.. The national sewage and water companies have provided a 9km line of water which is covering 10% of the park. A power of line of 33KV covering 12% of the park has been extended for companies

Financing

The total capital cost of the park is at $100m USD. The land cost is 81,151 USD per acre and construction costs are at $2,500 per m2. The cost of power in the park is 19m Kshs (190k USD).

The private developer has financed the $27m USD cost to date from private resources. Due to difficulty of obtaining commercial loans or Chinese financing, an impact fund venture is under discussion to obtain an 85% equity stake and compensate all previously incurred costs. The remaining 15% will be debt financing.

Industrial sheds will be sold or leased on a long-term basis to industries, manufacturing plants and distributors. Land rate and service charges will be collected annually from plot owners and tenants.

Financing summary	
Funding model	Government funded
Key funders	Ugandan government
Planned capital cost	USD 185 million
Operational costs	Unknown
Ongoing revenue model	Rent and maintenance fees

Kigali SEZ, Rwanda

Industrial Park Specifications

Summary	
Industrial park name	Kigali, Rwanda
Location	Phase 1 - 98ha; Phase 2 - 300ha
Size	10 sectors – largest base metals (31%)
Sector specialism	Phase I complete, Phase II in progress
State of development	Prime Economic Zone
Developer	Range in size from >1ha to 12ha
Average plot size	Kigali, Rwanda

The Kigali Special Economic Zone (KSEZ) became operational in 2013. Prime Economic Zones Co. Ltd is the owner, developer and operator of the KSEZ since 2011. The government has handed over to PEZ to manage the plots to be leased out to industrialists. PEZ conducts lease agreements and collects lease fees. Once land payments have been completed, rights in land and any buildings will be transferred to beneficiaries.

The KSEZ is located 4km from Kigali international airport, with planned future access to the highway and the Northern development corridor. Land cost has been an issue as it has increased since 2013. Not all relocation to the IP has been voluntary, as zoning regulations had also prevented some firms from operating outside the KSEZ. The park has been phased into 3 Phases, with Phase I complete and 75% of plots reserved in Phase 2 (50% purchased).

There are broadly four types of firms in the IP: manufacturing firms, warehouses, construction, software and support services. KSEZ has diversified in terms of sectors and products over time, in 2013 foodstuffs accounted for 75% of exports, whilst in 2016 over 10 different types of products have been exported. Foreign firms make up 66% of total (mainly India, China and Tanzania) with 34% of firms domestic. It is projected the IP has already created over 3,000 jobs.

Financing

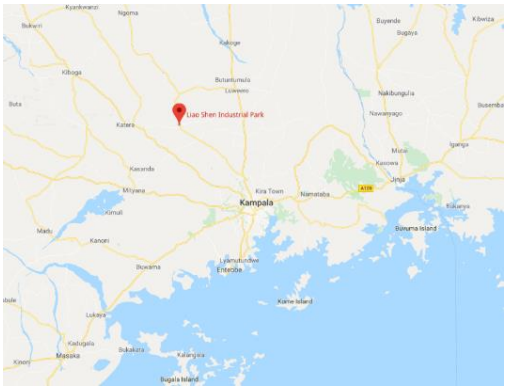
In 2011, PEZ mobilized USD$ 45 million in equity from the Government of Rwanda and selected private investors to develop Phase 1 (98 hectares), including the site's infrastructure, access and internal roads, water, electricity, fibre-optics and sewage systems. Phase 2 has raised USD $30 million from loans at domestic financial institutions. The funding model has been based on sales. Plots were sold to investors at a subsidized rate, with a down payment of 30% with grace period of two years after which they then pay the balance or pay in instalments for 5 years with 10% interest rates. Plots were allocated based on purchase of land at the price of RwF 20,000 (USD$24) per m² in Phase 1 and RwF 43,000 (USD$51) per m² in Phase 2. All plots in phase 1 were filled within 5 years. 90% of Phase 2 is booked.

Service charges were not being collected from tenants, although PEZ is now looking into charging a maintenance fee for tenants. Water and electricity is paid directly by the tenants.

Financing summary	
Funding model	Government grants (62%); rest mainly debt financing
Key funders	Government, private investors, domestic financial institutions
Planned capital cost	USD 3.71m
Operational costs	Unknown
Ongoing revenue model	Sale of plots

Liao Shen Industrial Park

Industrial Park Specifications



Summary	
Industrial park name	Liao Shen Industrial Park
Location	55km North of Kampala
Size	5 square miles (Phase 1: 2.6sq miles)
Sector specialism	Ceramics, electronics, agro-processing, mineral processing
State of development	In development
Developer	50
Average plot size	20,000 square metres

The Liao Shen Industrial Park is located in Central Uganda, 55km from Kampala. The Liaoning Provincial Government in China has been actively promoting industrial park development. As a result the Uganda Zhang Group and Liaoning Zhong Da Group decided to invest jointly in developing and operating the Liao Shen industrial park. The park is privately owned by the Zhang Group and Zhong Da Group. It is designated as an industrial park and is currently not designated as an export processing zone (as that would mean 80% of produce going outside the EAC which would be hard to achieve).

The park is run under government guidance from Uganda and China with conceptual planning of the park having been undertaken by the China Northeast Architectural Design and Research institute. The park is being constructed in two phases: phase 1 is 2.6 square miles. Construction began in 2015 with 1 square kilometer of the park will be completed by the end of 2018. Development has not yet commenced on phase 2. A 132 KV transmission station is being built for the park with government financing and a telecommunications network and sewage plant are under development. All factories will be connected to water and the national water utility is being engaged to obtain industrial water; sewage plant in development with help of Financing from Ministry of Finance.

4 factories are already operational with 3 at advanced stage of construction. Current tenants include the Chinese Ho & Mu Food Technology (mango and pineapple preserving), Goodwill Ceramic Uganda (ceramic tiles company), Yahe international investment co (maize milling company), Hisense assembly (under construction), Dragon and Phoenix Electronic Development Co (Chinese owned copper cabling and components – under construction completion) and a candy company also about to commence contruction. It is estimated the park will create 16,000 jobs upon completion.

Financing

The park is privately financed by the Chinese developers with some support from the Ugandan government in financing utilities provision. The cost of land paid by the developers was 150,000 USD per acre of land and a one time payment was made for 49 year lease.

The minimum investment required for tenants is USD 10 million or 10 acres of land.

Financing summary	
Funding model	Private park with government support
Key funders	Zhang Group & Zhong Da Group
Planned capital cost	USD 600m
Operational costs	Unknown
Ongoing revenue model	Leasing model

Rwamagana, Rwanda

Industrial Park Specifications

Summary	
Industrial park name	Rwamagana Industrial Park
Location	55km east of Kigali
Size	80ha
Sector specialism	Agro-processing
State of development	In development
Developer	MINICOM
Average plot size	0.5ha (small scale) – 1.5 ha (large scale)

The Rwamagana Industrial Park is being developed in the Eastern province, District of Rwamagana, 55km from Kigali opposite the Kigali-Kayonza highway, giving it a strategic position with easy access local and EAC markets compared to other rural industrial parks. There are no rail connections directly from the industrial park.

The park is being planned in a phased approach. The park is planned at 80ha, with 50ha for tenant occupation. Of this, 20ha of the 80ha is for medium scale industries, 17 ha for small scale industries and 10ha for large scale industry. 64% of the industrial park land is for industrial use, 31% for amenities and 5% for offices and administration. Most of the reported pre-booked tenants are local agriprocessing firms.

There is high potential for the agro-processing industry at Rwamangana, due to the agricultural focus of the region. Target industries include maize, milk, meat, leather, banana, beans, minerals processing, ICT, packaging, paper. The main crops for agroprocessing include maize, vegetable, bananas, fruits, rice, tourism and mining. Labour costs are high in the short term due to the limited number of specialised and skilled labour.

Financing

A PPP funding model has been explored, where the government funds 90% of the cost through international MDB or donor loans, with private sector funding 10%. The procurement process for the construction and management of the industrial park will be awarded under a competitive tender. In August, however, there was press reference to a China Eximbank loan.

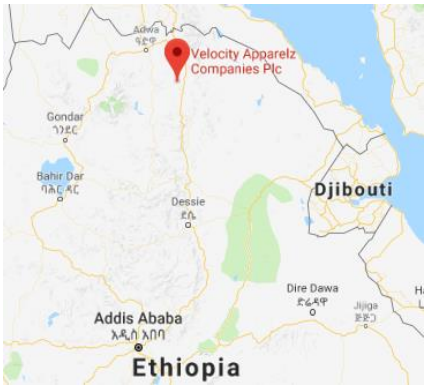
The pre-operating expenditure was estimated in the business plan as 1,144 m RWF (1.31m USD) with construction and equipment works estimated at 12,512 m RWF (14.46 m USD). Land is relatively affordable with costs for plots averaging at 27,311 RWF (USD 31.57) per m2 compared to RWF 43,000 (USD 49.71) per m2 in the Kigali Special Economic Zone. Land has been sold to developers.

It has been assumed that 15ha are sold in the first year, 15 in the second and 1ha per year in subsequent years. Land lease rate is 400 RWF (USD 0.46) per m2 with annual indexation rate of 5%, with a maintenance fee which is charged at 1 million RWF (USD 1156) per year and hectare. Recurrent operational costs are at 211 million RWF (USD 0.2 million) per year, this includes insurance for the IP, marketing, repairs & maintenance, personnel, outsourced security expenses, communication, transport & delivery and electricity & water.

Financing summary	
Funding model	PPP model – government as developer
Key funders	MINICOM (90%); private sector (10%)
Planned capital cost	15.9 m USD (13.66 bn RWF)
Operational costs	245k USD (211 m RWF) per annum
Ongoing revenue model	Unknown

Velocity Industrial Park, ET

Industrial Park Specifications



Summary	
Industrial park name	Velocity Industrial Park
Location	Mekelle
Size	176ha
Sector specialism	Garments & textiles
State of development	Under development
Developer	Vogue Apparelz
Average plot size	Unknown

Velocity industrial park is a private industrial park, located in Mekelle in the North of Ethiopia, 900km from Addis Ababa. It is currently not linked to a railway but there are plans for the railway line from Addis to Kombolcha to also extend to Mekelle by late 2018 and the park is physically close to Eritrea's port. The developer of the park is Vogue Apparelz, a Dubai-based garments and textiles company with factories in Egypt and the UAE. Velocity is a private park with no involvement from the Industrial Park Development Corporation (IPDC).

Vogue has initially developed a 100ha factory in Mekelle, which is operational, and will have added to it a further 75ha, bringing the total area to 176ha. It is planned that garments and textile companies and maybe leather sector (all exporters) will operate in the industrial park. The construction contract has been awarded to a public Chinese construction company, XGZ Qingdao. Velocity is located 15km from the public Mekelle industrial park and it is planned it will share a one stop logistics, customs and services hub with this industrial park. 50-80% of constructed sheds will be fixed, with the rest customised according to the tenants operating in the park. Dormitories are also being built on site and Velocity runs its own logistics/trucks which it wants to offer to others in the park.is the park would have circa 35,000 employees Velocity itself currently employs 2,000 workers. Currently, electricity is sourced from the national grid but there are plans for a 100MW substation as the grid is unreliable.

Financing

$50million has already been invested in the existing factory shed and equipment (state or art machines) of Velocity itself and on boreholes, with total planned additional investment for the industrial park at $160m. Of this, $50m is planned to be equity financed and the rest debt financed. Land has been leased for 80 years at 60 birr per square metre per year.

Vogue has financed its factory and the work around it with private capital and a loan from the Development Bank of Ethiopia at an interest rate of 12.5%. Vogue is currently seeking development finance investment and other investment for the additional $90m. Potential investors and tenants in the park are from Turkey, Hong Kong, Pakistan, Spain and Italy. Rents will be charged to tenants at circa $2.6 per square metre for 10 year agreements (or possibly 5 year if required by the investor). Logistics and dormitory costs will be charged separately.

Financing summary	
Funding model	Private – debt financing
Key funders	Development Bank Ethiopia
Planned capital cost	$160m
Operational costs	Unknown
Ongoing revenue model	Land sales and leasing