Infrastructure Investment Opportunity and Reform in Africa

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IPFA
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Presenters

Steven Hong, Senior Manager, GI Hub
Brer Adams, Senior Director, Energy and Infrastructure, GI Hub
African infrastructure investment needs & opportunities
A data-driven analysis of trends and needs

IPFA Webinar, 5 July 2018

Brer Adams
Senior Director, Global Infrastructure Hub

Steven Hong
Senior Manager, Global Infrastructure Hub

A G20 INITIATIVE
Revealing infrastructure needs and opportunities in Africa

- **Global Infrastructure Outlook** – Forecast infrastructure investment needs and gaps
  - Quantitative forecasts of infrastructure investment
- **InfraCompass** – Setting infrastructure policies in the right direction
  - Reveals quality of infrastructure environment
- **Coverage across 10 “Compact with Africa” countries, and others shown below**

Angola  
Benin  
Cote d’Ivoire  
Egypt  
Ethiopia  
Ghana  
Guinea  
Kenya  
Morocco  
Nigeria  
Rwanda  
Senegal  
South Africa  
Tanzania  
Tunisia
Forecasting infrastructure needs in Africa

Forecast infrastructure investment needs and gaps for 56 countries and 7 sectors from 2016 to 2040, including 15 African countries

How?

1. Estimate current stock based on past investment
2. Forecast likely investment based on drivers
3. Forecast need based on investment performance and quality compared with peers
Forecasting drivers of infrastructure need; incl. strong growth well above ave. to 2040

- Infrastructure investment need is driven by economic, population growth, and manufacturing share of economy

Source: GI Hub  
* Based on population of 56 countries covered by Global Infrastructure Outlook, representing 56 world's largest countries, *based on UN
Forecasting drivers of infrastructure need; incl. strong growth well above ave. to 2040

- Infrastructure investment need is driven by **economic**, **population growth**, and **manufacturing share of economy**

### GDP growth

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<tbody>
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<td>6.2%</td>
</tr>
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</tr>
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<td>7. Ethiopia</td>
<td>5.7%</td>
</tr>
<tr>
<td><strong>OECD</strong></td>
<td><strong>1.5%</strong></td>
</tr>
<tr>
<td><strong>Global</strong></td>
<td><strong>2.6%</strong></td>
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### Manufacturing share change

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<th>Country rank</th>
<th>Change rate p.a</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tanzania</td>
<td>0.6%</td>
</tr>
<tr>
<td>3. Tunisia</td>
<td>0.3%</td>
</tr>
<tr>
<td>5. Ghana</td>
<td>0.3%</td>
</tr>
<tr>
<td>13. Egypt</td>
<td>0.1%</td>
</tr>
<tr>
<td>17. Ethiopia</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>OECD</strong></td>
<td>(0.1%)</td>
</tr>
<tr>
<td><strong>Global</strong></td>
<td>&gt; (0.1%)</td>
</tr>
</tbody>
</table>

*Based on population of 56 countries covered by Global Infrastructure Outlook, representing 56 world’s largest countries. *based on UN Source: GI Hub
But Africa continues to lack infrastructure to support growth potential

$USD infrastructure stock per capita

- Angola
- Benin
- Cote d'Ivoire
- Egypt
- Ethiopia
- Ghana
- Guinea
- Kenya
- Morocco
- Nigeria
- Rwanda
- Senegal
- South Africa
- Tanzania
- Tunisia

Stock as at 2015
But Africa continues to lack infrastructure to support growth potential

$USD infrastructure stock per capita

- Global average $4,591
- Upper middle income Average - $3,061
- Low income to lower middle income Average - $704

Stock as at 2015
‘Current trends’ in investment strongest in larger economies

$USD infrastructure stock per capita

Incremental stock - Current trends

Stock as at 2015
However all countries fall short of ‘investment need’

$USD infrastructure stock per capita

- Incremental stock - Investment need
- Incremental stock - Current trends
- Stock as at 2015
Large ‘unmet need’ in all markets

$USD infrastructure shortfall stock per capita

- Angola
- Benin
- Cote d'Ivoire
- Egypt
- Ethiopia
- Ghana
- Guinea
- Kenya
- Morocco
- Nigeria
- Rwanda
- Senegal
- South Africa
- Tanzania
- Tunisia

Investment gap
Large ‘Unmet need’ in all markets (total $USD terms)

$USD Bn 2016 – 2040 cumulative

- Angola
- Benin
- Cote d'Ivoire
- Egypt
- Ethiopia
- Ghana
- Guinea
- Kenya
- Morocco
- Nigeria
- Rwanda
- Senegal
- South Africa
- Tanzania
- Tunisia

Investment gap
Sectors gaps vary significantly between countries

$USD Bn 2016 – 2040 cumulative
For Ethiopia, it is Water and Telecoms

Forecast investment gap for Ethiopia
$USD Bn 2016 – 2040 cumulative

<table>
<thead>
<tr>
<th>Sector</th>
<th>2015</th>
<th>2040 - Current Trends</th>
<th>2040 - Needed</th>
<th>% Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecoms stock per person</td>
<td>$31</td>
<td>$138</td>
<td>$389</td>
<td>65%</td>
</tr>
<tr>
<td>Water stock per person</td>
<td>$404</td>
<td>$592</td>
<td>$837</td>
<td>29%</td>
</tr>
</tbody>
</table>

- Road
- Electricity
- Water
- Telecoms
- Rest
For Egypt it is the Water and roads sector

Forecast investment gap for Egypt
$USD Bn 2016 – 2040 cumulative

<table>
<thead>
<tr>
<th>Water stock per person</th>
<th>$USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$107</td>
</tr>
<tr>
<td>2040 - Current Trends</td>
<td>$175</td>
</tr>
<tr>
<td>2040 - Needed</td>
<td>$403</td>
</tr>
<tr>
<td>% Gap</td>
<td>57%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Road stock per person</th>
<th>$USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$105</td>
</tr>
<tr>
<td>2040 - Current Trends</td>
<td>$183</td>
</tr>
<tr>
<td>2040 - Needed</td>
<td>$1,009</td>
</tr>
<tr>
<td>% Gap</td>
<td>82%</td>
</tr>
</tbody>
</table>
## For Nigeria, it is a bit of everything

### Forecast investment gap for Nigeria

<table>
<thead>
<tr>
<th>Infrastructure Type</th>
<th>2015</th>
<th>2040 - Current Trends</th>
<th>2040 - Needed</th>
<th>% Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail, airport and port stock per person</td>
<td>$163</td>
<td>$225</td>
<td>$281</td>
<td>20%</td>
</tr>
<tr>
<td>Rail stock per person</td>
<td>$267</td>
<td>$353</td>
<td>$514</td>
<td>31%</td>
</tr>
<tr>
<td>Telecoms stock per person</td>
<td>$153</td>
<td>$157</td>
<td>$237</td>
<td>34%</td>
</tr>
<tr>
<td>Telecoms stock per person</td>
<td>$259</td>
<td>$378</td>
<td>$485</td>
<td>22%</td>
</tr>
<tr>
<td>Electricity stock per person</td>
<td>$259</td>
<td>$378</td>
<td>$485</td>
<td>22%</td>
</tr>
<tr>
<td>Water stock per person</td>
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<td>$281</td>
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**USD Bn 2016 – 2040 cumulative**

- **Road stock per person**
  - 2015: $267
  - 2040 - Current Trends: $353
  - 2040 - Needed: $514
  - % Gap: 31%

- **Telecoms stock per person**
  - 2015: $153
  - 2040 - Current Trends: $157
  - 2040 - Needed: $237
  - % Gap: 34%

- **Electricity stock per person**
  - 2015: $259
  - 2040 - Current Trends: $378
  - 2040 - Needed: $485
  - % Gap: 22%

- **Water stock per person**
  - 2015: $163
  - 2040 - Current Trends: $225
  - 2040 - Needed: $281
  - % Gap: 20%
Investment needs for Africa to 2040

- Africa needs $6.0 trillion, but is forecast to invest $4.3 trillion based on current trends – 28% gap
Much more still needs to be done to meet SDGs

Current access levels for African* countries

- Electricity: 55%
- Water supply: 36%
- Sanitation: 45%

* 15 African countries covered by Global Infrastructure Outlook
Much more still needs to be done to meet SDGs

**Current access levels for African countries**

- Electricity: 55%
- Water supply: 36%
- Sanitation: 45%

**Africa Infrastructure investment forecasts $USD Bn 2016 - 2040**

- Current trends: 4,338
- Investment need: 6,011

*15 African countries covered by Global Infrastructure Outlook*
Much more still needs to be done to meet SDGs

Current access levels for African countries:

- Electricity: 55%
- Water supply: 36%
- Sanitation: 45%

Africa Infrastructure investment forecasts $USD Bn 2016 - 2040:

- Current trends: 4,338
- Investment need: 6,011
- Investment need + SDGs: 7,642

*15 African countries covered by Global Infrastructure Outlook
Approx. 50% increase in investment need between 2016 – 2030 to meet SDGs by 2030
Additional investment needed to meet SDGs not uniform

$USD Bn 2016 – 2040 cumulative

Current trends | Investment need | Incremental investment for SDGs
Interim break

Questions?
InfraCompass reveals the performance of an infrastructure market

InfraCompass
A tool to analyse a country’s overall infrastructure investment environment

Performance: • Country A • Country B
Based on thorough assessment against 38 metrics that drive quality infrastructure investment

## Policy

<table>
<thead>
<tr>
<th>Governance</th>
<th>Regulatory</th>
<th>Permits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong legal and institutional environment</td>
<td>Open and consistent approach for investment and competition</td>
<td>Efficiency of the planning approval and licensing procedures</td>
</tr>
</tbody>
</table>

### Metrics
- Rule of law
- Control of corruption
- Enforcing contracts
- Shareholder governance
- Conflict of interest protection
- Insolvency recovery
- Infrastructure agency
- Post completion review
- Regulatory quality
- Capital account openness
- Taxation
- Foreign ownership
- Insolvency framework
- Infrastructure regulation
- Competition authorities
- State-owned enterprises
- Registering property
- Construction permits
- Land administration
- Business start cost
- Business start time
- Business start procedures

## Delivery

<table>
<thead>
<tr>
<th>Plan</th>
<th>Procure</th>
<th>Deliver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government ability to coordinate and select projects</td>
<td>Standardised &amp; transparent bid process</td>
<td>Track record in converting policy to funded and quality assets</td>
</tr>
</tbody>
</table>

### Metrics
- Infrastructure plan
- Project pipeline
- Appraisal guidelines
- PPP preparation
- Call for tender
- Bid evaluation
- Contracting
- PPP bids
- Bid transparency
- Procurement duration
- Procurement guidelines
- Infrastructure quality
- Infrastructure expenditure
- Private finance
- PPP activity
- Secondary market activity

Based on the following data sources:

- OECD
- World Bank Group
- CEPII
- World Economic Forum
- Oxford Economics
- KPMG
The current state of the infrastructure investment environment

Relatively more risky

Emerging country average

Relatively less risky

Features of relatively greater risk countries

• Low regulatory quality
• Lack of competition/anti-trust regulation
• Lack of corruption control
• High cost of contract enforcement
• Low finance recovery rate
• High cost to start a business

Features of relatively lower risk countries

• Publicly available infrastructure plans, with a transparent project pipeline
• Transparent project bidding and evaluation
• Strong rule of law
• Framework to protect shareholder interests
• Capital account openness
• Strong insolvency frameworks

Countries: Guinea, Benin, Ghana, Cote d'Ivoire, Egypt, Senegal, Kenya, Morocco, Tunisia, Rwanda, South Africa, Ethiopia, Nigeria, Cote d'Ivoire, Guinea, Benin, Ghana, Egypt, Senegal, Kenya, Morocco, Tunisia, Rwanda, South Africa, Ethiopia, Nigeria.
Rwanda is a relatively high performer

- Strong regulatory and competition frameworks, and permitting environment
- Good control of corruption, scoring 0.8 compared with average of -0.4 for emerging markets
- Consistent improvements over time – Regulatory quality rated -1.3 in 1996, to 0.3 in 2017
- Quality of land administration regarded highly (rank 2 out of 190)
- 66% of past infrastructure investment is from private sector
- Kigali Bulk Water PPP – one of first Sub-Saharan Africa water PPP
Morocco as well

- Currently good governance, regulatory and competition frameworks, and permitting environment
- Rule of law – Scoring initially dropped to -0.3 in 2007-08, now -0.1
- Consistent opening towards foreign markets – eg: meeting OECD Declaration on International Investment and Multinational Enterprises
- The effect of taxation on incentives has improved significantly, moving from 100 in FY12 to 36 in FY16 (out of 138 countries).
- High infrastructure investment, more than 30% from private sector
- Flagship large-scale solar CSP (shown below)
Kenya shows improvements in regulatory framework and planning

- Rule of law – moved from rank 101 in FY11 to 77 in FY15 (out of 212 countries).
- High conflict of interest protection – scored below high income countries in ‘14, now above it.
- Produces a public infrastructure plan, with a project pipeline and guidelines for project appraisal
  - Vision 2030 sets out ambitious plan
- Relatively high infrastructure investment – 4% of GDP
  - Consistent private involvement
South Africa performs well, particularly in planning and procurement

- Produces a public infrastructure plan, with a project pipeline and guidelines for project appraisal
  - In 2012, published the country’s first National Infrastructure Plan, prioritising 18 Strategic Integrated Projects (SIPs).
  - Creation of Presidential Infrastructure Coordinating Commission (PICC)
- Preparation of PPPs high – score greater than high income country
- Transparent procurement process – bidding, evaluation and tendering
- Relatively high private infrastructure investment – 27% of total
Correlation between a country’s investment environment, and investment performance

[Graph showing correlation between InfraCompass score and proportion of investment needs met. Countries marked include: Benin, Guinea, Ethiopia, Côte d'Ivoire, Nigeria, Senegal, Tunisia, Egypt, Ghana, Kenya, Morocco, Rwanda, South Africa, and Tanzania. High and low InfraCompass scores are indicated.]
Increasing global support for development in Africa

- UN SDG Fund - $70m
- IFU Denmark fund - $600m
- Rise of impact investing + ESG

- Sustainable Energy Fund for Africa – AfDB and Danish Gov

- USAid initiative
- Partners include ENGIE, Goldman Sachs, First Solar

G20 COMPACT WITH AFRICA

- G20 initiative, led by German Government, to promote private investment
- IMF, AfDB, WB official partners, many bilateral supporters
Examples of recent track record

Noor Ouarzazate I Concentrated Solar Power Plant, Morocco
- 160 MW large scale Concentrated Solar Power (CSP) Plant
- PPP structured on a BOOT basis, supported by a PPA
- Moroccan Agency established as a credible off-taker.
- Lowest tariff for CSP technology (in 2012) at $USD 0.18/kwh
- EV: $US 846m. Debt from multiple DFIs and IFIs. Consortium led by ACWA Power, who provided 70% of the equity.

Kigali bulk water PPP
- 40,000 m3/d water treatment, providing 1/3 of Kigali’s total supply
- One of Sub-Saharan Africa’s first water PPPs
- Project advisory by IFC, funded by DevCo, structured as BOT
- EV: $US 61m. Debt provided by EAIF and AfDB. Equity provided by private developer METITO and VGF by DFI
Increasing private capital, potentially available

Global pension funds AUM ($US trillions)

Growing accumulation of uninvested institutional capital ‘dry powder’ allocated to infrastructure

Source: PwC 2016, GI Hub Analysis

Source: Prequin, GI Hub analysis
Infrastructure investors are now more willing to consider non-traditional markets

• GI Hub/EDHEC Global Survey of 186 infrastructure investors, representing $7tn of capital

• CIO, Investment Director, Senior Advisers. Top 100+ largest investors and advisers.

• 38% invest in emerging markets in 2017, rising from 20% in 2016

• 82% want to increase allocations in emerging markets

• 85% expect pipeline to grow in emerging markets vs. 56% expect pipeline to be stable in OECD markets

Source: GI Hub, EDHEC
Infrastructure growth dividend could be strongest in emerging markets

Increase in economic output from investing 1% of GDP in public investment

Source: International Monetary Fund, GI Hub analysis

Source: GI Hub  * Based on population of 56 countries covered by Global Infrastructure Outlook, representing 56 world's largest countries, *based on UN
Global Infrastructure Hub supporting African infrastructure development

- The Africa Infrastructure Fellowship Program – Joint initiative by GI Hub, Meridiam Infrastructure and World Economic Forum

- Forming networks, building capacity, with African governments

- How to get involved:
  - Sponsor
  - Contribute
  - Participate
For more information: www.github.org

- Sharing **Leading Practices**
- Creating a Global **Project Pipeline**
- Addressing **Data Gaps**
- Building **Capacity**
- Creating a **global Knowledge Network**

GLOBAL INFRASTRUCTURE HUB

July 2018
Thank you

Feedback – steven.hong@github.org
Twitter: @gi_hub #SDGs #infrastructure
W: www.github.org
Linkedin: www.linkedin.com/company/global-infrastructure-hub/
A recording of this webinar will be made available on the IPFA website

Thank you for joining us!