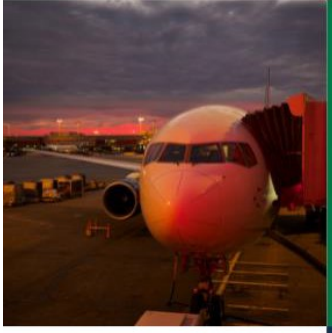
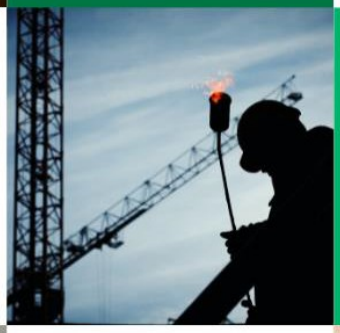
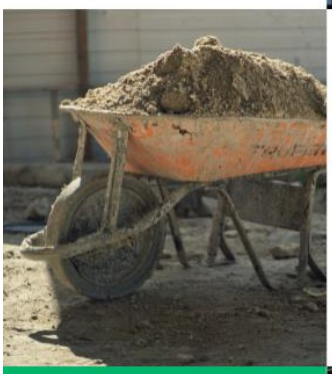
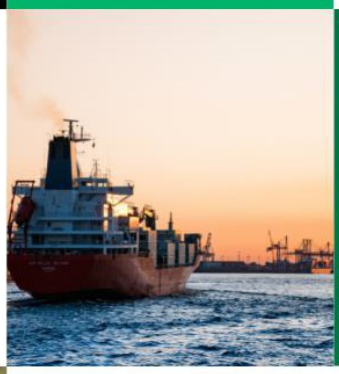


DEVELOPMENT REIMAGINED

# Infrastructure Spending to Meet the SDGs and Debt Sustainability - How to Square the Circle?

## 2023 ANALYSIS:

**Republic of Congo, Morocco, Mozambique, Sudan and Tunisia**

DEVELOPMENT REIMAGINED

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# CHAPTER 1

## 1 INTRODUCTION

Since 2020 and the onset of the COVID-19 pandemic, there has been significant concern regarding an “African debt crisis” from rising debt levels. This debt crisis narrative is however not new and pre-dates the pandemic. Yet, these narratives not only ignores African agency but also takes debt as a starting point – rather than assessing what the debt is seeking to address. Often, for African countries, this is vital infrastructure. Across the continent, governments have sourced financing for a plethora of individual and regional infrastructure projects in alignment with their national development goals and the African Union’s Agenda 2063.

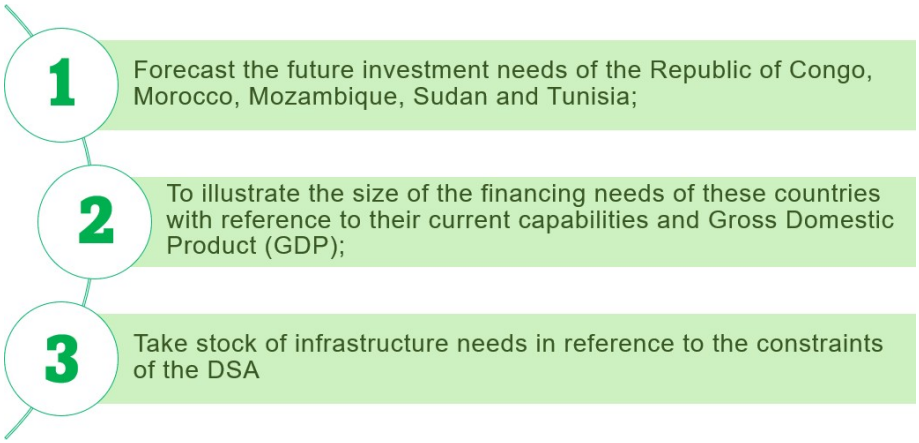
The COVID-19 pandemic has placed increased financial pressure on African economies. At Development Reimagined, we estimate that African governments spent **USD 130 billion** to address COVID-19’s economic and health effects. Financing socioeconomic policy measures and the costs associated with reduced economic activity and vaccine procurement have resulted in constrained fiscal space and higher levels of debt.

Further, increased debt levels have hindered the access of African countries to capital markets through credit rating downgrades when debt rises. This is further exacerbated due to the deeply flawed process of the Debt Sustainability Assessment (DSA) by the IMF and the World Bank, which sets a limit of 60% of debt-to-GDP despite little quantitative evidence to support the threshold.

At the same time, African countries must still address large investment gaps, especially in infrastructure, to stimulate post-COVID-19 economic recovery, meet the UN Sustainable SDGs by 2030 and contribute to the AU Agenda 2063. Indeed, in line with “accelerating implementation of the African Continental Free Trade Area (AfCFTA)”, the African Development Bank (AfDB) has marked a **7% - 10% annual growth rate** over the next 40 years as the benchmark for African countries to meet UN Sustainable Development Goals (SDGs) and the agenda 2063. Across different sectors in African economies, infrastructural development is an anchor necessary to sustainably support such goals.

However, information on infrastructure financing gaps is scarce. Analysis by the AfDB is not regularly updated and is often on a continental or sub-regional level rather than breaking it down to a country and sector level.

To this end, DR has designed an econometric model to predict the infrastructure investment spending needs of five African countries from 2021 to 2030 (under two scenarios). We have three key objectives.




**We selected five countries to conduct the forecasting analysis on, these are the Republic of Congo, Morocco, Mozambique, Sudan and Tunisia** (henceforth, "the countries under consideration"). The reason for selecting these countries is that the Republic of Congo, Mozambique and Sudan are classed as "in debt distress" under the IMF and World Bank's Debt Sustainability Analysis (DSA) for low-income countries, although the DSA rating does not apply to Morocco and Tunisia. Many of the selected countries have been rumoured to engage in the Common Framework (Table 1). However, for comparison, the underlying timeframe of 2021-2030 is shared by all five countries under consideration.

**Table 1: The relationship between the countries under consideration, including the DSA, the Common Framework and forecasted growth rates.**

| Country | DSA Rating (April-23) | Common Framework Requested | Govt. Debt (2021) USD | Debt-to-GDP (2021) % | Forecasted Growth Rate % (IMF 2024) |
|---|---|---|---|---|---|
| **Rep of Congo** | In debt distress | **X** No request to date | 12.57 billion | 103.64 | 4.6 |
| **Morocco** | N/A | **X** No request to date | 98.49 billion | 68.94 | 3.1 |
| **Mozambique** | In debt distress | **X** No request to date | 16.78 billion | 106.37 | 8.2 |
| **Sudan** | In debt distress | **X** No request to date | 63.21 billion | 181.97 | 2.7 |
| **Tunisia** | N/A | **X** No request to date | 38.18 billion | 81.79 | 1.9 |

Indeed, the Republic of Congo, Mozambique, and Sudan have already breached the nominal 60% debt-to-GDP ratio – set by the IMF and World Bank's threshold for a sustainable level of debt – under the DSA. For emerging markets in market-access countries such as Tunisia and

Morocco, the debt threshold of 70% debt-to-GDP indicates a sustainable level of debt. Tunisia has already breached this 70% threshold and Morocco is close to breaching the threshold.

These countries have had to continuously approach the IMF for loan restructuring. Morocco has a record of 21 lending commitments from the IMF since 1959.[1] Most recently, in April 2023, the IMF Executive Board approved a USD 5 billion Flexible Credit Line (FCL) arrangement for Morocco's crisis prevention.

Similarly, in January 2022, the IMF Executive Board approved a USD 455 million Extended Credit Facility (ECF) arrangement for the Republic of Congo's macroeconomic stability and economic recovery.[2]

For Sudan, the country received a USD 2.4 billion ECF arrangement in June 2021 to support the implementation of its reform agenda towards reaching the Heavily Indebted Poor Countries (HIPC) Completion Points.[3]

Mozambique also received an ECF arrangement that is worth USD 456 million from the IMF in May 2022 for debt and vulnerability reduction.[4]

Since 1964, Tunisia has received IMF bailouts ten times, with the most recent bailout package being a USD 2.9 billion Extended Fund Facility (EFF) in 2016.[5] The country is now in negotiations for the terms of a USD 1.9 billion bailout loan from the IMF, which had initially been agreed upon at the end of 2022.

Each country's infrastructure needs vary over time. When assessing national access to infrastructure and the availability of infrastructure to a country's entire population, any level below capacity is insufficient. The resultant gap between what is in place and what is needed reflects each country's *distance to go* in terms of infrastructural development. Infrastructure investment needs are therefore guided by a range of development indicators, some of which we summarise below.

[1] *Morocco: History of Lending Commitments as of February 29, 2020*. (n.d.). International Monetary Fund. Retrieved August 18, 2023, from https://www.imf.org/external/np/fin/tad/extarr2.aspx?memberKey1=680&date1key=2020-02-29.

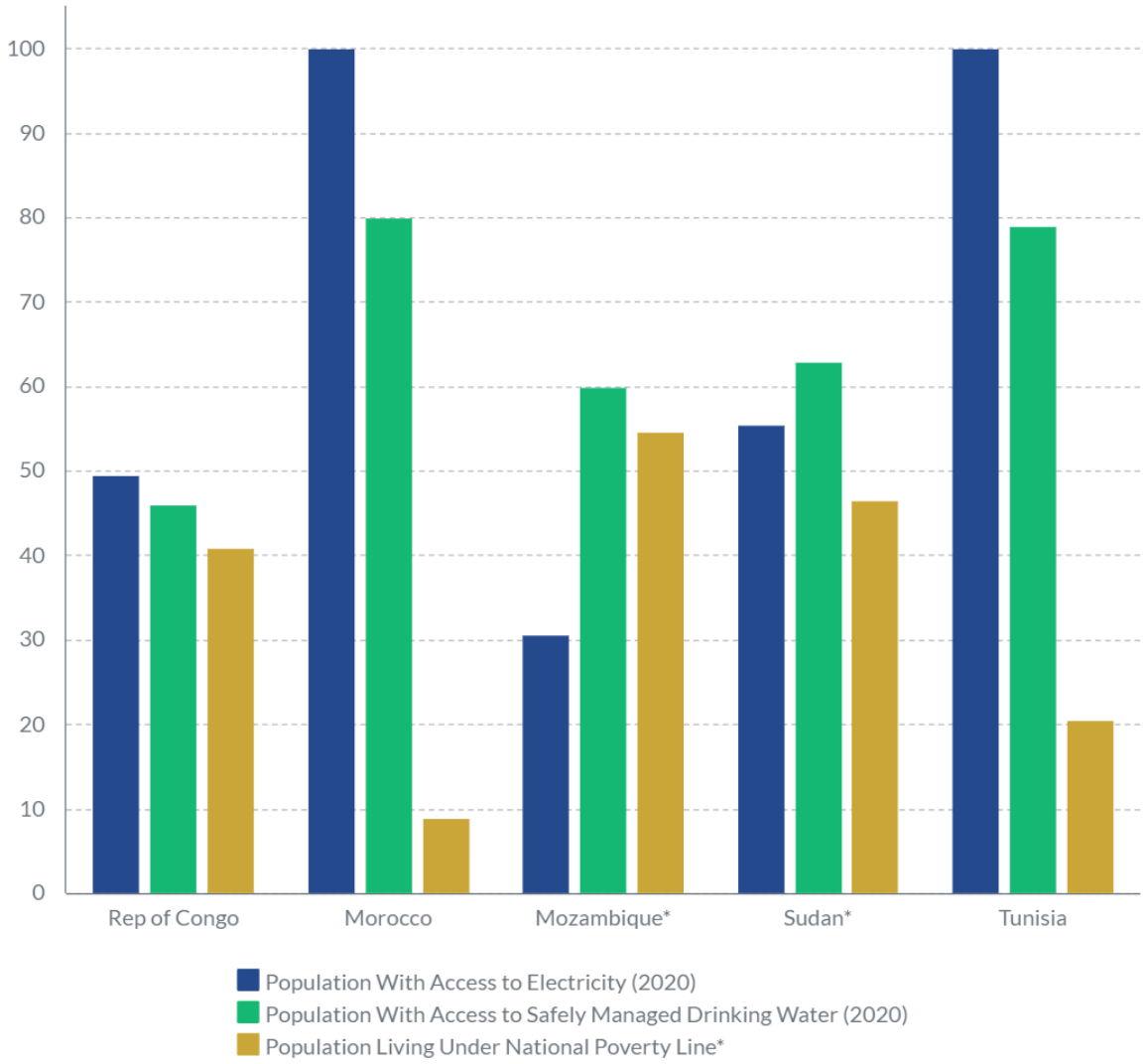
[2] *IMF Executive Board Approves New US$455 Million Extended Credit Facility Arrangement for the Republic of Congo*. (2022, January 21). International Monetary Fund. https://www.imf.org/en/News/Articles/2022/01/22/pr2210-IMF-Executive-Board-Approves-ECF-Arrangement-for-Republic-of-Congo.

[3] *IMF Executive Board Approves Extended Credit Facility Arrangement for Sudan*. (2021, June 29). International Monetary Fund. https://www.imf.org/en/News/Articles/2021/06/29/pr21198-sudan-imf-executive-board-approves-extended-credit-facility-arrangement.

[4] *IMF Executive Board Concludes 2022 Article IV Consultation with the Republic of Mozambique and Approves US$456 Million Extended Credit Facility Arrangement*. (2022, May 9). International Monetary Fund . https://www.imf.org/en/News/Articles/2022/05/09/pr22145-mozambique-article-iv-consultation-and-ecf#:~:text=The%20IMF%20Board%20approved%20a,million)%20available%20for%20immediate%20disbursement.

[5] *Tunisia: History of Lending Commitments as of June 30, 2019*. (n.d.). International Monetary Fund. Retrieved August 18, 2023, from https://www.imf.org/external/np/fin/tad/extarr2.aspx?memberKey1=970&date1key=2019-06-30.

**Figure A. "Distance to go" as measured by three development metrics.**




*Note: Data on the population with access to safely managed drinking water for Mozambique and Sudan is from the SDG 6 Data Portal of the United Nations Water.
Data on the population living under national poverty line in the same year is not available for the five selected countries. The most recent data is collected for the closest years: 2006 for Morocco, 2008 for Mozambique, 2009 for Sudan, 2010 for Tunisia, and 2011 for the Republic of Congo.

**Access to electricity** in rural and urban areas is an essential foundation for social and economic development. In the pursuit of SDGs, a country's capacity to generate electricity and transmit it efficiently must increase to meet growing population needs. In the countries under consideration, access ranges from as low as 30.6% in Mozambique to 100% in both Morocco and Tunisia.[6] This indicates the levels of electricity infrastructure investment required to improve access in the countries under consideration.

**Access to safely managed drinking water** minimizes the chances of preventable disease outbreaks such as cholera. In addition to daily human consumption needs, clean water supplies

[6] *Access to electricity (% of population)*. (n.d.). World Bank. Available here.

are also key for agricultural production, an important source of livelihood in the countries under consideration. While data from the World Bank is missing for both Mozambique and Sudan, estimates from the United Nations Water's SDG 6 Data Portal show that, as of 2020, 63% and 60% of populations in Sudan and Mozambique had access to safely managed drinking water services, respectively.[7] As illustrated above, ranging from 46% in the Republic of Congo to 80% in Morocco, there is still room for improving access in the five countries analysed, reinforcing the need for prioritization of infrastructural investment in the years ahead.

**Population living in poverty** reflects a mismatch between basic living needs and incomes available to sustain these needs on a daily basis. This gap has direct and indirect relations with the levels of infrastructural development in a country, with inadequate infrastructural investment increasing the likelihood of poverty levels increasing in a country. Ranging from 8.9% in Morocco to 54.7% in Mozambique, much work needs to be done in each country to reduce the proportion of the population living in poverty.[8]

[7] *Mozambique*. (n.d.). UN Water. Retrieved August 18, 2023, from https://www.sdg6data.org/en/country-or-area/mozambique#anchor_6.1.1; *Sudan*. (n.d.). UN Water. Retrieved August 18, 2023, from https://www.sdg6data.org/en/country-or-area/Sudan.

[8] *Poverty headcount ratio at national poverty lines (% of population)*. (n.d.). World Bank. Available here.

# CHAPTER TWO:

## 2 METHODOLOGY

DR collected historical data from 2000 to 2020 (inclusive) and forecasted the infrastructure investment spending of the five countries between 2021 and 2030.

Guided by similar attempts to forecast national infrastructure investment needs in Asia, Latin America and at a global level, we broadly consider infrastructure as transportation, energy, telecommunication as well as water and sanitation.

A second key consideration is the time horizon of our forecasting model. To varying extents, the 2000-2020 window chosen is an ideal balance between the statistical reliability needed in a time series analysis, with an expected level of economic stability that comes with analysing relatively short periods. The longer a timeframe adopted, the higher the likelihood of shifts in underlying economic conditions; shifts which in turn compromise the reliability of forecasts made.

Lastly, the forecasting endpoint (2030) factors in two points – the time and statistical reliability trade-off outlined above as well as 2030 being the target year for SDGs to have been met worldwide. Accordingly, our forecast is split into two scenarios, each with its own set of conditions observed.

The two scenarios examined were:

1. **Current trend or Business as Usual (BaU) scenario**: Future infrastructure investment needs are assessed regarding the trend implied by the current infrastructure investment in these countries; and
2. **Meeting the SDGs scenario**: Future financing needs are calculated regarding what is needed from these countries to achieve their national and international pledges.

The shortfall between the two scenarios is the infrastructure investment gap.

# CHAPTER THREE:

# 3 DATA ANALYSIS

## 3.1 Scenario 1: Business as Usual (BaU)

**Overview:** Generating our baseline estimates concerning the future infrastructure investment needs for the Republic of Congo, Morocco, Mozambique, Sudan and Tunisia in the current trend scenario requires estimating the relation between the various categories of physical infrastructure stock we have considered (e.g. kilometres of rail line and percentage of people with access to water and sanitation services) and several key socioeconomic factors that influence the demand and supply dynamics for infrastructure assets.

**Low – High Unit Costs:** Using the low unit costs of infrastructure investment, we forecast that the cumulative total infrastructure investment between 2021 and 2030 ranges between:

- USD 12.4 billion and USD 18.5 billion for the Republic of Congo,
- USD 58.4 billion and USD 77.8 billion for Morocco,
- USD 40.8 billion and USD 58.1 billion for Mozambique,
- USD 27.2 billion and USD 38.1 billion for Sudan,
- USD 17.8 billion and USD 24.1 billion for Tunisia.

For all the selected countries, extension of road and rail networks as well as energy generation and distribution constitute most of the infrastructure investment needs.

**GDP:** Based on the results, the Republic of Congo, Morocco, Mozambique, Sudan and Tunisia, will need to spend on average **3% - 24% of their GDP per annum on infrastructure investment** up to 2030 based on what is implied by their current trend of infrastructure investment.

### 3.1.1 REPUBLIC OF CONGO:

Our forecasting revealed that the Republic of Congo's Current Trend of Investment Cost between 2021 and 2030 stands at USD 12.4 – USD 18.5 billion (low-high cost). In terms of average annual spending, current trends of spending equate to USD 1.2 – USD 1.9 billion or 13% - 20% of GDP. Total investment cost (Current Trend) can be broken down into sectors (Figures 1 and 2).

Population dynamics are a fundamental consideration for a country's infrastructure investment needs over time. In 2020, the Republic of Congo's population is estimated at 5.7 million people.[9]

Between 2000-2020, the Republic of Congo's total population grew at an average of 3.03% per year, with 66% living in urban areas.[10] As a result, the country's current infrastructure investment trends mirror its need to strategically direct investments towards both rural and urban areas. Economic output per person grew moderately at 78.5% in the period.[11] This puts into context the scale of infrastructure investment needed to support anticipated growth without compromising adequate supply of and access to infrastructure per capita.

Consequently, and as illustrated in the infrastructure sub-categories below, the expansion of road networks, railway extension, and the increase in energy generation is the biggest infrastructure investment needs the Republic of Congo will face between 2021-2030. In particular, the expansion of road networks constitutes a significant majority of infrastructure investment needs, reaching around 86% of the total financing needs.

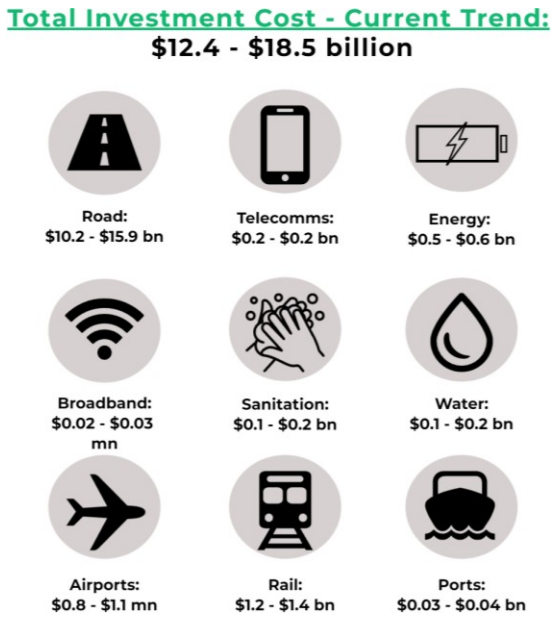



Figure 1: The Republic of Congo's total investment costs under scenario 1.

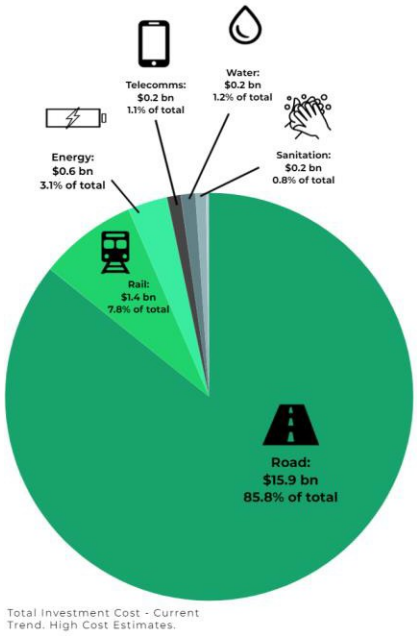



Figure 2: The Republic of Congo's investment split by infrastructure sub-category under scenario 1.

[9] *Population, total*. (n.d.). World Bank. Available here.
[10] *Population growth (annual %)*. (n.d.). World Bank. Available here; *Urban population (% of total population)*. (n.d.). World Bank. Available here.
[11] *GDP per capita (current US$)*. (n.d.). World Bank. Available here.

### 3.1.2 MOROCCO:

Our forecasting revealed that Morocco's Current Trend of Investment Cost between 2021 and 2030 stands at USD 58.4 – USD 77.8 billion (low-high cost). In terms of average annual spending, current trends of spending equate to USD 5.8 – USD 7.8 billion or 4% - 6% of GDP. Total investment cost (current trend) can be broken down into sectors (Figures 3 and 4).

Morocco had a population of about 36.7 million people in 2020, making it the 11th largest in Africa.[12] Morocco's infrastructure investment needs are the highest among the selected five countries. The population increased by an average of 1.26% between 2000-2020.[13] Averaging 19% in the proportion of the urban population between 2000-2020, the country's population had, to a large extent, been rural, highlighting the need to invest more in rural infrastructure.[14] Output per person grew 141.69% in the period, a positive indication of the country's capacity to fund its increasing needs.[15]

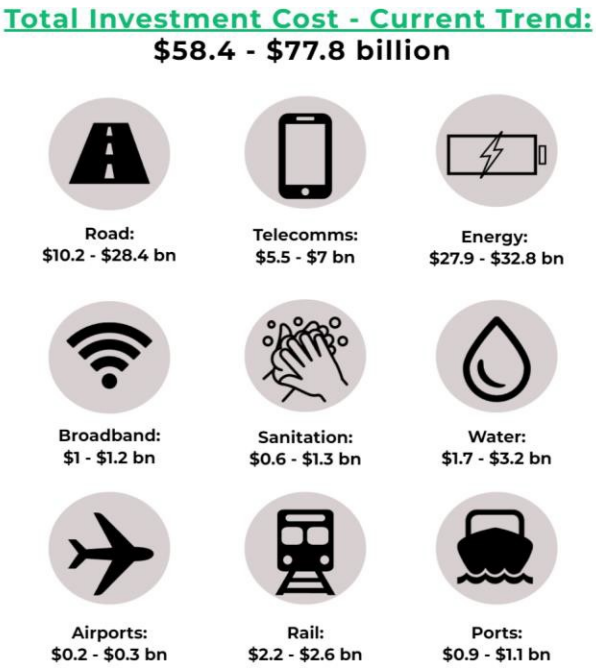



Figure 3: Morocco's total investment costs under scenario 1.

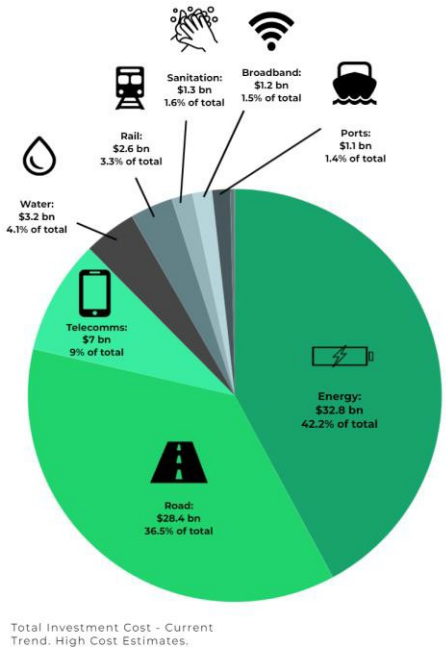



Figure 4: Morocco's investment split by infrastructure sub-category under scenario 1.

Guided by the infrastructure sub-categories above and Morocco's current investment trends, we forecast energy generation and distribution as well as expansion of road networks make up 79% of the country's infrastructure investment needs.

[12] *Population, total*. (n.d.). World Bank. Available here.
[13] *Population growth (annual %)*. (n.d.). World Bank. Available here.
[14] *Urban population (% of total population)*. (n.d.). World Bank. Available here.
[15] *GDP per capita (current US$)*. (n.d.). World Bank. Available here.

### 3.1.3 MOZAMBIQUE:

Our forecasting revealed that Mozambique's Current Trend of Investment Cost between 2021 and 2030 stands at USD 40.8 – USD 58.1 billion (low-high cost). In terms of average annual spending, current trends of spending equate to USD 4.1 – USD 5.8 billion or 17% – 24% of GDP. Total investment cost (Current Trend) can be broken down into sectors (Figures 5 and 6).

Mozambique had a population of about 31.2 million people in 2020, with 34% of the population in Mozambique living in urban areas from 2000 to 2020.[16] The population increased by an average of 2.79% between 2000-2020.[17] Between 2000-2020, Mozambique's output per person grew by 41.34%, nearly half of the Republic of Congo's 78.5% in the same period.[18]

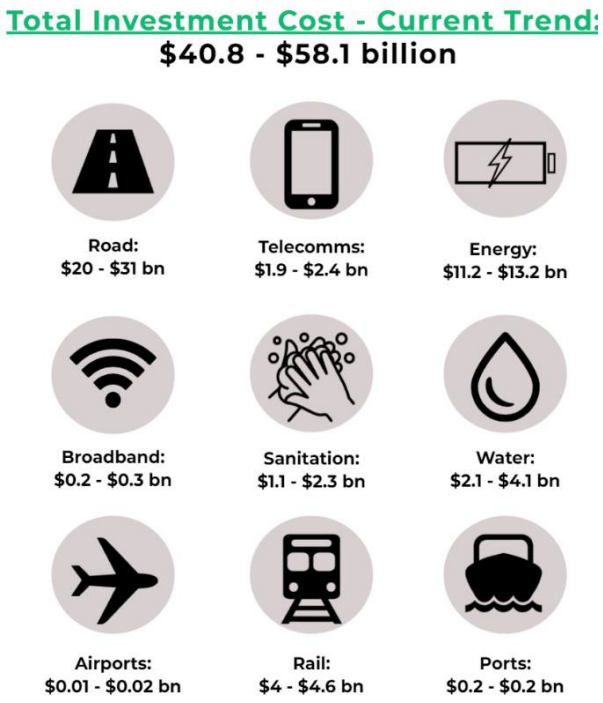



Figure 5: Mozambique's total investment costs under scenario 1.

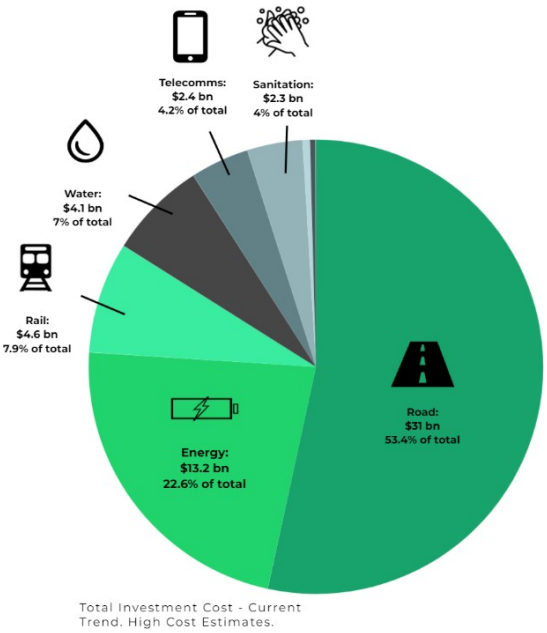



Figure 6: Mozambique's investment split by infrastructure sub-category under scenario 1.

As illustrated in the infrastructure sub-categories above, Mozambique's current infrastructure trends reveal that 76% of investments need to be channelled towards increasing road networks as well as energy generation and distribution.

[16] *Population, total*. (n.d.). World Bank. Available here; *Urban population (% of total population)*. (n.d.). World Bank. Available here.
[17] *Population growth (annual %)*. (n.d.). World Bank. Available here.
[18] *GDP per capita (current US$)*. (n.d.). World Bank. Available here.

### 3.1.4 SUDAN

Our forecasting revealed that Sudan's Current Trend of Investment Cost between 2021 and 2030 stands at USD 27.2 – USD 38.1 billion (low-high cost). In terms of average annual spending, current trends of spending equate to USD 2.7 – USD 3.8 billion or 3% - 5% of GDP. Total investment cost (Current Trend) can be broken down into sectors (Figures 7 and 8).

Sudan had a population of about 44.4 million people in 2020, making it the 8th largest in Africa.[19] Between 2000-2020, the population increased at an average of 2.62%, with 35% of the country's population living in urban areas.[20] During the same period, Sudan's output per person grew by 60.87%, equivalent to an increase of USD 230.17 per person.[21] With the population forecasted to reach 55.3 million by 2030, this puts into context the scale of infrastructure investment needed to support anticipated growth without compromising adequate supply of and access to infrastructure per capita.

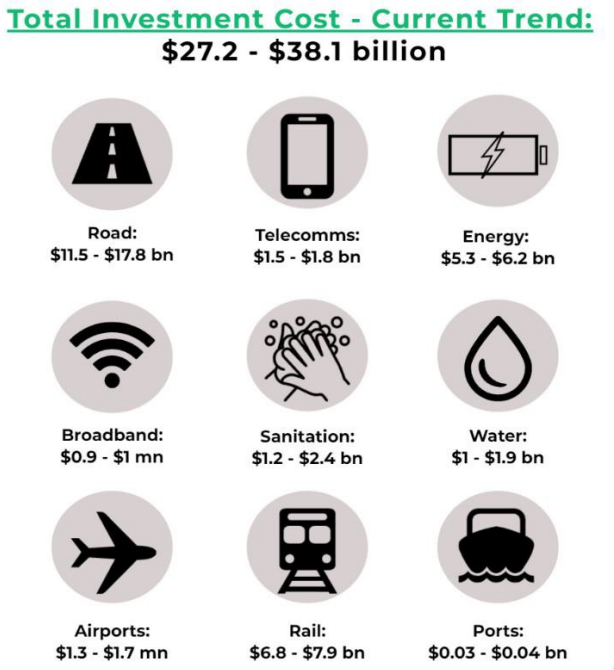



Figure 7: Sudan's total investment costs under scenario 1.

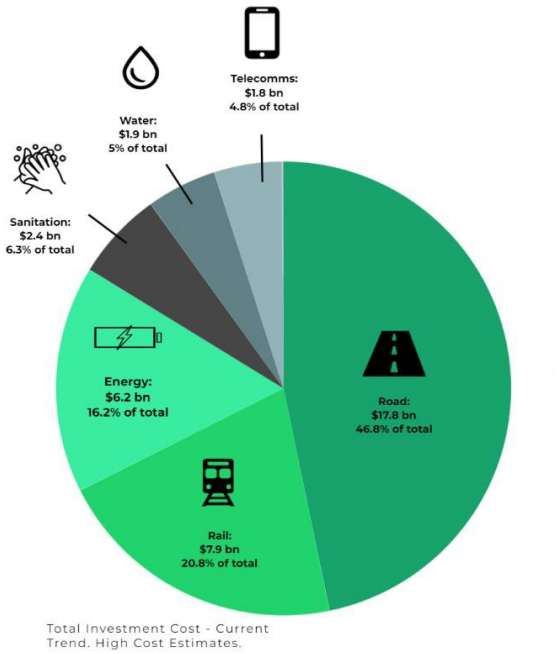



Figure 8: Sudan's investment split by infrastructure sub-category under scenario 1.

As illustrated in the infrastructure sub-categories above, Sudan's current infrastructure trends reveal that over 68% of investments need to be channelled towards increasing road and rail networks.

[19] *Population, total*. (n.d.). World Bank. Available here.
[20] *Population growth (annual %)*. (n.d.). World Bank. Available here; *Urban population (% of total population)*. (n.d.). World Bank. Available here.
[21] *GDP per capita (current US$)*. (n.d.). World Bank. Available here.

### 3.1.5 TUNISIA

Our forecasting revealed that Tunisia's Current Trend of Investment Cost between 2021 and 2030 stands at USD 17.8 – USD 24.1 billion (low-high cost). In terms of average annual spending, current trends of spending equate to USD 1.8 – USD 2.4 billion or 4% - 5% of GDP. Total investment cost (Current Trend) can be broken down into sectors (Figures 8 and 9).

In 2020, Tunisia had a population of approximately 12.2 million people.[22] Between 2000-2020, the population increased at an average of 1.03% and the output per person grew 61.15%, equivalent to an increase of USD 1327.2 per person.[23] Averaging 70% between 2000-2020, the country's population had, to a large extent, been urban.[24] However, 2020 estimates show that Tunisia's output per person of USD 3497.68 was ahead of all other selected countries, indicating a greater capacity to fund investment needs as the population grows.[25] Accordingly, these figures reflect differences in infrastructure investment needs and the potential to support them across the continent and within various regions.

As illustrated in the infrastructure sub-categories below, Tunisia's current infrastructure trends reveal that over 73% of investments need to be channelled towards increasing road networks as well as energy generation and distribution.

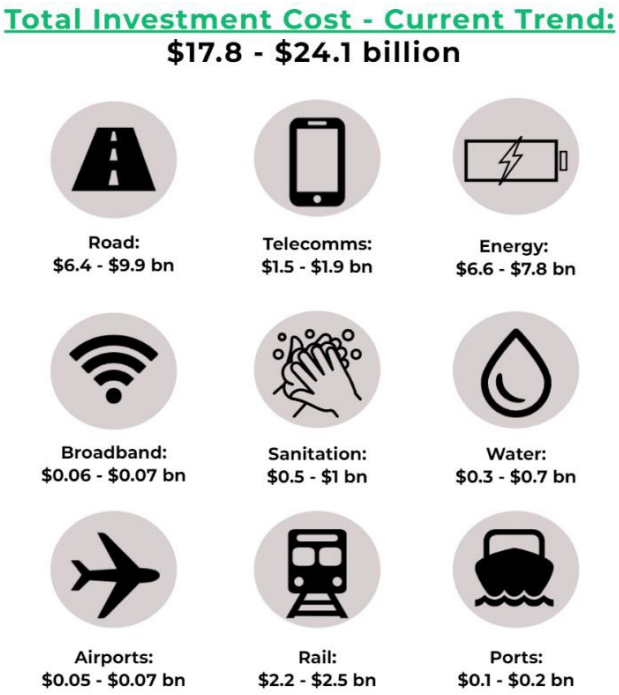



Figure 7: Tunisia's total investment costs under scenario 1.

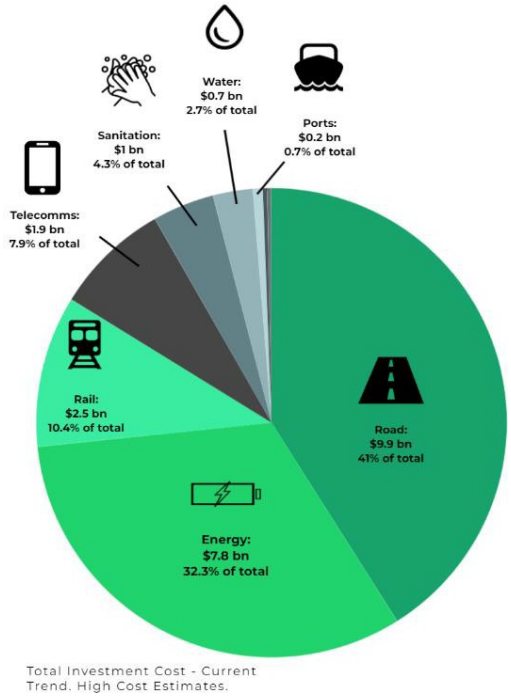



Figure 8: Tunisia's investment split by infrastructure sub-category under scenario 1.

[22] *Population, total*. (n.d.). World Bank. Available here.
[23] *Population growth (annual %)*. (n.d.). World Bank. Available here; *GDP per capita (current US$)*. (n.d.). World Bank. Available here.
[24] *Urban population (% of total population)*. (n.d.). World Bank. Available here.
[25] *GDP per capita (current US$)*. (n.d.). World Bank. Available here.

## 3.2 Scenario 2: Meeting the SDGs

**Overview:** The assessment of infrastructure financing needs for the countries under consideration in meeting the SDGs scenario is different from the BaU scenario. Instead of calculating the future financing needs using forecasts from the econometric regressions, we have sought to benchmark the future financing needs regarding what investment spending is required from these countries to meet the SDGs or any other national pledges.

**Low – High Unit Costs**: Using the low unit costs of infrastructure investment, we forecast that the cumulative total infrastructure investment between 2021 and 2030 ranges between USD 39.2 billion and USD 54.7 billion for the Republic of Congo, USD 134.4 billion and USD 184.5 billion for Morocco, USD 88.9 billion and USD 126.5 billion for Mozambique, USD 67.4 billion and USD 101.7 billion for Sudan, and USD 89.1 billion and USD 119.5 billion for Tunisia.

Just as the extension of road networks, as well as energy generation and distribution, make up the major sub-categories of infrastructure investment needs for the selected countries under Scenario 1: Current trend or Business as Usual, these sub-categories likewise constitute the main infrastructure investment needs for these countries to meet the SDGs under Scenario 2. Investing in port infrastructure is also critical for these countries to achieve the SDGs.

**GDP:** Based on the results, the Republic of Congo, Morocco, Mozambique, Sudan and Tunisia, will need to spend an average of **9% - 58% of their GDP per annum on infrastructure investment** up to 2030 to meet the SDGs.

### 3.2.1 REPUBLIC OF CONGO:

Our forecasting revealed that for the Republic of Congo to reach the SDGs, the total investment cost from 2021 to 2030 stands at USD 39.2 - USD 54.7 billion (low-high cost). In terms of average annual spending, achieving the SDGs in the Republic of Congo would require spending USD 3.9 - USD 5.5 billion annually, or 42% - 58% of GDP. The total investment cost to reach the SDGs can be broken down into sectors (Figures 9 and 10).

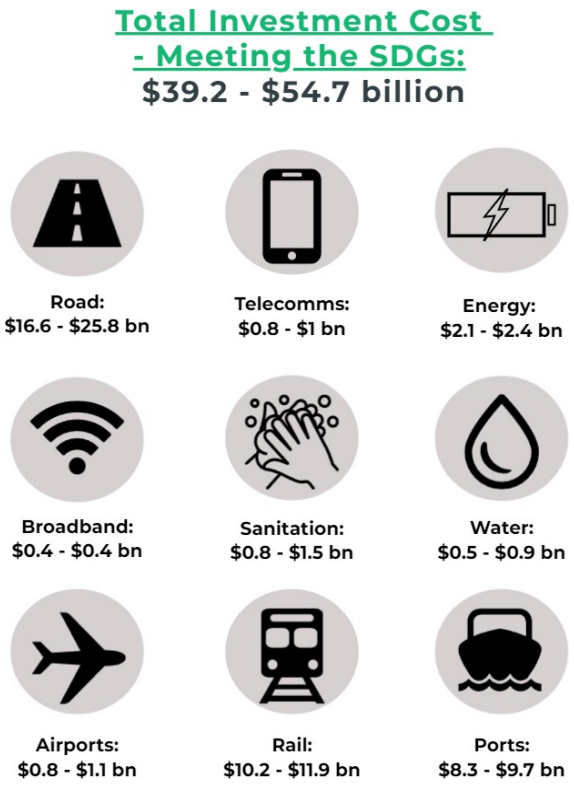



Figure 9: The Republic of Congo's total investment costs under scenario 2.

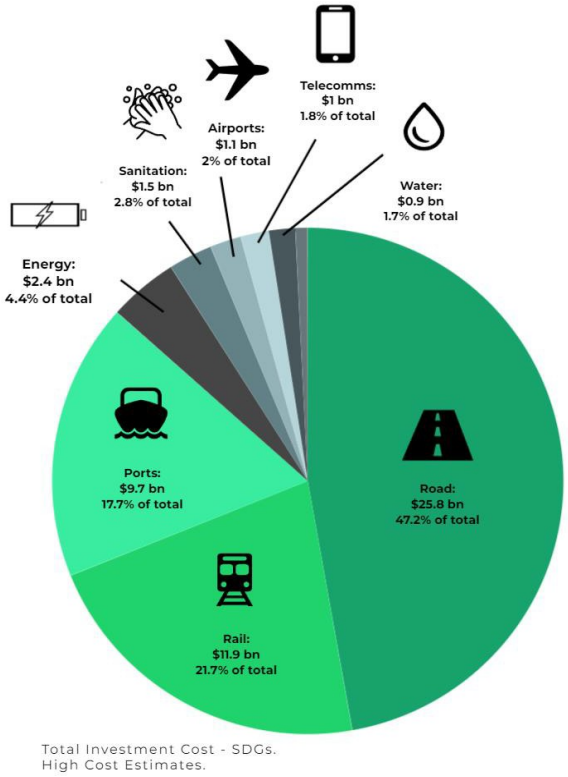



Figure 10: The Republic of Congo's investment split by infrastructure sub-category under scenario

### 3.2.2 MOROCCO:

Our forecasting revealed that for Morocco to reach the SDGs, the total investment cost from 2021 to 2030 stands at USD 134.4 - USD 184.5 billion (low-high cost). In terms of average annual spending, achieving the SDGs in Morocco would require spending USD 13.4 - USD 18.5 billion annually, or 10% - 14% of GDP. The total investment cost to reach the SDGs can be broken down into sectors (Figures 11 and 12).

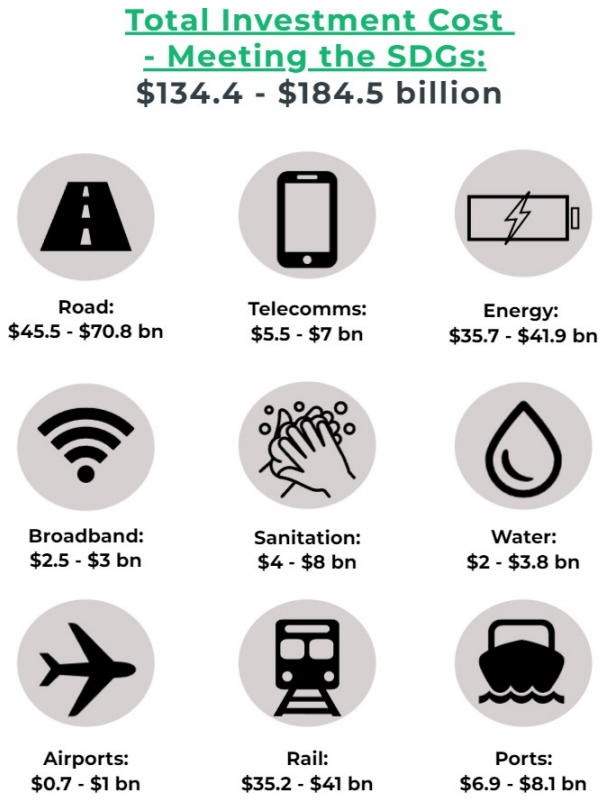



Figure 11: Morocco's total investment costs under scenario 2.

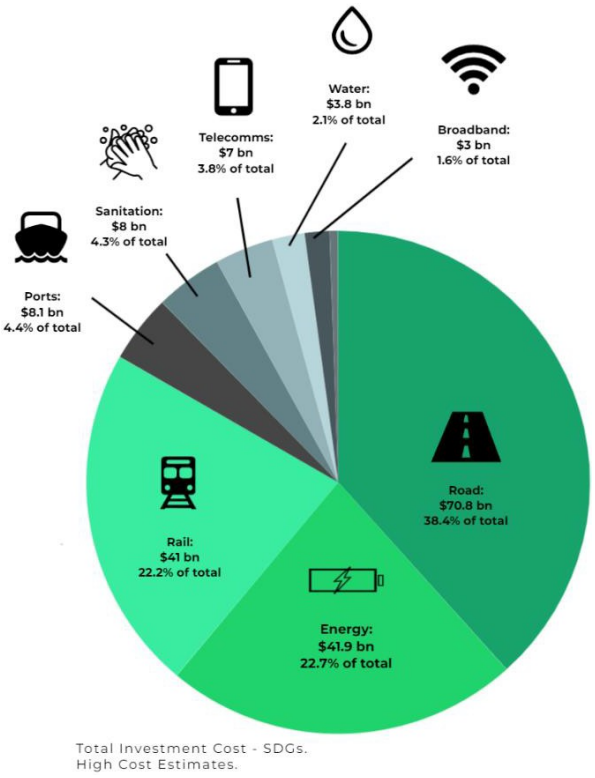



Figure 12: Morocco's investment split by infrastructure sub-category under scenario 2.

### 3.2.3 MOZAMBIQUE:

Our forecasting revealed that for Mozambique to reach the SDGs, the total investment cost from 2021 to 2030 stands at USD 88.9 - USD 126.5 billion (low-high cost). In terms of average annual spending, achieving the SDGs in Mozambique would require spending USD 8.9 - USD 12.7 billion annually, or 36% - 52% of GDP. The total investment cost to reach the SDGs can be broken down into sectors (Figures 13 and 14).

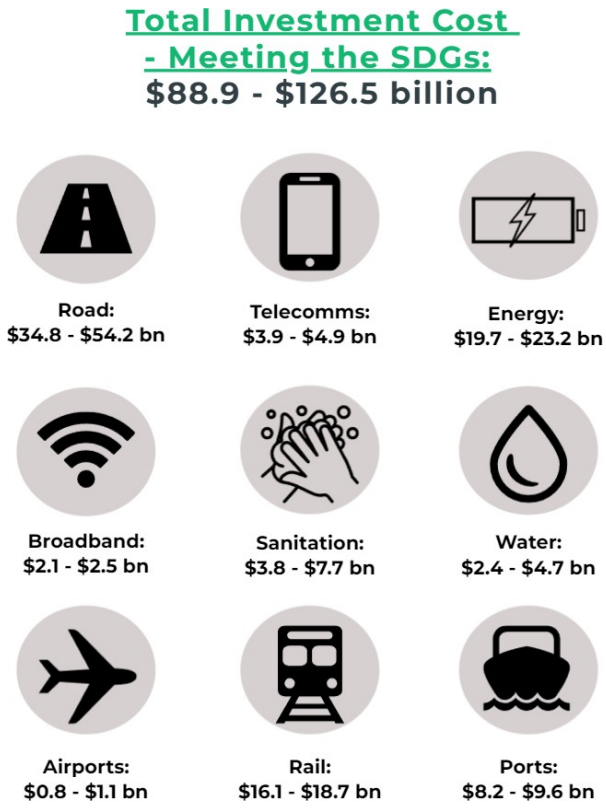



Figure 13: Mozambique's total investment costs under scenario 2.

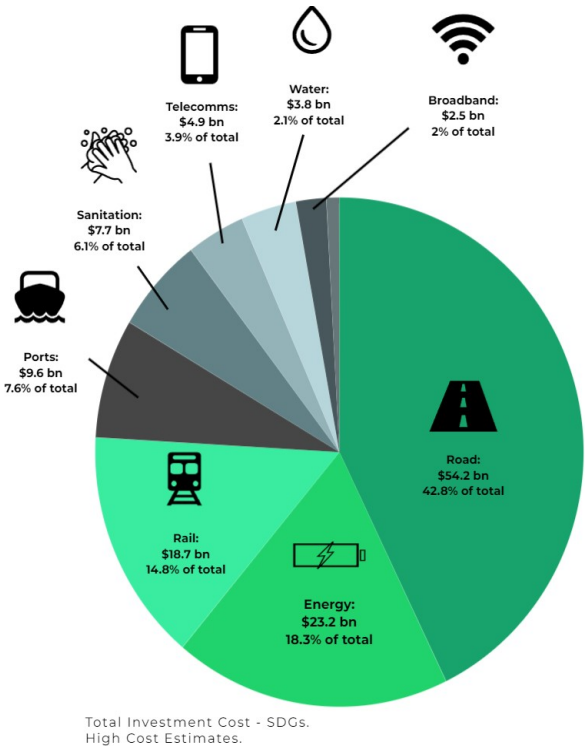



Figure 14: Mozambique's investment split by infrastructure sub-category under scenario 2.

### 3.2.4 SUDAN:

Our forecasting revealed that for Sudan to reach the SDGs, the total investment cost from 2021 to 2030 stands at USD 67.4 - USD 101.7 billion (low-high cost). In terms of average annual spending, achieving the SDGs in Sudan would require spending USD 6.7 - USD 10.2 billion annually, or 9% - 13% of GDP. The total investment cost to reach the SDGs can be broken down into sectors (Figures 15 and 16).

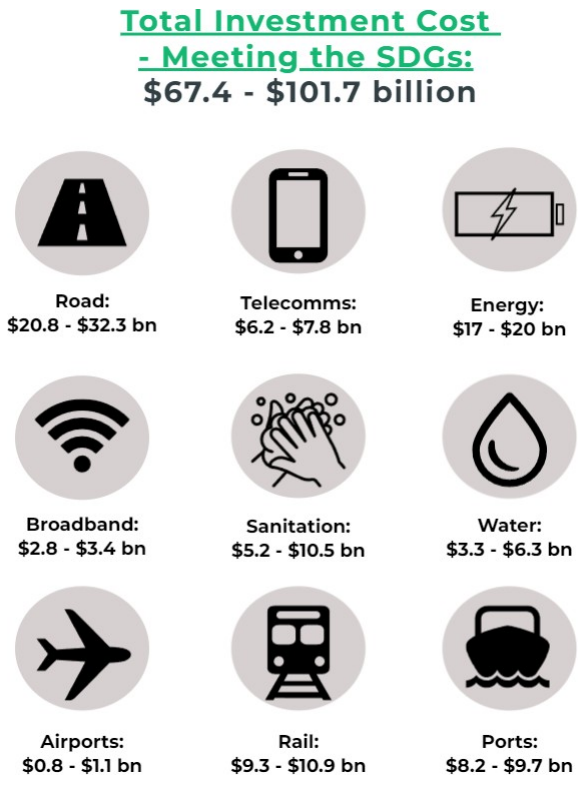



Figure 15: Sudan's total investment costs under scenario 2.

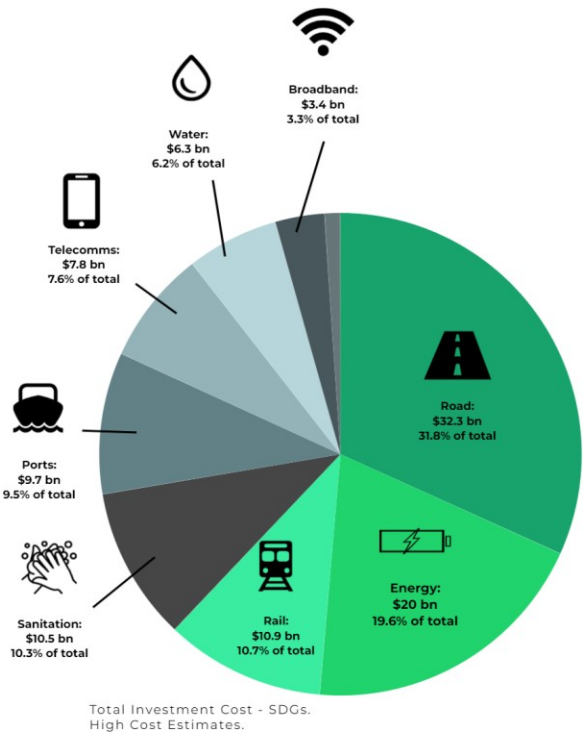



Figure 16: Sudan's investment split by infrastructure sub-category under scenario 2.

### 3.2.5 TUNISIA:

Our forecasting revealed that for Tunisia to reach the SDGs, the total investment cost from 2021 to 2030 stands at USD 89.1 - USD 119.5 billion (low-high cost). In terms of average annual spending, achieving the SDGs in Tunisia would require spending USD 8.9 - USD 12 billion annually, or 18% - 24% of GDP. The total investment cost to reach the SDGs can be broken down into sectors (Figures 15 and 16).

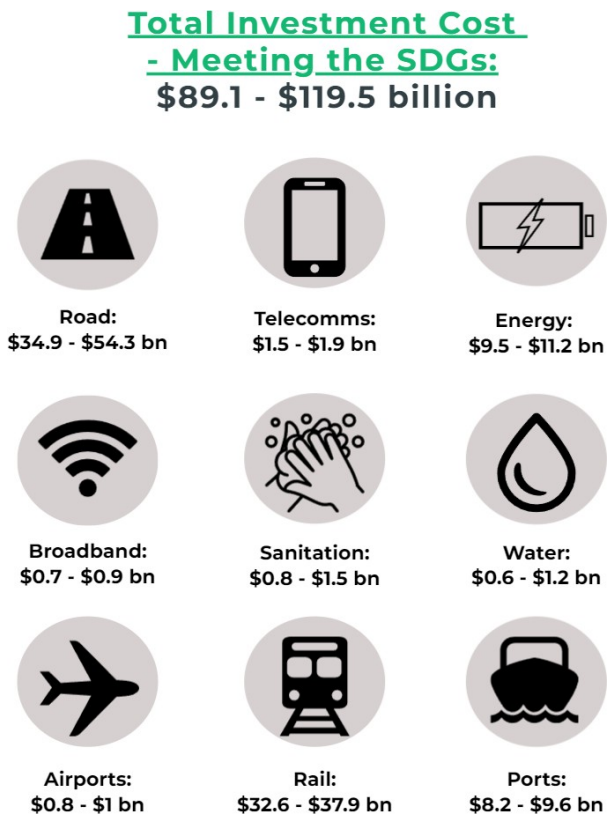



Figure 15: Tunisia's total investment costs under scenario 2.

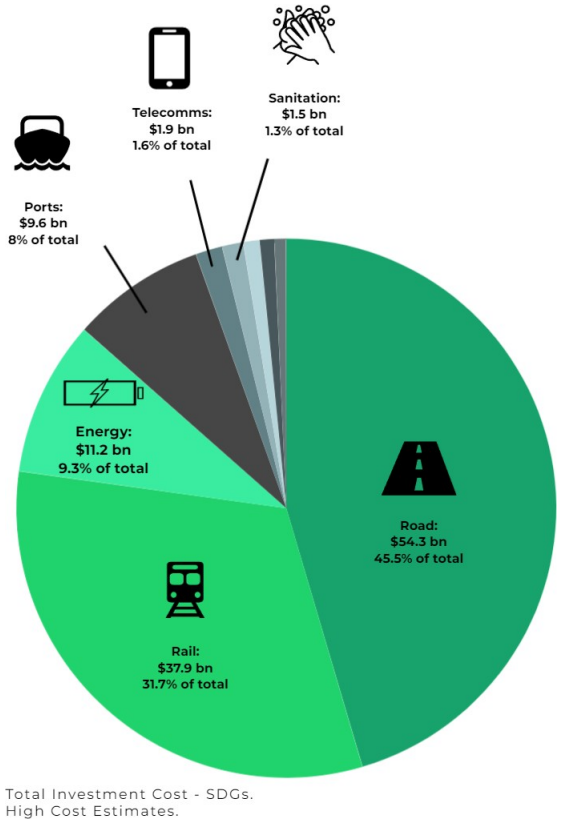



Figure 16: Tunisia's investment split by infrastructure sub-category under scenario 2.

# CHAPTER FOUR:

# 4 TOTAL INFRASTRUCTURE FINANCING GAP

## 4.1 Introduction

Having assessed the current infrastructure investment trends in each country (scenario 1) and the levels of investment needed to meet 2030 SDGs (scenario 2), we conclude by analyzing variances in monetary value between these two scenarios based on low and high infrastructure investment cost estimates.

The resultant differences calculated reveal our projected infrastructure investment gaps in the Republic of Congo, Morocco, Mozambique, Sudan and Tunisia between 2021-2030. These gaps are provided in terms of cumulative and annual investment needs in the 10-year period.

Based on current infrastructure investment trends, USD 1.2 - USD 7.8 billion will need to be invested each year in the five countries listed in Table 2. For context, this will translate to a GDP share of 3 - 24%. Table 2 provides a summary of our results.

**Table 2: Summary of results for average annual infrastructure investment needs by country**.

| Country | Current Annual Investment Trend (avg, USD) | Current Annual Investment Trend (% of GDP) | SDG Target Annual | SDG Target Annual Investment (% of GDP) |
|---|---|---|---|---|
| **Republic of Congo** | 1.2 – 1.9 billion | 13 - 20 | 3.9 – 5.5 billion | 42 - 58 |
| **Morocco** | 5.8 – 7.8 billion | 4 - 6 | 13.4 – 18.5 billion | 10 - 14 |
| **Mozambique** | 4.1 – 5.8 billion | 17 - 24 | 8.9 – 12.7 billion | 36 - 52 |
| **Sudan** | 2.7 – 3.8 billion | 3 - 5 | 6.7 – 10.2 billion | 9 - 13 |
| **Tunisia** | 1.8 – 2.4 billion | 4 - 5 | 8.9 – 12 billion | 18 - 24 |

With 2030 SDGs in mind, each country's infrastructure investment needs multiply in varying proportions. Annual investment needs will range from **USD 3.9 - USD 18.5 billion**, meaning that the equivalent **of 9 - 58% of GDP** will need to be set aside each year solely for infrastructural development.

In monetary terms, Morocco has the largest annual and cumulative infrastructure investment needs. But relative to historical economic output (as measured by GDP), Mozambique will have a greater commitment to make.

The scale of financial commitments required above highlights the urgent need for greater levels of infrastructure financing in these countries but, more importantly, indicates how significant a role

infrastructural development plays towards broader economic growth. More years of infrastructure under-investment will widen each country's investment needs, compromising progress towards achieving 2030 SDGs.

Using an exponential smoothing algorithm, Table 3 summarizes forecasted debt-GDP ratios in the Republic of Congo, Morocco, Mozambique, Sudan, and Tunisia based on data from a 2000-2021 debt-GDP dataset. What stands out from these findings is the steadily expanding debt burden brought by infrastructural and other economic commitments countries may face in the years ahead. Perhaps in disproportionate measures, GDP also grows each year. But as a result of (among other underlying causes) investment gaps in Table 2, debt-GDP ratios weigh in favour of debt increases at the expense of overall economic output.

**Table 3: Forecasted debt-to-GDP ratios under current investment trends.**

| Country | Rep Congo | Morocco | Mozambique | Sudan | Tunisia |
|---|---|---|---|---|---|
| **2022** | 100 | 71.87 | 108.44 | 186.34 | 89.42 |
| **2023** | 97.10 | 72.61 | 110.44 | 247.62 | 91.07 |
| **2024** | 95.42 | 74.34 | 113.54 | 288.20 | 93.08 |
| **2025** | 94.81 | 75.56 | 119.70 | 297.26 | 95.83 |
| 2026 | 95.74 | 76.98 | 124.29 | 316.78 | 99.74 |
| 2027 | 97.31 | 78.56 | 129.14 | 332.23 | 102.86 |
| 2028 | 99.33 | 80.75 | 133.34 | 348.10 | 105.55 |
| 2029 | 102.68 | 83.21 | 147.73 | 352.03 | 109.07 |
| 2030 | 105.59 | 85.41 | 153.11 | 368.63 | 112.56 |
| 2022 – 2030 change | + 5.59 | + 13.54 | + 44.67 | + 182.29 | + 23.14 |

### 4.1.1 REPUBLIC OF CONGO:

Our forecasting revealed that the Republic of Congo's Total Infrastructure Gap from 2021 to 2030 stands at USD 26.9 - USD 36.1 billion (low-high cost).

In terms of the average annual investment gap, this stands at USD 2.7 - USD 3.6 billion or 29% - 39% of GDP. The differences between the BaU Scenario and the SDG Scenario are shown in Chart 1.

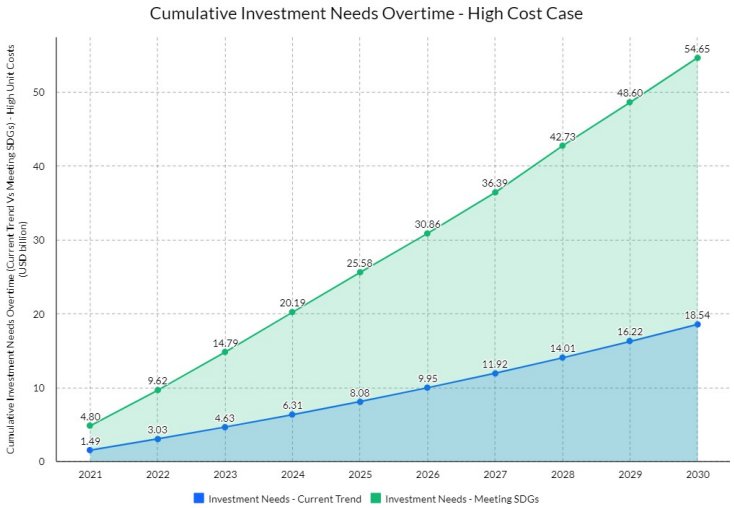



Chart 1: The Republic of Congo's investment forecasting gap (high-cost).

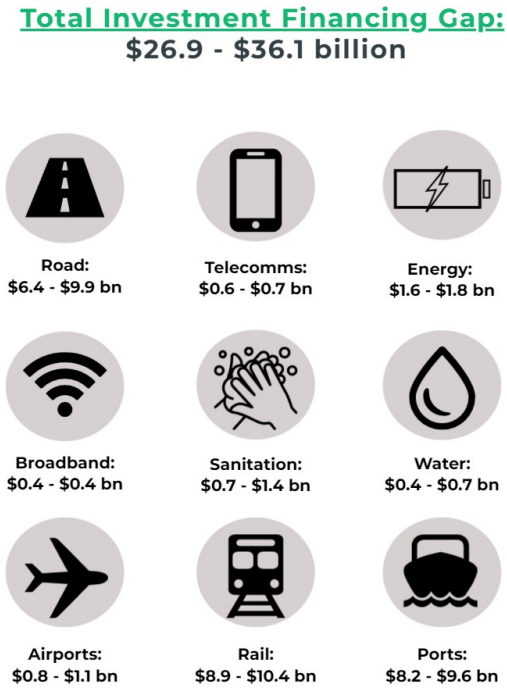
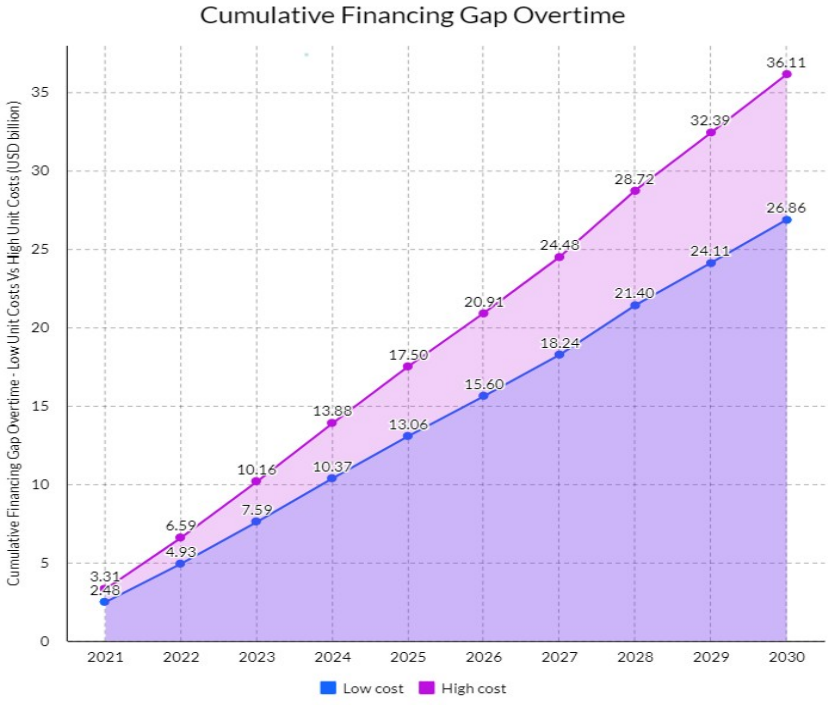



Figure 17: The Republic of Congo's investment forecasting gap (2021-2030).



### 4.1.2 MOROCCO:

Our forecasting revealed that Morocco's Total Infrastructure Gap from 2021 to 2030 stands at USD 76 - USD 106.7 billion (low-high cost).

In terms of the average annual investment gap, this stands at USD 7.6 - USD 10.7 billion or 6% - 8% of GDP. The differences between the BaU Scenario and the SDG Scenario are shown in Chart 3.

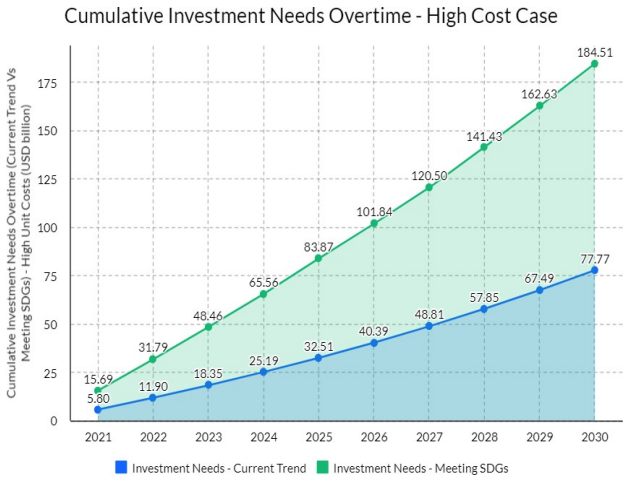



Chart 3: Morocco's investment forecasting gap (2021-2030, high-cost estimate).

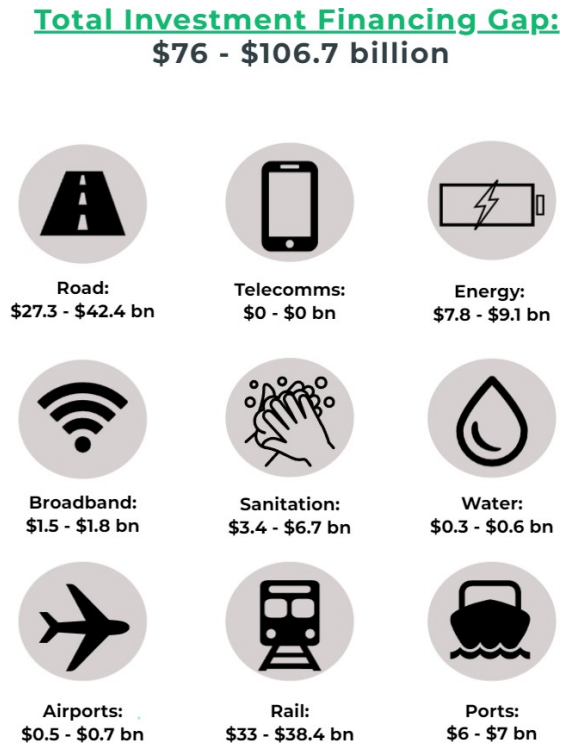
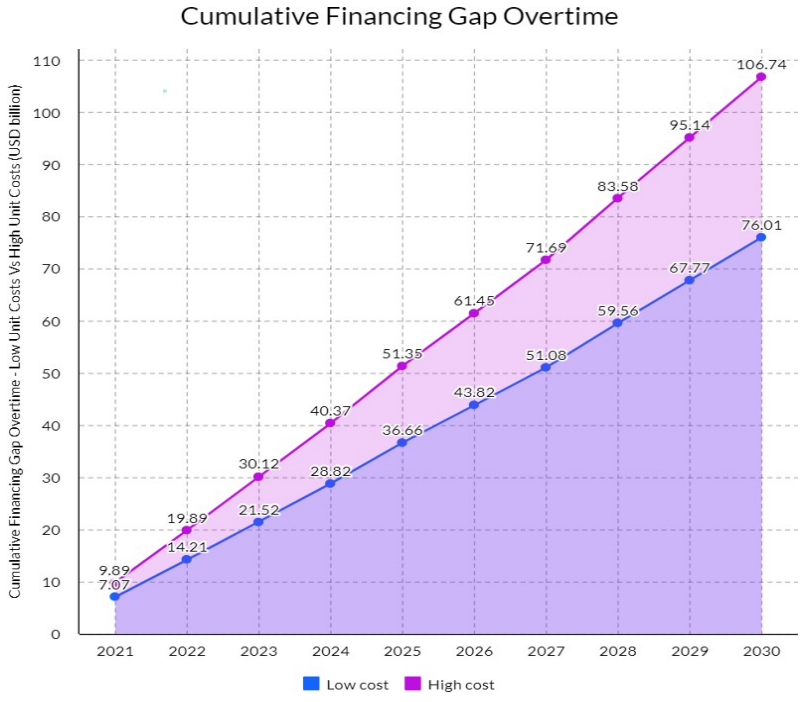



Figure 18: Morocco's investment forecasting gap (2021-2030).



### 4.1.3 MOZAMBIQUE:

Our forecasting revealed that Mozambique's Total Infrastructure Gap from 2021 to 2030 stands at USD 48.1 - USD 68.4 billion (low-high cost).

In terms of the average annual investment gap, this stands at USD 4.8 - USD 6.8 billion or 20% - 28% of GDP. The differences between the BaU Scenario and the SDG Scenario are shown in Chart 5 (high cost).

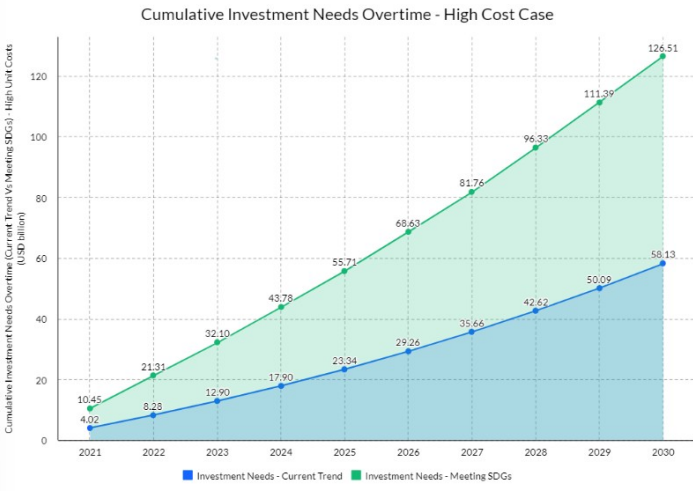



Chart 5: Mozambique's investment forecasting gap (2021-2030, high-cost estimate).

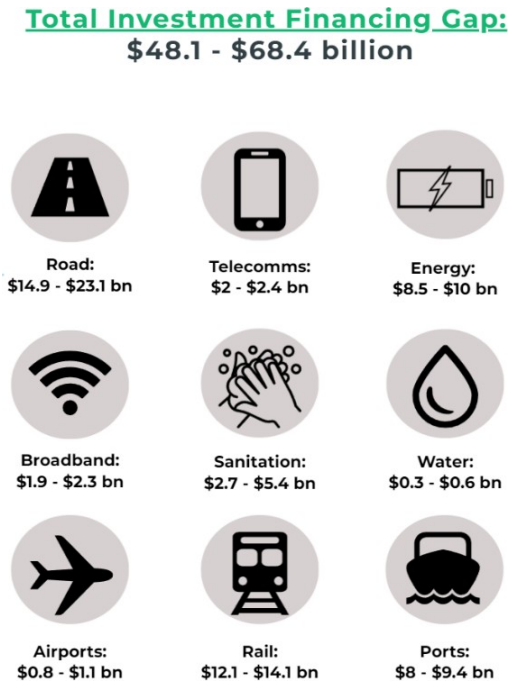
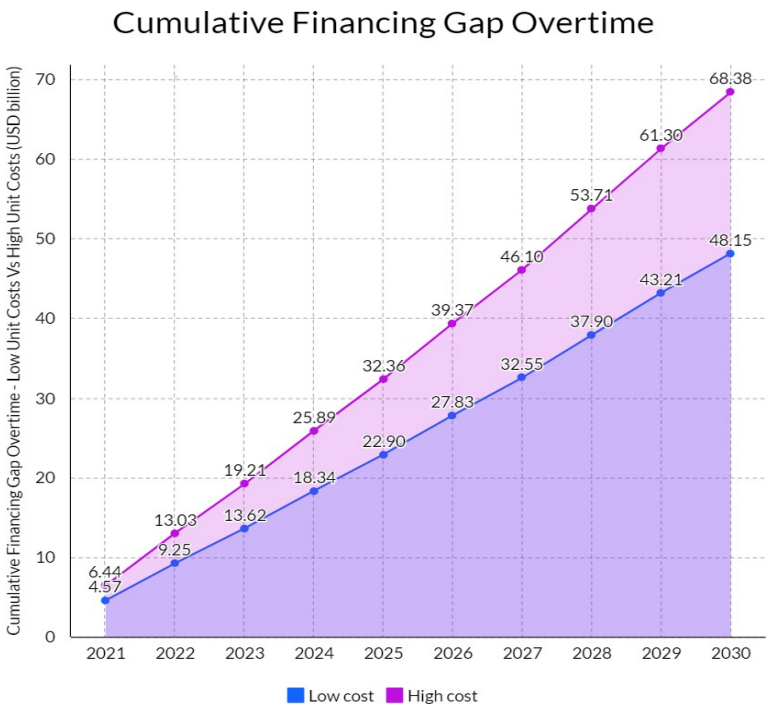



Figure 19: Mozambique's investment forecasting gap (2021-2030).



### 4.1.4 SUDAN:

Our forecasting revealed that Sudan's Total Infrastructure Gap from 2021 to 2030 stands at USD 40.1 – USD 63.6 billion (low-high cost).

In terms of the average annual investment gap, this stands at USD 4 – USD 6.4 billion or 5% - 8% of GDP. The differences between the BaU Scenario and the SDG Scenario are shown in Chart 7.

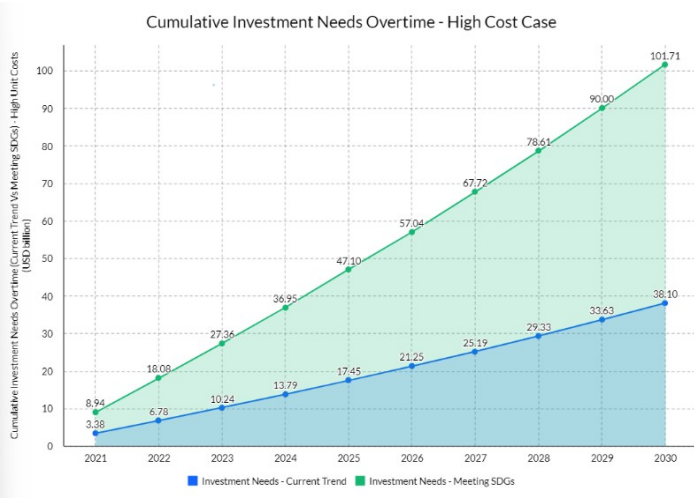



Chart 7: Sudan's total investment needs (2021-2030, high-cost case).

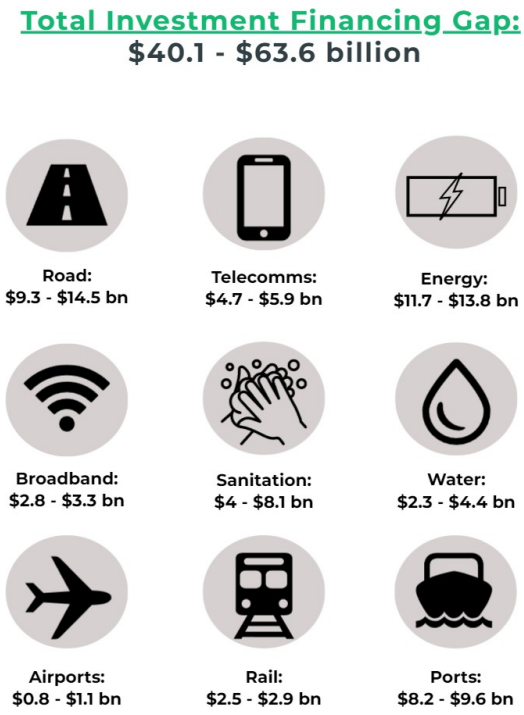
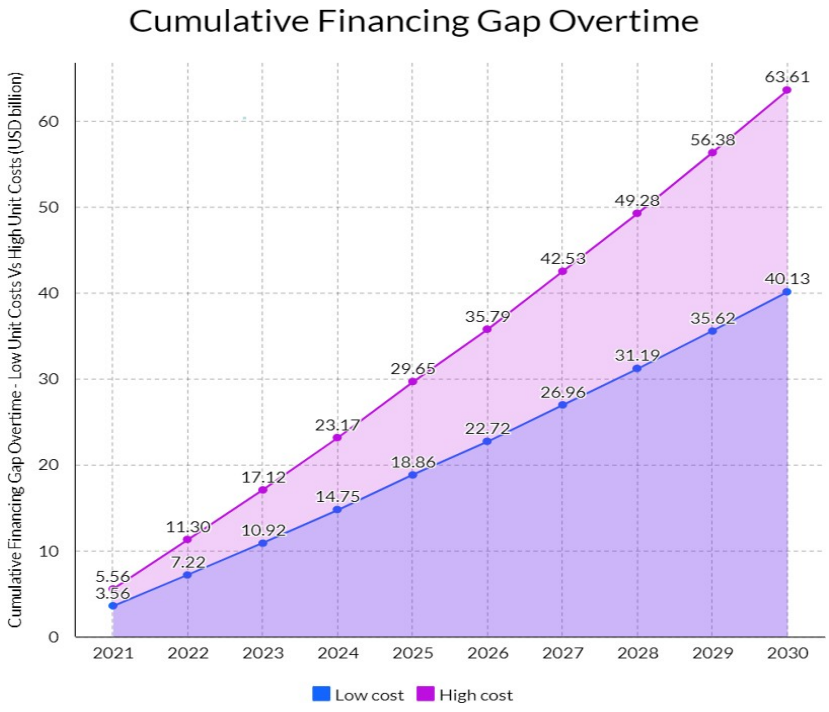



Figure 21: Sudan's investment forecasting gap (2021-2030).



### 4.1.5 TUNISIA:

Our forecasting revealed that Tunisia's Total Infrastructure Gap from 2021 to 2030 stands at USD 71.3 – USD 95.4 billion (low-high cost).

In terms of the average annual investment gap, this stands at USD 7.1 – USD 9.5 billion or 14% - 19% of GDP. The differences between the BaU Scenario and the SDG Scenario are shown in Chart 7.

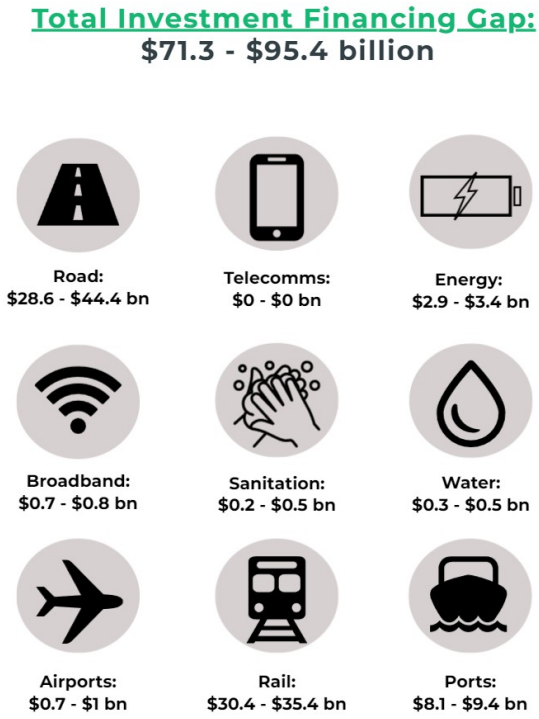



Figure 21: Tunisia's investment forecasting gap (2021-2030).

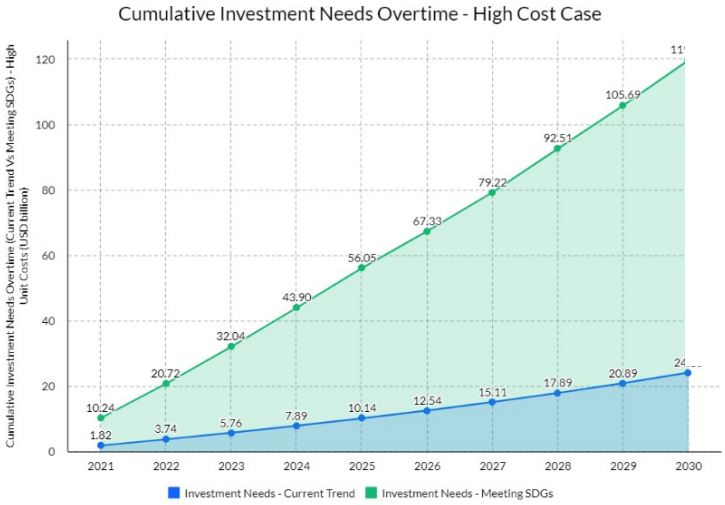



Chart 7: Tunisia's total investment needs (2021-2030, high-cost case).

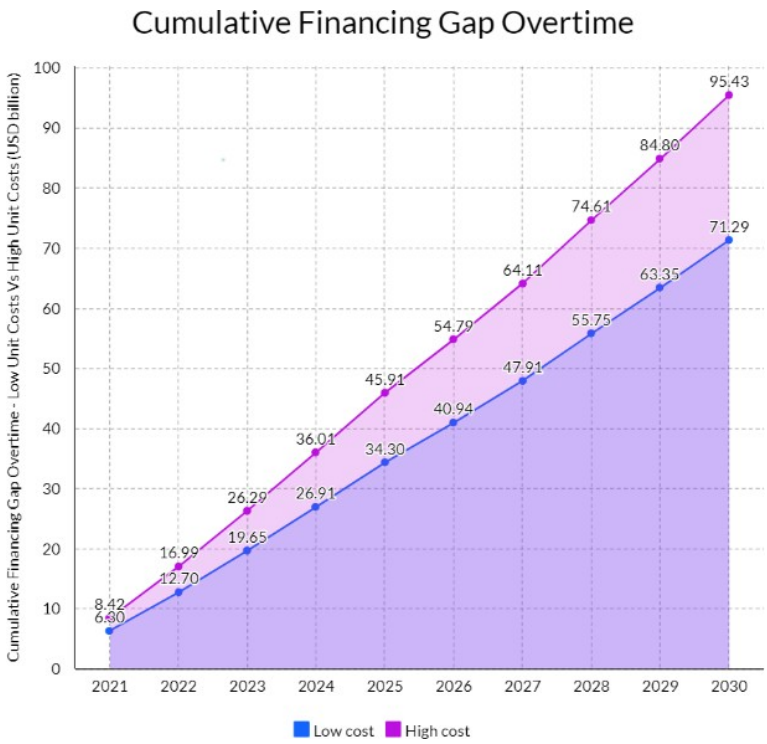



Chart 8: Tunisia's total financing gap (2021-2030).

# CHAPTER FIVE:

## 5 CONCLUSIONS AND RECOMMENDATIONS

Closing the infrastructure gap across all five countries requires a huge amount of capital, as the forecasting has demonstrated. To mobilize such capital for infrastructure development, African governments should look to prioritize capital spending which promotes growth over recurrent expenditure. Yet, this process is hindered by the DSA by the IMF and World Bank which has the main objective to monitor low-income countries' debt levels by classing them as either low, moderate, high or at risk of debt distress, with most African countries falling in the last two categories.

**The DSA ignores the positive side of debt – by not counting assets produced by debt - making it incomplete.** Country debt can be spent on very different activities – including on investments in growth-producing assets, primarily infrastructure, which can have "spillovers" that create new growth that would not have been there otherwise. For example, a new railway project can cut travel costs and create new markets, which translates into higher productivity. Yet, none of this examination of the potential new "goods" or "assets" created by debt incurred is included in DSA.

**Going forward, Development Reimagined suggests 3 key recommendations that policymakers and civil society in Borrowing countries should push for - specifically targeted at reform in the IMF and World Bank – to work better for African needs and development priorities.**

1. **The DSA should track the "positives" of debt by focusing on the quality of debt rather than just its quantity and adjust thresholds on this basis**. Debt can fund growth-inducing projects. For example, African governments often borrow for capital expenditure such as infrastructure projects, including projects in energy, railways, and roads, all of which have growth-inducing spinoff effects such as creating jobs and incomes, enhancing productivity, facilitating regional and international trade and developing value and supply chains. These "endogenous growth" effects should be accounted for in the DSA.

2. **The DSA should account for the "gap" countries have between their existing capital needs and the capital needs to achieve the SDGs**. Right now, there is no way to adjust DSAs based on need. The SDGs and Agenda 2063 cannot be met without increased spending and sufficient access to concessional finance to do so.

3. **African governments should consider conducting their own DSAs.** This will enable governments to produce an analysis tailored to incorporate their individual development context. Further, this locally-produced analysis can be utilised as a benchmark to compare with the World Bank and IMF's DSA thresholds.

Nevertheless, the international system must adapt and change to allow for more capital spending to fund development. In this respect, such debt must be cheap with lower interest rates over longer-term periods, alongside the essential revision of the World Bank and IMF's DSA.

# 6 ACKNOWLEDGEMENTS AND CONTACT DETAILS

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For further information on our forecasting, please email clients@developmentreimagined.com.