

# Global Infrastructure Outlook

**Infrastructure investment needs  
50 countries, 7 sectors to 2040**



Global  
Infrastructure  
Hub

**A G20 INITIATIVE**

## FORECASTING THE SIGNIFICANT CHANGES THAT DRIVE INFRASTRUCTURE NEED



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GLOBAL INFRASTRUCTURE OUTLOOK (OUTLOOK) IS A DETAILED REVIEW AND ANALYTICAL TOOL THAT ENABLES GOVERNMENTS, BUSINESSES AND INFRASTRUCTURE ORGANISATIONS TO COMPREHENSIVELY ANALYSE AND PREDICT INFRASTRUCTURE INVESTMENT REQUIREMENTS ACROSS THE GLOBE OVER THE NEXT 25 YEARS.

Globally, the need for infrastructure investment, is forecast to reach \$94 trillion by 2040, and a further \$3.5 trillion will be required to meet the United Nation's Sustainable Development Goals for electricity and water. Outlook reveals where investment is most likely to fall short, and therefore where the needs are greatest, across 50 countries and seven sectors. It considers what investment is needed and what is likely to occur based on a range of factors, such as a country's historic infrastructure spending levels and how its population and economy is changing, hence identifying investment gaps.

Quantifying country-level needs is a powerful and positive step. These insights will help governments identify and respond to infrastructure needs, and guide opportunities for private sector investors.



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OUR BRIEF WAS A CHALLENGING ONE: TO PRODUCE FORECASTS OF INFRASTRUCTURE SPENDING AND NEEDS FOR SEVEN SECTORS ACROSS 50 COUNTRIES. TO OUR KNOWLEDGE, NO PREVIOUS STUDY HAS PUBLISHED ESTIMATES AND FORECASTS OF INFRASTRUCTURE INVESTMENT IN THIS LEVEL OF GRANULARITY.

Our study explores infrastructure needs from the perspective of different countries and sectors—building roads in Nigeria is a very different task to improving rail in Japan. We therefore hope the study brings the global infrastructure challenges into sharper relief than ever before.

The findings are the result of a major data collection and econometric analysis exercise, drawing on information from 50 or so separate datasets, alongside the development of bespoke models to fill gaps where no data could be identified.

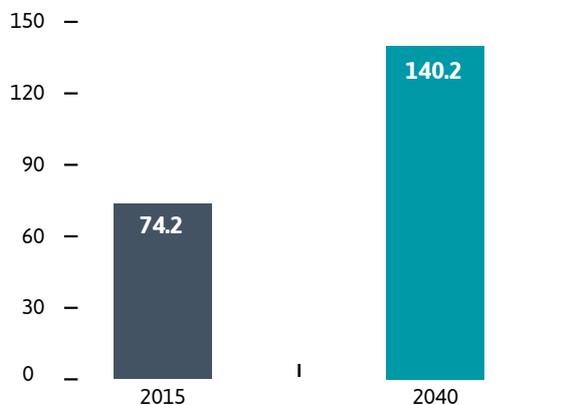
## DEVELOPING AND EMERGING ECONOMIES WILL DRIVE FUTURE ECONOMIC GROWTH, GROWING AT MORE THAN TWICE THE RATE OF ADVANCED ECONOMIES

By 2040, global GDP is predicted to almost double from 2015 levels. Outlook forecasts that developing and emerging markets will grow at 3.6 per cent a year on average, compared with 1.7 per cent a year for advanced economies.

## FAST POPULATION GROWTH IS CONCENTRATED IN CITIES

By 2040, the global population will increase by almost two billion people, an increase of 25%. However that growth will not be evenly spread. Outlook forecasts that as rural to urban migration gathers pace, the urban population will increase by 46%. The global population density will rise from 49 people per square kilometre to 61, driving a renewed focus on long-term planning to reduce congestion and strain on existing networks.

**Figure 1:** World GDP forecast in \$trillion (2015 prices and exchange rates)



## \$97 TRILLION OF INFRASTRUCTURE INVESTMENT NEEDED BY 2040

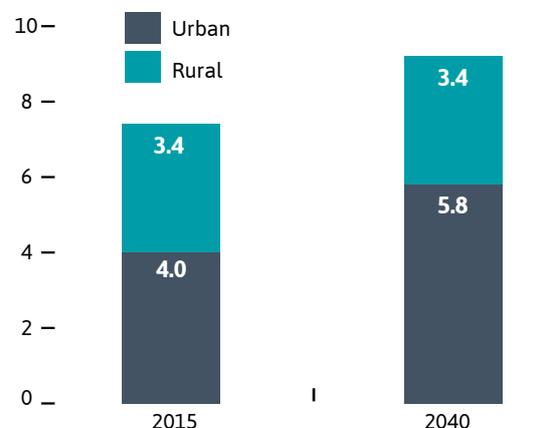
Outlook projects that global infrastructure investment needs to reach \$94 trillion by 2040 to keep pace with profound economic and demographic changes, and to close infrastructure gaps.

It also forecasts a global infrastructure investment gap of about \$15 trillion – equal to a 16% infrastructure investment deficit – by 2040. Closing the gap will require annual infrastructure investment to increase from the current level of 3.0% of global GDP to 3.5%

Meeting the SDGs increases the need by a further \$3.5 trillion, growing the gap to about \$18 trillion and investment requirement to 3.7% of global GDP.

Beyond these headline global figures are the country and sector specific infrastructure requirements that represent the real challenge of finding, and funding, infrastructure programs that enhance economic and social wellbeing. By forecasting current trends in infrastructure investment and investment need at a country and sector level, Outlook identifies where significant investment gaps are most likely to occur.

**Figure 2:** World population forecast (billions)



## 6 KEY FINDINGS

OUTLOOK HAS IDENTIFIED SEVERAL KEY FINDINGS THAT WILL HAVE THE GREATEST IMPACT ON INFRASTRUCTURE PERFORMANCE AROUND THE WORLD.

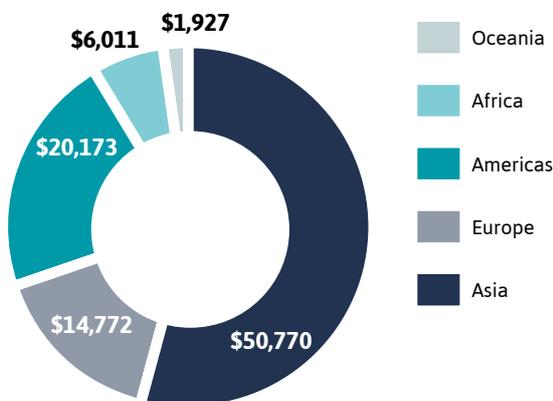
With this information, decision makers and policy setters can plan for their country's infrastructure needs in ways that address locally determined policy goals.

### 1. Over half of global infrastructure investment needs are in Asia.

Three of the five countries with the greatest infrastructure need are in Asia (China, India and Japan), with those countries comprising 39% of global infrastructure investment needs. China alone is expected to need \$28 trillion in infrastructure investment, which is more than half of Asia's total needs and 30% of global needs.

Under current trends, Outlook forecasts a global infrastructure gap of \$15 trillion by 2040, representing 16% of total needs. However, regional performance on this measure is strikingly variable. The Americas and Africa are forecast to have the largest infrastructure gaps, at 32% and 28% of their needs respectively, while Asia and Oceania are close to meeting their needs.

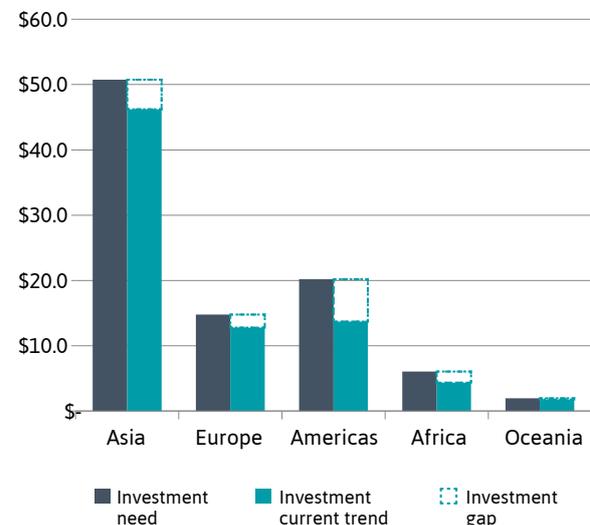
**Figure 3:** Regional infrastructure investment needs 2016–2040 (\$ billion)



### 2. Significant variations in investment gaps across regions:

- **Latin America:** Investment need is pronounced for the road and electricity sectors.
- **North America:** The US's \$3.8 trillion infrastructure gap is the most significant of any country.
- **Europe & UK:** While European countries in general perform well in meeting their infrastructure needs, there are exceptions. Russia has the fourth largest infrastructure gap in the world, with a forecast investment shortfall of 41% of its total investment needs.
- **Asia:** China, Japan, South Korea, and Singapore are forecast to largely meet their infrastructure needs. Those that have a proportionally larger gap include India (\$526 billion), Turkey (\$405 billion), Bangladesh (\$192 billion), and Pakistan (\$124 billion).
- **Africa:** Most African countries have very large infrastructure needs and face significant investment gaps. South Africa, Nigeria and Egypt are forecast to meet 69% of their infrastructure need.
- **Oceania:** Australia and New Zealand are broadly on track to meet more than 90% of their infrastructure needs.

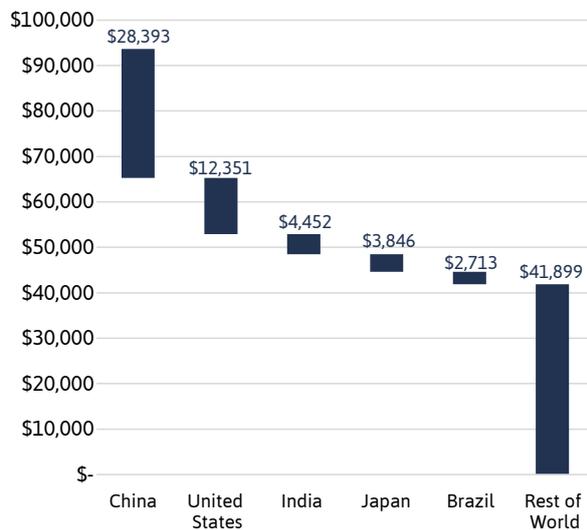
**Figure 4:** Total infrastructure investment, need and gap by region 2016–2040 (\$ trillion)



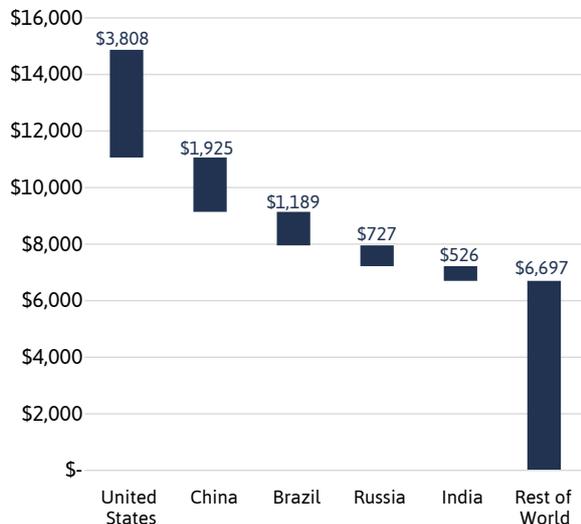
### 3. The US has the largest infrastructure investment gap, forecasted to be \$3.8 trillion by 2040.

Outlook finds that five countries account for 55% of the global infrastructure investment gap. Although China's investment need is more than double that of the US, its investment gap of \$1.9 trillion is just 7% of its investment need. This is compared with the investment gap of the US, at \$3.8 trillion it is 31% of its investment need.

**Figure 5: Infrastructure needs by country 2016–2040 (\$ billion)**



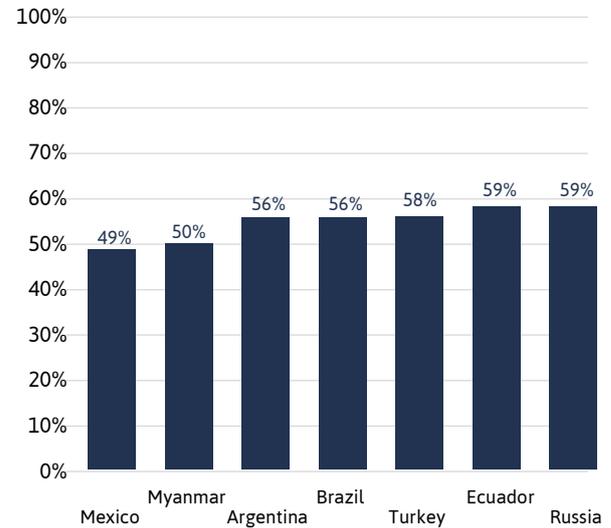
**Figure 6: Total infrastructure spending gap per country 2016–2040 (\$ billion)**



### 4. Developing and some emerging countries continue to have relatively large infrastructure needs and investment gaps

Mexico, Myanmar and Argentina would approximately need to double investment from current trends in order to meet forecast infrastructure needs.

**Figure 7: Current trends in investment relative to investment needs**



THIS IS AN EXCELLENT REPORT – IT IS THE MOST CLEAR, COMPREHENSIVE DOCUMENT PRODUCED TO DATE ON THIS OFTEN DEBATED TOPIC. WE NOW HAVE THE DATA WE NEED TO FOCUS OUR DISCUSSIONS.

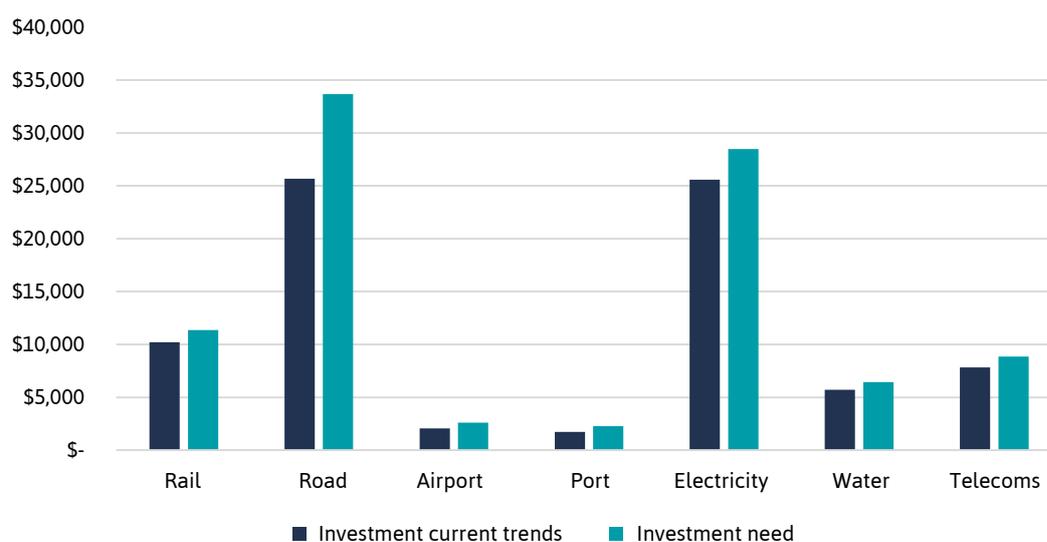
**MATTHEW JORDAN-TANK**  
HEAD OF INFRASTRUCTURE POLICY  
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## 5. The majority of global infrastructure investment gap is in the road and electricity sectors.

Outlook estimates an \$8 trillion infrastructure investment gap in roads, which represent more than half of the total global infrastructure investment gap. Although the electricity sector represents the second largest infrastructure investment gap at \$2.9 trillion, the majority of that gap is in developing and emerging countries.

Figure 8: Comparison of infrastructure investment forecast by sector 2016 – 2040 (\$ billion)



## 6. On current trends in investment the world will fall short of meeting the UN Sustainable Development Goals (SDGs) by 2030.

Outlook estimates that \$5.8 trillion is needed to achieve the UN Sustainable Development Goals for universal access to drinking water, sanitation and electricity by 2030, with this need concentrated in the most vulnerable countries. Compared with the base infrastructure investment need of \$94 trillion, meeting the SDGs would require an additional \$3.5 trillion.

The largest impact from meeting the SDGs is on Africa. Africa’s infrastructure investment gap from 2016 to 2040 doubles from \$1.7 trillion to \$3.3 trillion owing to the additional investment needed to meet the SDGs.

Table 1: Impact of meeting Sustainable Development Goals on infrastructure investment gap 2016 - 2040 (\$trillion)

	ASIA	EUROPE	AMERICAS	AFRICA	OCEANIA
<b>GAP WITHOUT MEETING SDGS</b>	\$4.6	\$2.0	\$6.5	\$1.7	\$0.2
<b>ADDITIONAL INVESTMENT NEEDED TO MEET SDGS</b>	\$1.6	\$0.1<	\$0.3	\$1.6	\$0.1<
<b>GAP INCLUDING MEETING SDGS</b>	\$6.1	\$2.0	\$6.8	\$3.3	\$0.2
<b>% CHANGE IN GAP</b>	34%	1%	5%	97%	6%

## INNOVATIVE METHODOLOGY

Outlook is a new country-based approach to understanding the size and nature of the global infrastructure challenge. A sophisticated econometric approach was applied, drawing on a new database compiled from the best available sources for seven industry sectors across 50 countries.

**Infrastructure spend** is forecast using sector-specific econometric models based on drivers such as GDP, population density and industry mix.

**Infrastructure need** is estimated by applying a new methodology based on infrastructure performance. Performance is estimated as the difference between the infrastructure a country has and what it would be expected to have. From this we can estimate how much additional investment would be needed to align provision with a country's 'best performing' peers, adjusted for the characteristics of that country and its infrastructure quality.

## ABOUT GI HUB

GI Hub was established by the G20 mandate to increase the flow and the quality of opportunities for public and private infrastructure investment. We work to facilitate a better supply of quality, bankable government infrastructure projects to the private sector, identifying reforms, planning approaches and risk management strategies that drive public-private partnership and investment into infrastructure. We aim to be a leading reference on infrastructure best practices, providing innovations that enhance the market's ability to finance, build and secure the best returns from infrastructure projects.

This factsheet was prepared by GI Hub, relying on outputs produced by Oxford Economics.

For more information including the full report please visit [www.gihub.org](http://www.gihub.org)

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