Large Infrastructure
Transport infrastructure

Jakkie Cilliers and Blessing Chipanda

Transport infrastructure

The transport infrastructure in all four subsectors (road, railways, air and ports) is a major bottleneck for development across much of Africa, particularly for landlocked countries. Reliable transport infrastructure is crucial for firms in Africa to import and export goods, fill orders and obtain supplies.

Road networks are the predominant model of transport in Africa as they carry at least 80% of goods and 90% of passengers. In 2019, nearly 74% of Africa's road network was unpaved, isolating the population from basic education, healthcare services, transport corridors, trade hubs and economic opportunities. Moreover, access to road networks is uneven, particularly in rural areas where the rate of access is low. This unequal access makes the flow of goods and services from and to rural areas difficult and expensive. In addition, poorly constructed rural roads that wash away during rainy seasons can make rural areas inaccessible and travel dangerous. However, rural transport is an essential facilitator for achieving SDGs, particularly within the agriculture sector.

Maintenance of road networks is also inadequate and, when done, is often inefficient. Road networks in many African countries suffer from vehicle overloading, which causes road surfaces to prematurely degrade and results in reduced construction lifespan and high maintenance costs. Despite the continent having fewer vehicles on its roads than other world regions, the road infrastructure deficit has resulted in traffic congestion. Poor road infrastructure contributes to traumatic injuries through avoidable road accidents, further stressing Africa's health system, which is already overburdened by its high communicable disease and increasing non-communicable disease burdens. An empirical study on Africa by the World Bank in 2021 finds that investments in roads alone have a larger impact on sectoral change—moving workers from agriculture to manufacturing and service.

Chart 7 shows the historical and forecast trends for paved roads in Africa by income group. The progress in expanding paved roads in Africa is limited, particularly in low-income and lower-middle-income regions. By 2043, it is projected that low-income Africa will have reached only 37.1% of paved roads, while lower-middle-income Africa will have reached 61.9%.

Chart 7: Paved roads in Africa by income groups, 1990, 2019 & 2043

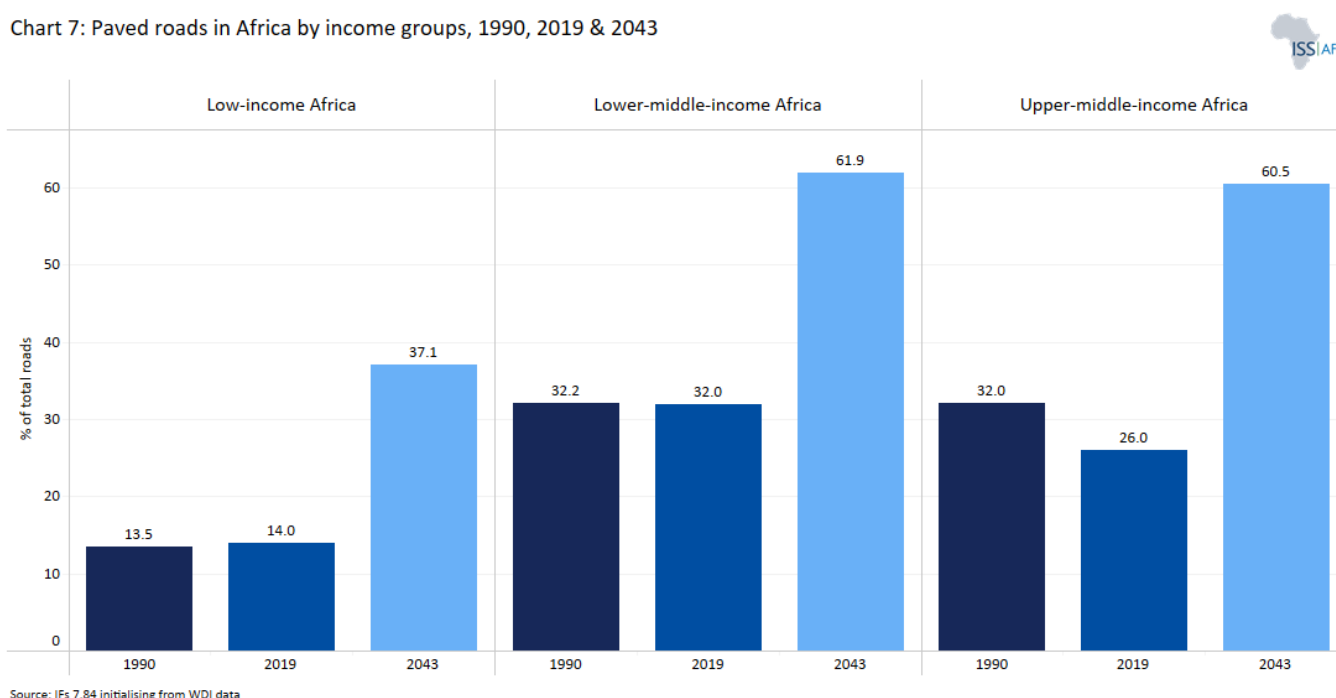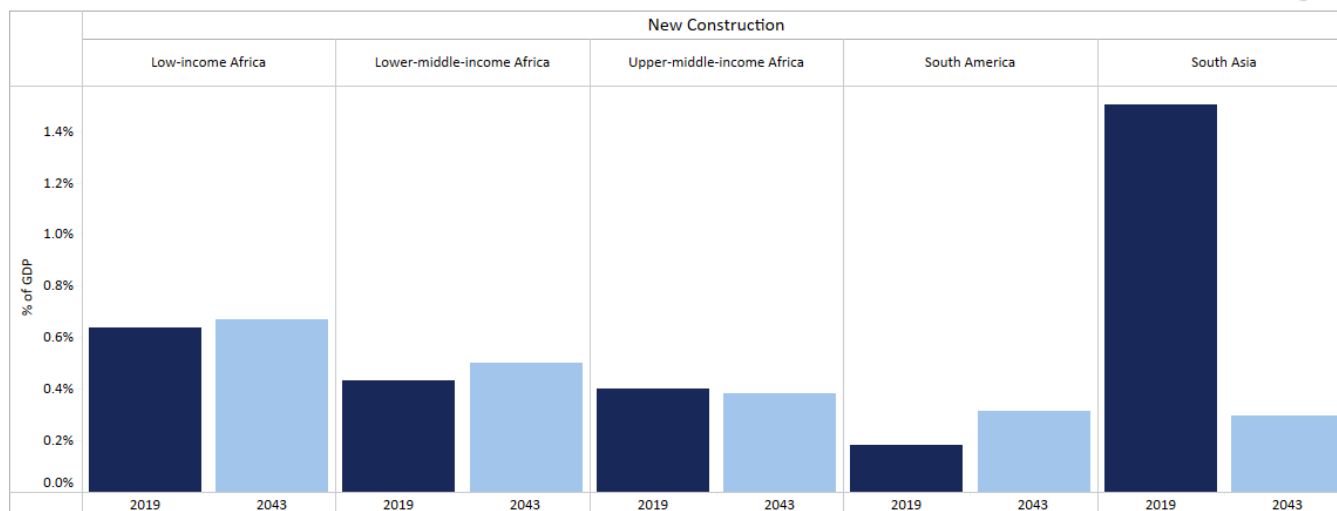Source: IFs 7.84 initialising from WDI data

Chart 8 shows the relationship between new road investments and maintenance of existing roads as a portion of GDP across African countries' income groups compared to South Asia and South America, based on data for 2019 and the

forecast for 2043. A general increase in spending on new paved construction is apparent in Africa and South America. Chart 8 also shows that low-income African countries invest more in the construction of new, unpaved roads, while at the same time spending larger amounts on their maintenance than South Asia, South America and other African income groups.

Chart 8: New roads construction vs maintenance, 2019 and 2043

Paved roads, 2019
Paved roads, 2043

Source: IFs 7.84 initialising from WDI data

There is also a significant shortage of deep-water ports able to handle large vessels, which increases transport costs and leaves some regions deprived of the benefits of trade. However, considerable investment in ports and associated infrastructure has been seen over the past few years (e.g. Tanger Med in Morocco, Port Said in Egypt, Durban in South Africa, Djen Djen in Algeria, Mombasa in Kenya and Lagos in Nigeria). Sustained and substantial investment is required to clear the deficit.

Donors and sponsors

Hanns Seidel Foundation   Sweden Sverige   AUDA-NEPAD AFRICAN UNION DEVELOPMENT AGENCY

Cite this research

About the authors

Dr Jakkie Cilliers is the ISS's founder and former executive director. He currently serves as chair of the ISS Board of Trustees, head of the African Futures and Innovation (AFI) programme at the Pretoria oce of the Institute, and is an extraodinary professor at the University of Pretoria. His 2017 best-seller Fate of the Nation addresses South Africa's futures from political, economic and social perspectives. His three most recent books, Africa First! Igniting a Growth Revolution (March 2020), The Future of Africa: Challenges and Opportunities (April 2021), and Africa Tomorrow: Pathways to Prosperity (June 2022) take a rigorous look at the continent as a whole.

Dr Blessing Chipanda joined the African Futures and Innovation (AFI) programme in January 2023. Before joining the ISS he worked as an assistant lecturer/ research assistant at the University of Pretoria, Department of Economics. He is particularly interested in tasks within the wider realm of international trade, development economics, public policy, monetary policy, and econometric modelling. Equally interested in economic and socio-economic activities that impact social welfare. Blessing has a PhD in economics from the University of Pretoria, South Africa.

About African Futures & Innovation

Scenarios and forecasting can help Africa identify and respond to opportunities and threats. The work of the African Futures & Innovation (AFI) program at the Institute for Security Studies aims to understand and address a widening gap between indices of wellbeing in Africa and elsewhere in the world. The AFI helps stakeholders understand likely future developments. Research findings and their policy implications are widely disseminated, often in collaboration with in-country partners. Forecasting tools inspire debate and provide insights into possible trajectories that inform planning, prioritisation and effective resource allocation. Africa's future depends on today's choices and actions by governments and their non-governmental and international partners. The AFI provides empirical data that informs short- and medium-term decisions with long-term implications. The AFI enhances Africa's capacity to prepare for and respond to future challenges. The program is headed by Dr Jakkie Cilliers.