Tanka Group Research

Quality Investment Infrastructure analysis

Climate change has also become more threatening. Wildfires, extreme natural disasters, rising sea levels, and record breaking heat waves have shown how vulnerable the world is. Transportation infrastructure, agriculture, and coastal communities are already under threat. Without effective mitigation, economies, lives, and livelihoods will be too. These twin crises have put the spotlight on quality infrastructure. It isn't enough to spend a lot of money to build infrastructure assets. To continue driving economic growth and prosperity, we need to look beyond technical quality when developing infrastructure. We need to recognize that infrastructure has to embrace other aspects of quality, including sustainability, economic efficiency, good governance, and resilience to disasters and climate change. Infrastructure must also meet the needs of all people, including vulnerable and underserved groups.

Infrastructure is a driver of economic prosperity and provides a solid basis for strong, sustainable, balanced, and inclusive growth. Nonetheless, the world still faces a massive gap in financing for investment in new and existing infrastructure. Besides limiting access to secure and reliable public services, insufficient infrastructure investment could constrain economic growth and sustainable development. In this vein, world leaders have long sought to create a set of principles that reflect a common strategic direction and aspiration for quality infrastructure investment.

Infrastructure investment, accompanied by job creation and technology transfer, creates a virtuous circle of economic activities through capacity building, improved productivity, and increased private investment. It also promotes sustainable development and strengthens connectivity and is consistent with national development strategies

Value for money is a core element of quality infrastructure investment, as reflected in the total cost over the life cycle of infrastructure— including operations and maintenance and construction. Innovative technologies should be leveraged, and the risk of delays and cost overruns should be considered.
Impacts on ecosystems, biodiversity, and climate must be considered when designing infrastructure projects. The use of green financial instruments can be encouraged by disclosing environment-related information.
Managing natural disasters and human-made risks should be factored in when designing infrastructure. Well-designed disaster risk finance and insurance mechanisms help incentivize resilient infrastructure.
The social and economic benefits of infrastructure should reach all people, especially vulnerable and excluded groups. Open access to infrastructure services, safety, and gender considerations should be considered when developing infrastructure.

Good governance, including openness and transparency in procurement, anti-corruption, and access to relevant information and data, expands the benefits of infrastructure.
The sustainability of infrastructure must also be realized at both the national and project levels.

Low-carbon hydrogen is a unique fuel with a high potential to address climate change and development.
The most common element in the universe, hydrogen can be produced in multiple ways. One of the most promising methods to produce low-carbon hydrogen is to split it from water (H2O) using electricity, a process known as electrolysis. Many developing countries have abundant solar and wind resources and existing scalable renewable energy infrastructure to support electrolysis production. Others have legacy infrastructure that can be repurposed for low-carbon hydrogen production and transport.

There are multiple uses for this resource. Low-carbon hydrogen can be used in heavy industries such as steel manufacturing, commercial airliners, and cargo ships that currently rely on fossil fuels and accounted for nearly 24% of global greenhouse gas emissions in 2019. Finally, hydrogen can be used to produce ammonia, a key component of fertilizer and a store of low-carbon energy that can be transported worldwide.

The price of low-carbon hydrogen is falling fast and is estimated to reach USD 1.3 per kg by 2030. This trajectory is creating high expectations from governments, investors and businesses that are working to meet the growing demand. A hydrogen-powered passenger plane lifted off in 2020 and earlier this year a Canadian steel plant successfully operated using low-carbon hydrogen in a test run. About thirty countries have developed, or are in the process of developing, hydrogen plans central to their decarbonization strategies. In the private sector, more than USD 300 billion in hydrogen investments are earmarked through 2030.

For low- and middle-income countries, low-carbon hydrogen has the potential to grow export revenue, generate energy capacity to meet local needs, and decarbonize domestic manufacturing.
Estimates suggest that hydrogen use would need to grow sixfold to support the global energy transition, eventually accounting for 10% of total energy consumption by 2050.
Sounds daunting, but we've been down this road before.
Solar and wind power were prohibitively expensive a decade ago, but have now joined renewable hydropower as the cheapest forms of energy – with onshore wind power averaging 0.03 per kilowatt hour. With 90% growth since 2000 in wind and solar, renewables now supply almost a quarter of the world's electricity needs. That same spirit of global innovation and cooperation can steer the transition to low-carbon hydrogen.

Six stories show renewable energy underpins a climate-friendly future

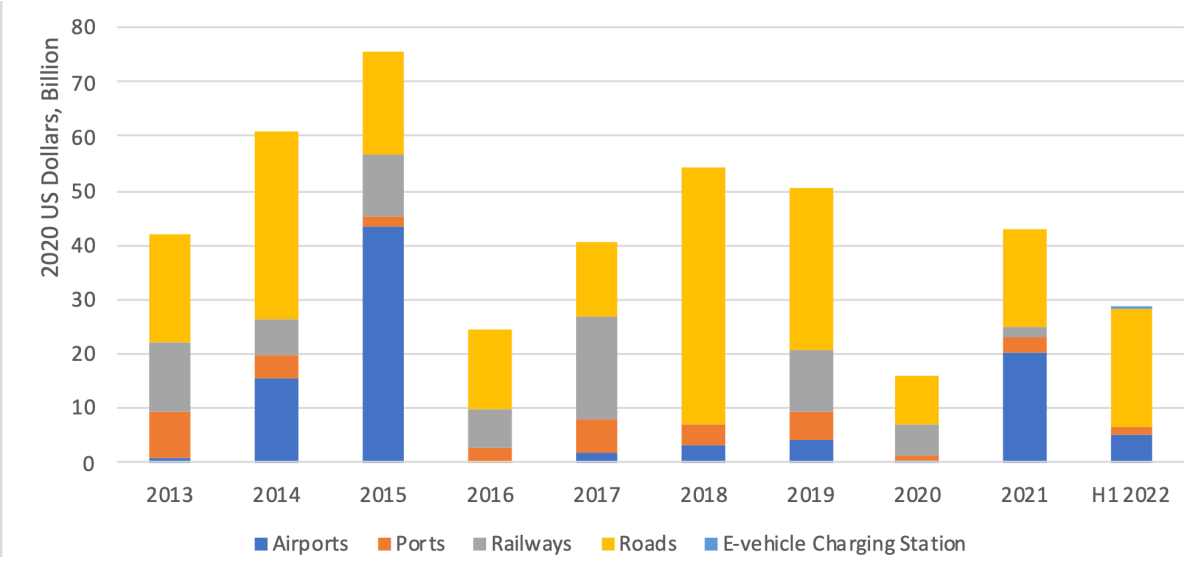
Morocco is rising to be a "solar superpower." On the edge of the Sahara desert, the Middle East's top energy-importing country is building one of the world's largest concentrated solar power plants. When fully operational, the Noor-Ouarzazate power complex will produce enough energy for more than one million Moroccans and reduce the country's dependence on fossil fuels by 2.5 million tons of oil.
In Bangladesh, the number of solar-powered homes is surging, making it the world's fastest expansion of solar energy. About 3.5 million homes—or 18 million Bangladeshis— now have electricity thanks to solar home systems.

China is turning 800 primary and middle schools in Beijing into “sunshine schools.” Once the project is completed, the rooftops of these schools will be covered with 100 megawatts of solar panels to power classrooms for teachers and students, making way for bluer skies and healthier air for local residents and more awareness about the environment in young hearts and minds. This will also help bolster China’s efforts to scale up renewable energy and reach its ambitious climate targets set at COP21.
Mexico’s efforts to promote more efficient household lighting have gone nationwide. The country has achieved an energy efficiency milestone by distributing almost 23 million energy-saving light bulbs for free. More than 5.5 million Mexican families now use energy-saving lamps. This helps these families save up to 18 percent on their electricity bill, and prevents an estimated 1.4 million tons of CO2 emissions each year.

Wind power is showing its potential. According to the Global Wind Energy Council (GWEC), a record 93 GW of new wind capacity was added worldwide in 2020. GWEC estimates that 469 GW of new wind power capacity will be installed over the next five years, globally.

Despite this global growth, Africa accounts for less than 1 percent of global installed wind capacity. Nonetheless, there are reasons to be optimistic about the opportunity for wind development in Africa as recent studies speak to more wind resources being available for wind generation in many more countries in Africa than previously thought.

Investment Commitments in Infrastructure with Private Participation in Middle-Income or low



Source: OECD, https://ppi.worldbank.org/en/ppi