Achieving Sustainability through Quality Infrastructure

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THE ISSUE

- As global economies undertake massive efforts to meet the multitrillion dollar infrastructure investment gap, it is critical that public-sector officials responsible for infrastructure development—both at the local and national levels—commit to transparent practices to secure sustainable financing mechanisms to enable quality infrastructure.

- This brief explores how global economic powers can build on the emerging consensus and adopt pathways to implement and operationalize the principles of quality infrastructure investment at the 2019 G20 Summit in Osaka.

As the world continues to become interconnected, societies’ expectations for greater access to capital and human resources also continues to grow. Governments, multilateral organizations, the private sector, and the broader academic community are increasingly recognizing the need for high-quality infrastructure in middle- and low-income countries to foster trade and human interconnectivity. The idea that quality infrastructure is indispensable to technology and innovation-driven development is now almost universally accepted. Additionally, there is a consensus between those in the donor community and in the developing world that accepts the evidence provided by a growing number of studies that infrastructure of subpar quality is a barrier to economic growth.1,2

For instance, with the global economy on the cusp of being transformed by the forces of the fourth industrial revolution, nearly 15 percent of the world literally lives in the dark, while more than half the world remains disconnected from the internet.3,4 This leaves a significant portion of the global population locked out of the potential gains of these new technologies and subsequently could leave poor people further behind. While estimates suggest that closing the infrastructure gap will require a worldwide annual infrastructure investment of $4 trillion until 2040,

Global Sustainable Infrastructure Investment Gap (2019) by Sector

<table>
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<tr>
<th>Sector</th>
<th>Gap (in $ trillions)</th>
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<tr>
<td>Energy</td>
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<td>Rails and Roads</td>
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<tr>
<td>Telecommunication</td>
<td>$305</td>
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<td>Water</td>
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</table>

Note: Global investment gap (Sector Wise) - Energy, Rails, & Roads, Air & Sea Transportation, Telecommunication, Water
Source: G20, “Global Infrastructure Outlook,” Data, https://outlook.g2hub.org/
Global Sustainable Infrastructure Investment Gap (2019) by Region

**Note:** Global investment gap (Sector-Wise) – Asia, Africa, Latin America
**Source:** G20, “Global Infrastructure Outlook,” Data, https://outlook.gihub.org/

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Forecast of Global Infrastructure Investment Gap (2018–2040)

**Note:** Global investment gap (Global aggregate over the years)
**Source:** G20, “Global Infrastructure Outlook,” Data, https://outlook.gihub.org/
improving the quality of the existing infrastructure is expected to save the global economy over U.S. $1 trillion each year. This is conditional upon the fact that the financial resources mobilized for new investment must be balanced with a commitment to efficiency in the provision of infrastructure services.

With the developing world confronting rising interest rates, more volatile markets, and rising debt levels, there has been a surge of interest in expanding infrastructure investments over the past few years. The absence of a universally accepted technical or fiscal management standard that governs infrastructure investment flows, coupled with some developing country’s temptation to accept costly and opaque sources of finance, could put a dent on global macroeconomic stability. These sources of finance are often secured without undertaking any due diligence effort, project feasibility studies, or a competitive tendering process, which could contribute to the emerging public debt crisis without providing the means for long-term economic growth. Trading long-term economic and fiscal stability in pursuit of unproductive infrastructure assets will only undermine the ongoing efforts to achieve the Sustainable Development Goals.

In 2018, CSIS studied the diverse sources of finance that can help both the donor community and middle- and low-income countries bridge the multitrillion-dollar infrastructure investment gap. In a report released in September 2018, CSIS found that for nearly half a decade, quality infrastructure has remained at the top of Japan’s diplomatic and development priorities, beginning with Prime Minister Shinzo Abe’s multibillion-dollar pledge to foster sustainable and resilient infrastructure assets in the developing world. The report further identified the practical steps that Japan, the United States, and the international community can take to help achieve quality infrastructure. This policy brief examines how the 2019 G20 Osaka Summit provides an opportunity for the world’s major economic powers to adopt a global framework that opens new and transparent ways to channel private capital into financing sustainable infrastructure projects.

THE IMPORTANCE OF SUSTAINABILITY

An infrastructure system that is sustainable and integrates efficient forms of transportation, energy, and telecommunication can help unlock the full economic prowess of developing countries. Construction of new roads, bridges, airports, and seaports can help countries better handle the movements of high volumes of goods, services, and people. Reliable cellular and internet connections can also make it easier for capital and information to be shared around the world in real time, making investment and production decisions more accurate and efficient. Productivity from business, industries, and communities alike rely on affordable and reliable sources of power. Consequently, reliable, resilient, and self-sustaining infrastructure assets lead to a virtuous cycle for economic prosperity and development. Infrastructure in developing countries is all too often realized only after it confronts significant delays and poor planning, which is sometimes built on poor quality construction materials. When completed, many projects are left neglected without adequate attention to maintenance and management. These flaws in design, development, and maintenance, coupled with poor infrastructure investment choices, can jeopardize the quality of the infrastructure, diminish economic gains, and have secondary effects in the form of environmental burdens and social costs. There is a growing consensus among the various stakeholders of the global economy, including the G20, the G7, the boards of the multilateral development banks, the World Economic Forum, and think tanks specializing in economic development policy, that new infrastructure projects must be developed with a strong commitment to longevity, sustainability, transparency, and fiscal accountability.

The development of a standard-gauge railway and the newly constructed hydropower dam in countries in East Africa gives the world an insight into the consequences of overlooking the quality infrastructure investment principles upon which we have a global consensus. In the case of the railway project, it was a result of poor governance that ended up with the country committing to one of its most expensive infrastructure projects (at U.S. $3.6 billion, a fifth of the host country’s national budget) to develop a railway line that was heavily financed by external debt, diluting the government’s ability to exercise its sovereignty over its fiscal and economic policies. With the hydropower dam, the lack of pre-construction preparation that would allow sovereign exercise of its sovereign over its fiscal and economic policies led to the project failing to deliver on its core objective of providing reliable and sustainable electric power. In both cases, the host countries failed to prioritize long-term economic efficiencies and examine the life-cycle costs that the countries would incur should they pursue a project. The preservation of natural assets (many of which are not monetizable) must also be considered when pursuing quality and sustainable infrastructure. Similarly,
investments in infrastructure projects should avoid securing debt with unrealistic repayment terms, especially in sectors that do not significantly increase economic output (and, by extension, do not raise the government’s revenue needed for debt servicing).

**Case Study: Combatting the Challenges of Urbanization with Quality Infrastructure**

The development of the Delhi Mass Rapid Transport System in India is a quintessential example of the virtuous economic effects of pursuing the principles governing quality infrastructure investments. Between 1981 to 1995, Delhi witnessed over 2.3 million new cars—a three-fold increase—on its roads (a sign of a growing and more affluent middle class). At the same time, Delhi’s urban population grew by 10 million. Cognizant of the impending traffic congestion problems that the nation’s capital would have to confront, urban planning officials in India worked with local and international partners—including the Japanese government—to draw up the plans for a public rail transit alternative and established the Delhi Metro.

While construction formally began in 1998, the preparatory work began a few years earlier with officials at the Delhi Metro Rail Corporation (or DMRC, the corporate entity governing the Metro project) working with the Japan International Cooperation Agency (JICA) to draw up a four-phase plan. In addition to receiving world-class technical expertise from JICA, Indian officials were able to identify funding mechanisms on top of the concessional loans secured, including funding in the form of tax revenue from national and local governments, cofinancing from other donor countries, domestic private capital mobilization, and revenue generated from DMRC activities. Much of DMRC’s projects have been delivered either ahead of schedule or with a modest delay. It continues to provide a remarkable and economic daily commute option to more than 2.3 million people, keeping nearly 230,000 vehicles off the roads. It has also brought down the fatalities due to traffic incidents by a significant margin (a 23 percent drop between 2008 and 2016). Finally, Metro officials have been able to use state-of-the-art technology like the regenerative braking system to generate renewable energy for its operations as a result of Delhi Metro trading carbon credits under the Clean Development Mechanism.

As a result of these efforts, the Delhi Metro has emerged as a model of development that factors in the key principles of quality infrastructure like economic efficiency in view of life-cycle cost, integrated environmental considerations, social and economic considerations of investments, and transparent governance.

While sustainability is a complex, multidimensional concept, this policy brief uses three key principles by which it can be realistically achieved. The first principle is **fiscal and debt sustainability**. With external debt funding playing a dominant role in infrastructure investment, especially in many middle- and low-income countries, there should be a renewed focus on establishing standards and indices that investors and borrowers can consider developing financially feasible projects. Lenders and borrowers can also look at the effective mobilization of local capital and savings and use blended finance in structured public-private partnerships (PPPs) to maximize a project’s risk-return profile. Second, **transparency and openness** in procurement processes can address systemic corruption and bureaucratic inefficiencies for PPPs, private investments, or fully public projects. This, in part, can be achieved by improving the capacity of the procurement officials, which will provide them with the training and tools to conduct a life-cycle cost analysis of a project proposal, make assessments of its impact on economic efficiency, and assess the implication of project investments on public finance and external debt obligations. These efforts must be complemented by subjecting the officials and their functions to a higher standard of accountability and increased public oversight while implementing a more professional and transparent data management system. Lastly, infrastructure must be **resilient and environmentally sustainable**. Infrastructure development efforts should include heightened sensitivities towards environmental challenges, risks of natural disasters, and the dire consequences they could have on economic development (in the short term) and social and political stability (in the long term).

**FISCAL AND DEBT SUSTAINABILITY**

By some estimates, institutional investors and asset managers—whose investments are needed to help bridge the annual U.S. $4 trillion global infrastructure gap—operate investment portfolios totaling over U.S. $120 trillion. A substantial portion of these funds reside in the more developed markets of the larger OECD economies; channeling this capital towards infrastructure investment will require middle- and low-income countries to absorb significant levels of capital, including debt denominated in foreign currencies. Because the fiscal sovereignty of a
country is influenced by its ability to service external debt, the mapping of a sustainable infrastructure development strategy must be centered around fiscal and external debt sustainability based on public investment management systems that are robust and transparent. No project can be deemed fully sustainable if it fails to adhere to the fiscal and budgetary constraints of a country. Reckless levels of debt can severely cripple economic growth and exacerbate inequality, which the data from the emerging market debt crises of the 1980s and 1990s revealed. Under tremendous pressure to service external debt obligations, governments typically respond to high debt levels and fiscal instability by diverting public funds away from productive investments. Often, governments may be forced to adopt austerity measures which can have destabilizing social, political, and economic implications. Sustainable infrastructure debt should ensure that:

- the debt incurred by the government—and any forward commitments it undertakes—does not undermine the government’s ability to finance its outstanding obligations and planned expenditures; and
- to the degree that any public resources are committed to an investment, the project in question contributes to economic growth and thus directly or indirectly increases the economy’s productive capacity and supports economic growth, which ultimately enhances fiscal sustainability that covers the public costs of the investment.

In recent years, many middle- and low-income countries have assumed external debt to finance infrastructure projects that may or may not drive economic growth, causing public debt to rise to unprecedented levels. Left unaddressed, these levels threaten to undermine macroeconomic stability of some of the more vulnerable developing countries into long periods of economic crisis and unease.

**TRANSPARENCY AND OPENNESS**

Sustainable infrastructure development requires coordinated efforts between domestic and international private actors, public sector officials in middle- and low-income countries, bilateral development agencies, and international financial institutions (IFIs). Institutionalizing mechanisms that govern infrastructure finance, including public procurement, project preparation, and feasibility assessment studies, can seamlessly integrate the various stakeholders and enable greater transparency. Such mechanisms will also enjoy the capacity to regulate the quality of investment inflows, prioritize investments that will yield greater economic benefits in the long term, determine their implications on fiscal health and public debt, and hold project developers accountable.

Public procurement is a crucial—and often underappreciated—aspect of the infrastructure development process that requires significant reform. Infrastructure is considered a public good in most developing countries, and public sector procurement officials at local, sub-national, and federal levels are tasked with the responsibility of making long-term infrastructure development decisions for projects worth U.S. $820 billion. Considering that infrastructure financing levels are, on average, equivalent to one-fifth the value of entire national economies, these officials wield enormous power. But in the absence of transparent and open governance systems, officials are incentivized to pursue inefficient—sometimes corrupt—methods that can result in the misallocation of resources, waste, and deadweight loss in the economy. This, in turn, can reduce gains that the infrastructure project might have yielded. Reforms to the procurement system can be pursued by upgrading the standards used to judge the quality of tenders received in a competitive bidding system. This would involve the enhancement of public sector capacity to conduct—and fully disclose—its assessments on the economic gains from a proposed project, terms of contracts, and bid processes. These measures would, therefore, have direct implications on capital and resource mobilization efforts while opening up new sources of funding. For example, better project selection practices, effective and timely delivery schedules, and regular maintenance of infrastructure assets helps save 40 percent of infrastructure spending.

Antiquated public procurement processes are not the only challenge to making infrastructure development more transparent. With much of the developing world bound to experience rapid urbanization in the next three decades, municipal governments will bear greater responsibility for delivering public infrastructure assets to meet the needs of growing populations and to ensure sustained economic growth and development. This, in turn, requires local and subnational governments to tap into private capital (both domestic and international) through a wider range of instruments. While municipal bond issuance market serves some OECD countries as a source of financing for infrastructure and basic service delivery, most of the world’s municipalities are dependent on sovereign transfers and limited amounts of property tax revenue. Many municipalities lack sufficient sources of revenue, transparent public investment management systems, and even credit ratings that would allow them to tap capital...
markets. Insufficient data on lending and borrowing history, poor management of public accounts, and the general unavailability of data on the fiscal health of local and subnational governments are some of the critical systemic issues that make it difficult for investors to ascertain the risks surrounding the bonds, thus impeding the countries’ capacity to mobilize capital. By strengthening sources of revenue at the asset level, securing and guaranteeing public contributions, and maintaining and publishing high-quality data on its fiscal accounts and the performance of its infrastructure assets, sub-sovereign entities seeking finance for public infrastructure systems can utilize the balance sheets of the utilities and service providers themselves to increase their capacity for borrowing; enhance stakeholder accountability; and reduce the risks to construction, delivery, and operation of the assets.

RESILIENCE AND ENVIRONMENTAL SUSTAINABILITY
Beyond political and financial risks, the sustainability of infrastructure assets relies upon the ability to confront and endure natural shocks, changes in climate patterns, and ecological disasters. Natural disasters, extreme weather patterns, and recurrent disruptions to global ecology have an adverse and irreversible impact on political stability and social harmony, hampering development and imposing significant costs to the economy. Infrastructure development must consider and adapt to these realities, focusing on making things better, not worse.

The resilience of infrastructure assets to ecological disruptions, climate change, and natural disasters are, therefore, a core principle of sustainability. New standards and compacts are being adopted around the world to address risks to ecological preservation and climate-related challenges which are altering the traditional models of infrastructure development. For example, countries committing to the 2016 United Nations Framework Convention on Climate Change (aka the Paris Agreement) agreed to limit the consumption of cement (also a core constituent for construction), which restrains the pace and scale at which infrastructure can be constructed using conventional engineering designs.23

Where the Sand Hits the Road
The world is facing a global sand crisis. Sand, a core ingredient for concrete structures, is becoming an increasingly scarce commodity. In response, some governments are imposing controls on sand trade and exports.24 In doing so, they are inadvertently enabling the emergence of an illicit sand-trade market that brings with it other socioeconomic and political challenges.

It is incumbent upon the financiers and developers of global infrastructure development to reassess long-term strategies and give due consideration to environmental feasibility, energy efficiency and security, conservation of biodiversity, and disaster risk levels in the long-term, focusing on the environmental sustainability and resilience of their assets. To that end, these stakeholders can leverage new technologies like geospatial intelligence, satellite imagery, big data analytics, blockchain, and other ‘smart’ technologies to augment their capacities to map the ecological impact and long-term environmental challenges, factoring in contingency and recovery measures when planning and developing infrastructure projects.25

MOVING UPSTREAM: THE ROLE OF STAKEHOLDERS
The implementation of a high-quality infrastructure development strategy requires concerted effort from stakeholders at both the individual and the institutional levels. Donor countries have played a particularly significant role in shaping management and implementation strategies on quality infrastructure project preparation. While these efforts are yielding meaningful results, they are not creating the large-scale changes necessary to meet the burgeoning demands of a growing middle-class in emerging economies. To accelerate the pace at which quality and sustainable infrastructure can be developed, the focus of efforts should shift out of just the project preparation level and move to more “upstream” institutional stakeholders. Upstream stakeholders possess the tools and platforms needed to integrate core elements of sustainability into the planning, procurement, and regulatory design phases of project development. It is important to assess how individual donor countries, multilateral development institutions, and recipient countries can adapt their roles to enable a feasible and sustainable path to high-quality infrastructure.

DONOR COUNTRIES
Recognizing the fact that a lack of quality infrastructure is an impediment to long-term sustainable growth, traditional OECD donor countries provide infrastructure assistance and play an important role in ensuring capital flows to finance quality infrastructure development are sustainable.26 Donor countries can provide this assistance through various channels such as facilitating project preparation efforts; offering technical assistance; helping build local government capacity; and using a number of development finance instruments like grants, investment capital, and guarantees. Donor nations can also engage in direct lending and give loans to sovereign governments. However, bilateral
lending practices have traditionally been subject to less scrutiny and accountability and have the potential to engage in reckless sovereign lending. Donor countries often lack formal bankruptcy mechanisms (such as the ability to file for bankruptcy) which has allowed private borrowers to work with the lenders towards restructuring and servicing the debt obligations. Since sovereign borrowers are not subject to any bankruptcy codes, any misbehavior or default on the part of the borrower can create or escalate tensions, leading to political volatility and potentially a financial meltdown. However, by strictly adhering to internationally accepted practices governing sovereign lending and borrowing, bilateral lending can yield constructive and transformative results by:

- recognizing the sovereignty and independence of the borrowing countries. Leaders and representatives who negotiate on behalf of the borrowing countries use this independence to act in the best interest of their citizens while holding themselves accountable to their state. Lenders should not use corruption or coercion to facilitate a borrowing commitment as it undermines the principles of transparency, accountability, and sustainability.

- making their terms of borrowing clear and transparent at the initial stages of the negotiation. Lenders must also adhere to the letter and spirit of the rule of law and must carry out the terms of the agreement in good faith.

- undertaking due diligence efforts to assess the recipient country’s borrowing and repayment capacity. In particular, lenders must take into account debt to sub-sovereign and non-sovereign entities as well as financing arrangements that come with non-traditional collateral and commitments.

**MULTILATERAL INSTITUTIONS AND INTERNATIONAL ORGANIZATIONS**

In today’s globalized and interconnected world, even local economic, political, or social crises can have global implications. Consequently, international cooperation has become an institutional necessity that helps address some of the major challenges threatening the world, including (but not limited to) climate change, forced migration, and violent extremism. The G20 itself emerged as an influential platform when global economic powers sought a coherent response to the 2008 global financial crisis. With public debt levels on the rise globally, international organizations and multilateral institutions that are well positioned to facilitate the global pursuit for quality and sustainable infrastructure finance should be called upon for leadership. Multilateral development banks (MDBs) have already pioneered numerous upstream initiatives by working with myriad ministries (e.g., finance, infrastructure, railways, aviation, and commerce) across the developing world, helping them integrate fiscal and environmental sustainability considerations into their infrastructure development plans. MDBs can continue to lead in the following ways:

- **Domestic Resource Mobilization:** The 2015 Addis Ababa Action Agenda, adopted at the United Nations’
Financing for Development Conference, called for official development assistance to be used as a catalyst for capital market development. Operating within that framework, MDBs can use an array of development finance instruments such as grants, loans, and credit enhancements to help recipient countries expand their resource mobilization efforts, help develop their local bond markets, and expand their tax base. These efforts should incorporate political economy considerations and prioritize leveraging local capital when possible, pivoting to international capital markets when necessary.

- **Securitization of Infrastructure Assets**: MDBs can scale up their efforts in providing technical and financial assistance to help develop asset-backed securities markets for well-functioning commercial banks in the developing world. By securitizing their infrastructure assets, these commercially viable banks can scale up their already successful business models to leverage hundreds of billions of dollars in national savings to finance infrastructure projects. Such a measure will build on the attempts made to make infrastructure a tradeable asset class at the 2018 G20 Summit in Buenos Aires.

- **Global Data Management**: Given their expansive institutional capacities and international legitimacy, IFIs can compile, consolidate, and host the vast amount of data pertaining to infrastructure development, including the access, quality, and pricing of infrastructure, financing structures and levels, lending and borrowing history, repayment and loan default trends, planning and delivery schedule, operational and maintenance costs, and a plethora of other relevant data. Treating such data as open-source public goods can help investors, borrowers, and the broader development community make use of precise information to guide their decisions and strategies.

**RECIPIENT COUNTRIES**

Like donor countries, developing countries receiving loans, equity investments, and grants are critical to global development; recipient countries are also typically the most responsive of the three stakeholder groups. Given their critical role in infrastructure development, they can have significant effects and influence over financial flows to projects. Recipient countries face the most significant consequences when opting for poor and unsustainable infrastructure projects. However, they are not without alternatives and can consider the following ideas to not only safeguard their fiscal independence, self-reliance, and sovereignty but also open up new, self-sufficient, and modern channels for private capital:

- **Project Preparation Efforts**: The public sector is currently playing a significant role in infrastructure planning and will continue to do so in the foreseeable future. Given its influence over infrastructure planning, governments must identify a nodal agency (such as the national finance or infrastructure ministry) that can be tasked with the role of mandatory project assessment and preparation prior to procurement processes. When undertaking project preparation efforts, governments must ensure that projects are chosen based on the expectations set by life-cycle cost analysis, assessments of economic efficiency and spillover effects, and long-term fiscal, economic, and sociopolitical implications.

- **Procurement Reforms**: By 2050, more than half of the global population will reside in urban areas. Developing countries in Asia and Africa will constitute a dominant portion of this trend. Recognizing the massive disruption this urbanization will have in development models and governance, national governments should invest in building local capacity municipal and urban development bodies that modernize infrastructure procurement practices without undermining the critical national (or federal) oversight and cooperation necessary to sustain the sovereign debt levels of a country. Concurrently, recipient countries could partner with bilateral aid agencies to receive the technical assistance needed for modernizing public procurement practices and capabilities, especially in subnational and urban contexts to which more delegated authority should be given.

- **Increase Tax Collection**: The purpose of sustainable financing is to reduce developing countries’ reliance on foreign assistance and increase governments’ capacity to finance programs through domestic resource mobilization. Tax revenue remains the largest source of financing for infrastructure investments, and developing countries should redouble efforts to expand tax bases. Countries should review tax exemptions given to politicians or companies and cut down on tax evasion. Short-term reforms to the tax administrations could be adopting an e-filing system, working with international partners like Tax Inspectors Without Borders to improve the collection capacity, and increasing the overall autonomy and accountability of
the tax administrations. A key part of this conversation is increasing taxpayer morale by linking tax revenue to expenditures; citizens would be more inclined to pay taxes if they knew the money was going towards infrastructure projects and investments;

• **Use of Municipal Bonds**: Local savings and capital markets worth several trillion dollars are dispersed throughout the developing world. Municipal bodies and subnational governments must consider developing—or expanding their use of—local currency-denominated municipal bond instruments. These bonds can achieve an investment-grade rating with the aid of credit enhancements, monoline bond insurance, or partial guarantees that can transfer the political and credit risks of the debtor, making the local currency bonds attractive to investors in capital markets who can then fund the public infrastructure projects.

A municipal bond whose obligations are met through the taxing powers and the full faith and credit of the sub-sovereign issuing entity is called a general obligation bond. Meanwhile, revenue bonds are municipal bonds that raise capital for income-generating projects (such as highways) and are serviced by a steady stream of revenue (such as tolls).

**2019 OSAKA SUMMIT: A REAL OPPORTUNITY**

The 2019 G20 Osaka summit provides an opportunity for the world’s major economic powers to adopt a global framework that opens new and transparent ways to channel private capital into financing sustainable infrastructure projects. More importantly, it provides an opportunity to refocus global efforts on sustainability. The Japanese leadership of the 2019 G20 process is fortuitous as it was their G7 presidency in 2015 that led to the development of the Ise-Shima Principles for Promoting Quality Infrastructure Investment, which the current G20 efforts will build upon.²¹

The 2019 G20 should not just strive to obtain a broad endorsement of these principles, though the endorsement of this larger group of nations that has not always agreed on infrastructure development approaches is important. Ahead of the Osaka summit, the finance ministers of the G20 member states signed off on a statement that emphasized on sustainable and transparent financing to enable quality infrastructure, encompassed through the following six principles:²²

- **Principle 1**: Maximizing the Positive Impact of Infrastructure to Achieve Sustainable Growth and Development
- **Principle 2**: Raising Economic Efficiency in View of Life-Cycle Cost
- **Principle 3**: Integrating Environmental Considerations in Infrastructure Investments
- **Principle 4**: Building Resilience against Natural Disasters and Other Risks
- **Principle 5**: Integrating Social Considerations in Infrastructure Investment
- **Principle 6**: Strengthening Infrastructure Governance

However, operationalizing these principles and implementing them in countries with unique political and economic contexts will require carefully coordinated efforts. These efforts can be made under the Japanese presidency of G20, in cooperation with relevant international organizations, and can be strengthened through a wider partnership of policy research organizations like think tanks, including CSIS. By leveraging their convening power and deep technical expertise in the policy advisory services, think tanks can partner with MDBs, international organizations, and private sector entities (including investment bankers) and help the global development stakeholders implement the above principles. These efforts can include:

- mapping the size of and deficits in the global infrastructure network;
- bringing together diverse and global problem-solving experts;
- developing credible indices, metrics, and standards to measure quality, creating roadmaps for bilateral development agencies and providing them with recommendations on how they could improve their assistance; and
- highlighting the new and innovative ways in which private capital can be mobilized by sharing financial risks.

The Osaka summit should be used as an opportunity to guide private sector and official sector lenders into infrastructure development in middle- and low-income countries. These efforts should acknowledge that the needs and strategies of donor countries, IFIs, and recipient countries are different, though rarely irreconcilably so. They should reflect the needs and aspirations of developing countries and acknowledge the challenges of infrastructure development. Importantly, they should also ensure that
financial sustainability and climate resiliency considerations are strongly featured in any resulting communiques and in future efforts beyond Osaka.

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ENDNOTES


18. Woetzel et al., Bridging Global Infrastructure Gaps.


22. Woetzel et al., Bridging Global Infrastructure Gaps.


