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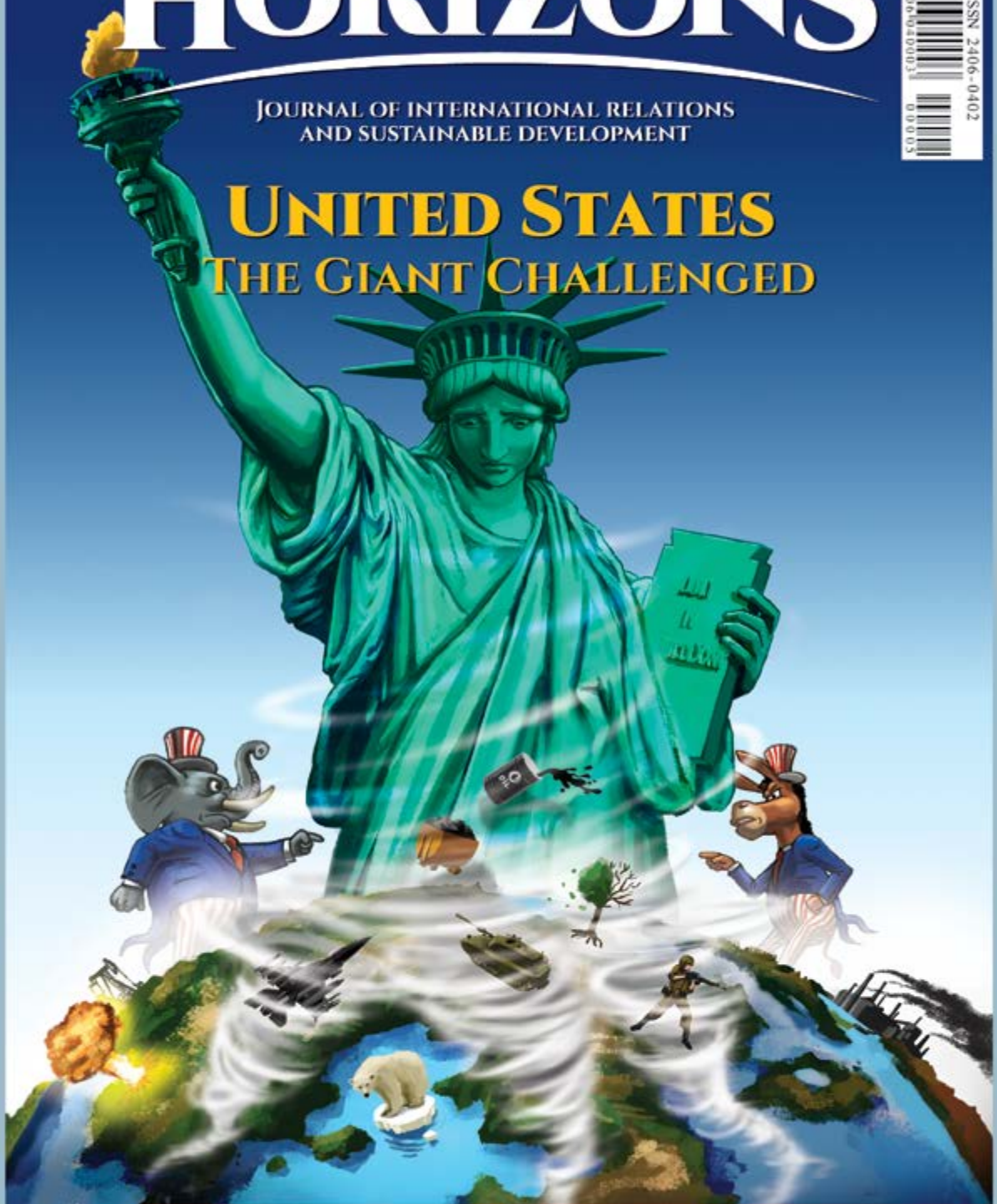

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INFRASTRUCTURE FUNDING

CONVERTING A DAUNTING GAP INTO A NEW STIMULUS FOR GLOBAL GROWTH AND STABILITY

Douglas L. Peterson and Ted Smyth

FROM rural dirt roads to transoceanic internet cables, infrastructure is an aspect of global diversity all its own. In developed countries, modern infrastructure is taken for granted; citizens in these countries believe that functioning roads, railways, airports, clean water, and reliable power are their birthright. The developing world tells a different story, from countries that invest in state-of-the-art infrastructure, like China, to other, less wealthy nations that struggle to provide sanitation, clean water, and all-weather roads.

Every infrastructure project can be a local economic growth plan that generates jobs, new business, and economic growth for communities and cities; infrastructure investment can have a positive multiplier effect on output, productivity, and job creation. Most importantly, infrastructure is the network by which people, power, and innovation travel. It provides the physical, broadband, satellite, and digital support system for our world to function efficiently and safely. It includes schools, clean water, affordable housing, and hospitals—all of them worthy investments to sustain a civilized society and create economic value in communities, cities, and states.

But today, growing threats to infrastructure loom as governments and citizens—confronted by shrinking budgets and increasing debt—delay essential new projects. This affects economic and international stability. Many governments have to prioritize projects and leave others unfunded, leading to long delays on land and air transport, crumbling bridges, and erratic power supplies.

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Standard & Poor's estimates that around $15 trillion in new financing will be required by the end of this decade to update old infrastructure in developed countries, and build new transport, power, telecoms, and water capacity in fast-developing markets. Unlike in 1945, there is no superpower willing and able to fund a new Marshall Plan for development and renewal. In the modern world, where will this funding come from?

There are many innovative ways to attract billions of dollars in capital market investment in well-conceived infrastructure projects, particularly through Public-Private Partnerships (P3s). We will focus in particular on the U.S. experience, where there is a vast pool of institutional investor funds on the sidelines that could invest in a new infrastructure asset class to repair aging roads, rails, and airports, and provide much-needed growth stimulus. This asset class could be recreated on a global scale and be funded through Asia and Latin America's fast-growing capital markets. These three priorities—Infrastructure, Investment, and Inclusion—are a winning trifecta.

Demand Grows, Funding Declines

The scale of the global infrastructure funding deficit is daunting. The World Economic Forum (WEF) estimates that annual demand for infrastructure is about $4 trillion—with an annual gap of at least $1 trillion between demand and actual spending.

Around $15 trillion in new financing will be required by the end of this decade to update old infrastructure in developed countries, and build new transport, power, telecoms, and water capacity in fast-developing markets.

The McKinsey Global Institute estimates that $57 trillion of infrastructure investment will be needed between now and 2030 simply to keep up with projected global GDP growth. This figure includes investment in transportation, power, water, and telecommunications, and is 60 percent more than the $36 trillion spent globally on infrastructure in the past 18 years, according to McKinsey.

As part of its plan to stimulate growth and competitiveness, the European Commission identified a pipeline of 2,000 projects, worth an estimated €1.3 trillion, that are ripe for investment. Two-thirds are focused on transportation and energy sectors. One such project—widening the Panama Canal—will create a new lane of traffic and double the waterway's capacity, allowing Post-Panamax vessels to travel

through the Canal with up to 13,000 TEUs. This increase in volume will require a concurrent expansion of the eastern United States' seaboard ports and transport infrastructure.

The need for infrastructure investment also spans the developing world. Colombia, for example, requires $20 billion for its 4G (fourth generation) roads, ports, airports, and public works programs. This investment is expected to improve competitiveness significantly by reducing travel times across the country by 30 to 50 percent, and will spur a fourfold increase in highway miles and a threefold increase in railway track, as well as doubling port capacity.

Partnerships between countries have also shown promise. In August 2015, the United Arab Emirates and India, for example, agreed on a $75 billion deal to invest in Indian infrastructure, where annual power losses from an aging grid are estimated at about 24 percent of capacity.

Governments have historically provided funding for infrastructure investment, but have been constrained by higher debt levels and slower tax receipt growth since the financial crisis. In OECD countries, high debt levels cannot cope with the large-scale expenditures necessary for maintenance and new investments. Voters are opposed to new taxes amid stagnant wages and rising consumer costs. As a result, infrastructure's share of spending by OECD governments has fallen from 10 percent in 1990 to around five percent today, and to less than two percent in the United States.

Post-crisis regulations limit the financial sector's capacity to fill the funding shortfall.

At the same time, post-crisis regulations limit the financial sector's capacity to fill the funding shortfall. Basel III imposes higher capital charges on banks for longer-dated and allegedly riskier assets, such as project financing, and will inevitably impact the cost and availability of debt and swaps needed to finance (and refinance) infrastructure schemes. It remains to be seen what impact Solvency II, a new regulatory framework for the European insurance and reinsurance industry, will have on insurers' ability to invest in infrastructure. The new framework is a double-edged sword. It deters some investors, due to what they consider punitive capital adequacy requirements, and benefits others, who are able to take advantage of their own internal risk models and create better market risk discipline overall.

Lost Opportunities

Tragically, countries miss out on the numerous benefits of infrastructure investment because govern-

ments and financial institutions are increasingly unable to fund infrastructure. S&P's economic research shows that an increase in spending of just one percent of real GDP—or about $160 billion, spread out over four quarters—would boost economic output in the United States by $270 billion over three years. In other words, for each additional dollar allocated for public sector investment in 2015, about $1.70 would be added to real GDP over three years. This could add up to 730,000 jobs to the American economy annually, corresponding to 61,000 monthly payroll gains. That would push monthly payroll gains to 272,000, from the baseline forecast of 211,000.

For example, according to the Solar Foundation, over 31,000 new solar jobs were created in the United States in 2014, bringing the total number of solar workers in America to 173,807—a 21.8 percent increase in employment since November 2013. Their research shows that solar industry employment has grown by 86 percent in the past five years, with continued strong growth expected. And we should note that the solar industry already employs more people in the United States than the coal mining industry, which has 93,185 workers.

This is a global trend. For example, India's central government has cited job creation as part of its decision to pursue solar, and a report from the Climate Group projects the creation of about one million jobs in India due to new solar power initiatives by 2022.

The negative impact of deferred maintenance and reduced innovation in infrastructure is particularly apparent in the United States, which is falling behind its competitors.

If increased infrastructure investment spurs growth, reduced investment creates even bigger problems for society. The negative impact of deferred maintenance and reduced innovation in infrastructure is particularly apparent in the United States, which is falling behind its competitors. The American Society of Civil Engineers has given American infrastructure a D+ grade, and S&P estimates that the United States needs to spend $3.6 trillion to bring its infrastructure up to a state of good repair. In the past 25 years, America has experienced nearly 600 bridge failures, while an estimated 140,000 bridges are breaking down across the country. About 40 percent of America's pavement can no longer be tarred over and must be rebuilt.

In 2007, the eight-lane I-35W Mississippi River Bridge collapsed during evening rush hour, killing 13 people and injuring 145. An official inquiry

determined the likely cause as a design flaw. This summer's Amtrak train crash near Philadelphia is an example of the repercussions of reduced capital expenditure on the nation's busiest passenger rail link.

In a 2014 Harvard Business School survey, business leaders identified infrastructure as a major area in which America lags. This stands in stark contrast to the years after World War II, when America led the world in building roads and dams, and fueled succeeding generations' growth and prosperity. In 1956, the U.S. Congress authorized the equivalent of $25 billion in current dollars to build 41,000 miles of highway in a decade. It also created the Highway Trust Fund, financed by federal gas taxes—but these taxes have not been increased since 1993, leading to an annual $34 billion highway funding gap. In the absence of political agreement to raise the tax, states cannot complete badly-needed construction projects, which leads to longer traffic jams and reduced productivity. Airports are also aging, and flight delays in America alone cost $30 billion to $40 billion annually. To compound the problem, the United States has neglected rail transportation—one of the most efficient and cost-effective ways to transport goods and people. Commuter train crashes are more common—either due to deferred maintenance or a failure to invest in new technologies.

Photo: Guliver Image/ Getty Images

The Los Angeles Four Level Interchange: Infrastructure from the 1950s

In the western United States, there is now a serious water shortage caused by a mix of population growth, outdated water infrastructure, and climate change. In that region, the Bureau of Reclamation, created in 1902, operates 476 dams, 348 reservoirs, and over 8,000 miles of aqueducts. Billions of dollars will be needed to more efficiently capture, conserve, and store water—as man-made climate change reduces the water flow from the disappearing Sierra Nevada snowpack.

PUBLIC-PRIVATE PARTNERSHIPS

Clearly, the old way of doing things isn't working. There must be a new approach to funding infrastructure sustainably, using innovative financing and new technology. The World Bank's International Finance Corpora-

tion (IFC) estimates that the annual $1 trillion funding gap can be filled only by combining capital and know-how from the public and private sectors alike. These P3s can be a major force for growth and prosperity, if properly managed by both parties. The IFC has been advising governments on P3s for over 20 years, and in the past 10 years has helped implement more than 250 projects in 100 countries.

$57 trillion of infrastructure investment will be needed between now and 2030 simply to keep up with projected global GDP growth.

In a recent report, the McKinsey Global Institute stated that the world can get more, better-quality infrastructure for less—in addition to securing new funding from institutional investors. Adopting best practices would create productivity savings of 40 percent. This would save an average of $1 trillion a year in infrastructure costs over the next 18 years.

The report identifies several problems with existing infrastructure spending: countries continue to invest in poorly-conceived projects; take a long time to approve them; miss opportunities to innovate, and don't make the best of existing assets before building expensive new capacity.

Among best practices outlined is the separation of political and technical responsibilities, which sees governments set policy goals, while technical experts create the projects and plans. The private sector is also encouraged to improve productivity and innovation. This process is seen in Hong Kong's Mass Transit Railway Corporation, as well as in Infrastructure Ontario in Canada. And as climate change becomes a global problem, efficiency and sustainability have a greater influence on design and construction. China's Sky City is a good example of how wind and solar projects are growing.

The WEF estimates that the optimal level of investment is about $4 trillion per year until 2030. Current government and private sector investment does not come close to meeting this target.

Why has the adoption of P3s been so limited, and what are the barriers to wider adoption around the world? In February 2015, as part of a WEF panel Steering Committee, we proposed a series of public-private measures to overcome these barriers and mitigate risk in infrastructure projects. As the McKinsey report found, private investors worry about political and regulatory risk because an infrastructure asset typically has a lifetime much longer

than political cycles, and investors' revenues and cost base depends heavily on regulation.

Our report presented a risk-mitigation framework, listing 20 actionable measures for the public sector and various stakeholders. To mitigate the risk of unexpected and adverse administrative decisions, governments need to ensure a reliable agency set-up that doesn't compromise integrity. There must also be an independent judicial capacity to administer the law in an independent, timely, and efficient way. The report also stresses the importance of a culture of open dialogue to manage risk perception and return expectation for all stakeholders. Importantly, we accept that it is always a challenge to properly balance investors' need for regulatory stability and a government's freedom to adjust regulation in line with national priorities and democratic change. But if the risks are high and the concomitant high returns appear unattainable, the proposed projects will fail to attract private investment.

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Interestingly, in the United States, where there is a strong private sector and robust rule of law, P3s have been slow to develop—particularly compared to Canada and Australia, where P3s have resulted in a significant number of new projects. This is in part due to the availability of tax-exempt debt to fund municipal infrastructure in the United States, which has had a crowding-out effect on the market.

To illustrate, from 2008 to 2014, Preqin found that only 26 percent of privately-funded infrastructure transactions globally were in North America, compared with 46 percent in Europe and 11 percent in Asia. In the transport sector, which accounted for less than 20 percent of total deal flow by sector over this period, only 12 percent of total global transport transaction activity was in North America. While this debt is a source of funding for municipalities, it does not generally achieve the risk transfer related to construction completion and ongoing operations, which is characteristic of privately-financed infrastructure.

There is growing political consensus in the United States in favor of greater public-private cooperation to fix aging infrastructure, take advantage of low interest rates, and create new jobs. However, the U.S. faces the unique challenge of 50 states managing federal infrastructure funds on an individual basis. Many states struggle to identify

and prioritize key projects, lack the resources in predevelopment and cost-benefit analysis, or encounter political hurdles in approving permits, which deters investors. But there has been progress, and more than 30 states now have legislation that promotes P3s.

Florida leads the way. In 2007, the state established the Office of Public-Private Partnerships and has since completed infrastructure projects worth in excess of $6 billion with private-sector partners. One example is the "I-4 Ultimate Project," a $2.3 billion restructuring of a highly-congested corridor. The private-sector partner is responsible for designing, constructing, financing, maintaining and operating the project for 40 years. Another example is the Port Miami Tunnel, completed through a 35-year concession agreement between the state and MAT Concessionaire, LLC. The port opened to traffic in August 2014, and the agreement will ensure the port—and its 176,000 jobs—remain competitive.

There is a growing political consensus in the United States in favor of greater public-private cooperation to fix aging infrastructure, take advantage of low interest rates, and create new jobs.

The overarching lesson is that the United States needs to accelerate P3 momentum. It can do so by providing private sector investors with the necessary information to make large-scale investments, and also by modernizing the government's planning and technology processes. The federal government could also provide a central hub for sharing best practices on projects, as well as assistance for cost-benefit and predevelopment analysis. Investments should be made in both cities and rural areas; for example, last year the U.S. Agriculture Secretary announced a $10 billion private-sector investment fund to bring capital to rural America. Similarly, federal and private sector funds should be equitably allocated between transportation and other infrastructure needs like water, schools, and power.

Creating an Infrastructure Asset Class

As we stated in the introduction, the most important action the United States can take to increase private sector infrastructure investment is to facilitate its growth as an asset class.

What many investors don't realize is that if one compares a similarly-rated corporate bond to an infrastructure bond or loan, the infrastructure bond has a slightly higher yield, a slightly lower default rate, and a much higher rate of recovery after default. Today, the global infrastructure market is largely private,

funded by unlisted equity (infrastructure funds, pension funds, and sovereign wealth funds) and bank debt. More capital would flow into taxable capital market instruments and listed infrastructure businesses if there were greater asset class and risk transparency.

There are three measures that we believe will encourage an infrastructure project bond market:

First, the creation of a reliable source of data, including a pipeline of projects, associated analytics, and targeted benchmarks. More transparency is needed to assess potential benefits and risks to owners, users, and investors in infrastructure assets. There are trillions of dollars on the sidelines, because infrastructure is not seen as an asset class and lacks consistency of terms, conditions, and benchmarks. Pension funds, sovereign wealth funds, insurers, and bond funds have trillions to invest and are searching for investible assets like infrastructure that have long-dated maturities, attractive returns, and predictable cash flows, and that are largely uncorrelated with other asset classes.

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Second, an increased supply of investment opportunities is needed and can be accomplished by emulating models like the West Coast Infrastructure Exchange and the Canadian P3 programs. These bodies accelerate deal flow by helping governments prioritize, streamline, and select the optimal procurement process for new transactions. Not every project will or should have the cash flow to attract investors—municipal parks, for example, will continue to be funded by tax revenues or philanthropic donations. Equally, some transactions can be more efficiently managed and financed by the private sector in a well-designed and managed procurement process. For example, the Pennsylvania DOT reduced delivery time and achieved economies of scale for reconstructing over 500 aging bridges by bundling and tendering the work through a P3 procurement.

Third, there must be greater collaboration between the private sector and government to deploy project management, finance, and operations that supplement public sector capabilities. In many cases, private sector entities can bring to the table years of experience in efficient management and operational abilities, particularly in smaller communities.

A number of initiatives are underway to advance these three measures. In September 2014, the U.S. Treasury and Transportation Departments hosted a summit with interested stakeholders, including engineering firms, pension funds, mayors, port authorities, and other sectors. The summit concluded that more standardization of documentation and data is essential. Participants also agreed that there are inadequate benchmarks for the equity or fixed income components of infrastructure financing.

States, cities, and the public officials who govern them, are the keys to the success of infrastructure in America.

In May 2015, the Washington-based Bipartisan Policy Center (BPC) launched the Executive Council on Infrastructure. Chaired by Douglas L. Peterson, the Council will evaluate the challenges and opportunities for private sector investment, particularly on the "soft side" regarding barriers to entry. Council member Jack Ehnes—CEO of CalSTRS, a large pension fund that manages retirement accounts for 880,000 California teachers—said that in 2014 his organization evaluated 136 different infrastructure projects and deemed only two as being worthy of investment. There is clearly an opportunity to explore how these projects can be better managed as investable projects for long-term investors.

A number of companies are working with government to make projects easier for investors to evaluate, including the creation of a standardized, transparent, and efficient centralized infrastructure market. For example, S&P Capital IQ is building an investment analytics platform that will allow investors to access and compare data on projects, including: historical performance data, a project pipeline, terms of contracts, environmental and social impact, identities of counter parties, and real-time information. If there are gaps between what investors require and the project's credit quality, there may be a need to consider letters of credit, state-provided credit enhancements, or additional risk capital from regional investment banks.

Additionally, S&P Dow Jones Indices has created a new High Infrastructure Index to provide a benchmark for capital flow. And, as domestic capital markets increasingly have the flexibility and desire to invest in a broader category of highly rated securities beyond AAA/government paper, S&P Ratings is creating a global infrastructure ratings practice.

The BPC is also launching a policy panel comprised of former governors and mayors, who understand the

importance of infrastructure beyond the partisan divide. States, cities, and the public officials who govern them, are the keys to the success of infrastructure in America. There are a number of initiatives that the U.S. Congress should consider to help them. For example, Congress only recently reauthorized the Highway Trust Fund in July for a 90-day patch, as the 2016 Presidential cycle impinged on economic policy. This short-termism creates uncertainty, when an additional $13 billion per year is required for maintenance alone. Democrats and some Republicans call for an increase in the federal gas tax, which has not been raised for 22 years and is now less effective, as the fuel efficiency of cars and trucks increases. President Obama's Administration has proposed a measure calling for spending of $478 billion over the next six years on America's roads and bridges.

Private investment in public utilities is always politically sensitive, and striking the right balance between the interests of investors and taxpayers is essential.

Infrastructure as a Vital Interest

All of us—in the private sector, civil society, and governments—have a vital interest in modern, efficient and sustainable infrastructure that promotes growth and social stability, and which provides the dignity of jobs, safe communities, clean water, and hygiene.

A new global infrastructure asset class, fueled by the capital markets, could provide billions of additional dollars in funding to drive job growth, innovation, and cleaner energy. Though progress is being made, we need more public engagement and dialogue at every level.

Transforming elements of infrastructure debt into a global and liquid asset class would be a huge win for governments and citizens worldwide, but it will not be easily achieved. Private investment in public utilities is always politically sensitive, and striking the right balance between the interests of investors and taxpayers is essential. To summarize, we believe these five steps will help unlock capital market funding of infrastructure globally:

First, policymakers should focus on establishing predictable regulatory and legal regimes, and open and fair processes for funding and managing projects.

Second, independent research, standardized data, and benchmarks are required so that local and global investors can evaluate and price the risk-return of projects within an infrastructure asset class.

Third, governments and markets must innovate, including such mechanisms as the viability-gap funding in India and hybrid debt/equity securities used by some power companies in Asia.

Fourth, multilateral institutions, like the World Bank, the EBRD, and the ASEAN infrastructure fund, should play a greater role in providing guarantees and other support.

Finally, we need more municipal bond markets in the BRICS countries and emerging markets. Issuing municipal bonds diversifies funding sources and will provide a boost to the growth of local capital markets.

Combined, these measures could play a major role in closing the looming and potentially destabilizing gap for infrastructure around the world, and in boosting economic growth, job development, and inclusion.

Governments and central banks, as well as the G20 and the United Nations, have a crucial role to play with the private sector in promoting this winning combination of infrastructure, investment, and inclusion. In September 2015, heads of government from around the world agreed on the post-2015 Sustainable Development Goals. The UN Conference on Trade and Development (UNCTAD) has also offered proposals for mobilizing private sector investment. The private sector, for its part, is increasingly eager to play a collaborative role in providing funding for the infrastructure projects required to stimulate much-needed global growth.