

Working Paper

DRIVING THE SUSTAINABLE INFRASTRUCTURE AGENDA IN EMERGING MARKETS

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List of Abbreviations

| | |
|--------|---|
| AIIB | Asian Infrastructure Investment Bank |
| APEC | Asia-Pacific Economic Co-Operation |
| BIS | Bank for International Settlements |
| BSDC | Business and Sustainable Development Commission |
| CAF | Development Bank of Latin America |
| CBA | Cost-Benefit Analysis |
| CPLC | Carbon Pricing Leadership Coalition |
| CTF | Clean Technology Fund |
| DAC | Development Assistance Committee |
| DFIs | Development Finance Institutions |
| EBRD | European Bank for Reconstruction and Development |
| ECLAC | Economic Commission for Latin America and the Caribbean |
| ECB | European Central Bank |
| EIB | European Investment Bank |
| EIU | Economist Intelligence Unit |
| EMDCs | Emerging markets and developing countries |
| ESG | Environmental, Social and Governance |
| FSB | Financial Stability Board |
| GCI | Global Competitiveness Indicators |
| GEMs | Global Emerging Markets Risk Database |
| GIB | Global Infrastructure Basel Foundation |
| GI Hub | Global Infrastructure Hub |
| GIF | Global Infrastructure Facility |
| HQLA | High Quality Liquid Assets |
| IADB | Inter-American Development Bank |
| IMF | International Monetary Fund |
| IPF | Infrastructure Prioritization Framework |
| ITF | International Transport Forum |
| LCBMs | Local Currency Bond Markets |
| LCR | Low-carbon, Climate-Resilient |
| MDBs | Multilateral Development Banks |
| NCE | New Climate Economy |
| NDC | Nationally Determined Contribution |
| NPV | New Present Value |
| OECD | Organization for Economic Cooperation and Development |
| PEFA | Public Expenditure and Financial Accountability |

| | |
|----------|--|
| PPIAF | Public-Private Infrastructure Advisory Facility |
| P-FRAM | PPP Fiscal Risk Assessment Model |
| PPFs | Project Preparation Facilities |
| PIMA | Public Investment Management Assessment |
| PPPs | Public-Private Partnerships |
| SDGs | Sustainable Development Goals |
| SIF | Sustainable Infrastructure Foundation |
| SMEs | Small and Medium-sized Enterprises |
| TBL | Triple Bottom Line |
| TCFD | Task Force on Climate-related Financial Disclosures |
| UN ESCAP | United Nations Economic and Social Commission for Asia and the Pacific |
| UNECE | United Nations Economic Commission for Europe |
| UNEP | United Nations Environment Programme |
| VAT | Value Added Tax |
| WTO | World Trade Organization |

1. Introduction

Sustainable infrastructure is now recognized as a critical foundation to deliver on sustainable growth, support the attainment of the sustainable development goals and provide the pathway to meet the goals of the Paris Agreement to limit global warming to no more than 2 degrees and promote climate resilience. The bulk of the investment requirements in the coming decades will be in emerging markets and developing countries. The scale and urgency of the task has also become more evident both because of the size of the investment requirements to deliver on these tasks and the narrow window to put the global economy on a sustainable track because of the extremely constrained carbon budget and the long-lasting effects of polluting and inefficient infrastructure. The investments made over the next two decades will be decisive in shaping the future of people and the planet, and the agenda and institutional architecture for delivering on sustainable infrastructure will be a core foundation.

There has been growing momentum in recent years, particularly since the adoption of the milestone agreements of 2015 and 2016, to enhance the quantity and quality of infrastructure investments. Despite this momentum, the urgency of the task is not fully appreciated. We are falling behind on the quantum of investments needed and a significant proportion of investments are not as sustainable as they should be. On the other side, while there are abundant pools of savings, we are unable to transform those savings into available and cost-effective financing to support much needed investments in sustainable infrastructure.

This report seeks to take stock of the progress being made on global and country actions to deliver on sustainable infrastructure with a focus on emerging markets and developing countries. As it documents, there are a wide range of initiatives now underway to tackle impediments and promote the quality and sustainability of infrastructure investments. While these efforts are beginning to bear fruit, much stronger efforts and collaboration will be needed to accelerate the pace of implementation. This report provides a road map for such enhanced collaboration and action building on ongoing efforts.

Section 2 highlights the central role of sustainable infrastructure; Section 3 documents the expanding partnership and collective actions now underway; section 4 reports on work underway to develop a shared understanding of sustainable infrastructure; section 5 assesses the policy and institutional setting from planning to project prioritization, to procurement to PPP frameworks, to project preparation and implementation of high quality standards; section 6 evaluates the agenda on mobilizing and aligning finance with sustainability; and section 7 offers concluding thoughts.

2. Centrality of Sustainable Infrastructure

The new global agenda that has emerged from the landmark international agreements of 2015 and 2016, with the 2030 Agenda for Sustainable Development at the core, aims to deliver strong, sustainable, balanced and inclusive growth, reduce global poverty and secure a better and more sustainable future for people and planet for decades to come. Thirty years later from the groundbreaking publication of the Brundtland Commission's report, in which it defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," the international community and many more countries are adopting sustainable development measures based on the 2030 Agenda.¹ The milestone agreements and the follow-up deliberations have paved the way for a new understanding. First, growth, sustainable development, poverty reduction and climate change are complementary and interwoven.² Second, accelerating the low-carbon transition provides an opportunity to: (i) boost shorter-run growth from increased investment in the low-carbon transition; (ii) spur innovation, creativity and growth in medium term; and (iii) provides the only feasible longer-run growth on offer. This is a new growth story that delivers: alternative paths of economic development; rising living standards; cities where we can move and breathe; stronger communities; ecosystems that are more productive and resilient.

Ramping up and reorienting investments towards more sustainable infrastructure is a central pillar of the new global agenda because of the crucial importance of sustainable infrastructure to inclusive and sustainable growth, to improving the lives of people as embodied in the sustainable development goals, and to achieving the goals of the Paris Agreement to limit global warming to no more than 2°C while enhancing climate resilience (Figure 1). As an essential foundation for achieving inclusive growth, sustainable infrastructure underpins all economic activity. Inadequate infrastructure remains one of the most pervasive impediments to growth and sustainable development, and consequently in tackling poverty. Good infrastructure unshackles and removes constraints on economic growth and helps increase output and productivity. Investment in sustainable infrastructure can help generate employment, boost international trade, industrial growth, and competitiveness while reducing inequalities within and among countries.

¹ WCED. (1987). "Report of the World Commission on Environment and Development: Our Common Future." United Nations. Available at: <http://www.un-documents.net/wced-ocf.htm>

² New Climate Economy. (2014). *Better Growth, Better Climate*. Washington DC: New Climate Economy. Stern, N. (2015). *Why Are We Waiting? The Logic, Urgency, and Promise of Tackling Climate Change*. London: MIT Press.; New Climate Economy. (2016). *The Sustainable Infrastructure Imperative: Financing for better growth and development*. London: New Climate Economy, 2016.; Bhattacharya, A., Meltzer, J., Oppenheim, J., Qureshi, Z., & Stern, N. (2016). "Delivering Sustainable Infrastructure for Better Development and Better Climate." Brookings Institution. December 2016.

Figure 1. Sustainable Infrastructure and Sustainable Development Goals



Source: Bhattacharya et al (2016)

Sustainable infrastructure also holds the key to poverty reduction and societal well-being in part because it enhances access to basic services and facilitates access to and knowledge about work opportunities, thus boosting human capital and quality of life. Sustainable infrastructure helps reduce poverty and extreme hunger, improve health and education levels, assist in attainment of gender equality, allows for the provision of clean water and sanitation, and provides access to affordable energy for all.

Sustainable infrastructure promotes sustainable consumption, production, and resource utilization to ensure that habitats and settlements are resilient, and that ecosystems and marine resources are used in a sustainable manner. On the one hand, it enhances food security through more efficient resource use and reduces vulnerability to environmental shocks. On the other, bad infrastructure can and does kill people on a large scale mainly via air and other pollution and puts pressure on land and natural resources to an extent that may compromise the viability of future generations and create unsustainable economic burdens in the future.

The scale and urgency of the challenge ahead cannot be overstated. Massive investments will be needed in energy development, sustainable cities, transport corridors,

water and waste management, and telecommunications. There are three key drivers of the projected infrastructure investment needs. First, many advanced economies will require large investments to rehabilitate existing infrastructure that has long been neglected due to under-investment. Accelerating the replacement of aging infrastructure offers an opportunity to improve the sustainability footprint and give greater impetus to the low-carbon transition. Second, there has been a major shift in the global economy with emerging markets and developing countries (EMDCs) growing at higher rates and now constituting a greater share of the global economy and of global growth. Third, given big infrastructure deficits in most EMDCs and structural changes underway such as rapid urbanization, changes in economic structures, and a rising middle class, investment rates in infrastructure are projected to increase in most parts of the developing world, with the notable exception of China. In particular, the urban population will increase from around 3.5 billion now (50 percent of \$7+ billion) to around 6.5 billion by mid-century (70 percent of 9+ billion).

Emerging markets and developing countries will be the largest contributor to infrastructure needs in the decades ahead. EMDCs now account for a larger and growing share of the world economy. In addition, the pace of economic growth in these EMDCs will significantly exceed that of the advanced economies from now until 2030. The share of EMDCs in global GDP already exceeds 55 percent in purchasing power parity terms and they are projected to account for 70 percent of global growth between 2015 and 2030. Growth and rising incomes will generate demand for infrastructure services than in the past – both in terms of quantity and quality. Past demand suppression associated with low income levels is being replaced by manifest increases in demand for infrastructure services and stock accumulation that will meet evolving consumer preferences as well as growing commercial and industrial requirements.³

Since most of these developing countries suffer from large access deficits and poor quality infrastructure,⁴ with the exception of China, there will be greater need and imperative for these countries to spend larger shares of their GDP on infrastructure so as to meet their growth and development objectives. In addition, there are structural shifts occurring in the developing economies, amplifying the need for increased infrastructure investment. As developing countries grow, their secondary/manufacturing and tertiary/services sectors are gaining prominence. These sectors require more and higher quality infrastructural support to function effectively and are much more infrastructure-intensive than the agriculture-oriented economies.

³ Bhattacharya, A. and Holt, R. (2015). *Meeting the Infrastructure Financing Challenges in Emerging Markets and Developing Countries*. Mimeo.

⁴ Schwab, K and Sala-i-Martin, X. (2015). eds. *The Global Competitiveness Report, 2015-2016*. Geneva: World Economic Forum.

Significant demographic shifts in EMDCs are another factor determining future infrastructure needs. By 2030, 79 percent of the world's middle class will be in the developing world. In addition, the population in the developing countries will be much younger than the aging, and in some cases shrinking, population of the advanced economies. This large group of relatively young middle-class in many EMDCs, with rising incomes and aspirations, will add to the overall demand for infrastructure services. The rapid pace of urbanization in particular will have profound effects on infrastructure needs in developing countries in the coming decades. Between now and 2050, world population is set to increase by 2.3 billion, from 7.0 to 9.3 billion. The population living in urban areas is expected to grow by 2.6 billion, from 3.6 billion to 6.2 billion. Almost all of the increase in the global population between 2030 and 2050 is expected to come from developing countries and regions. Most of this growth will be concentrated in Asia and Africa. The migration of the rural population into cities in search of better-paid jobs puts pressure on basic urban infrastructure such as transportation, water, electricity, housing, and telecommunications. This phenomenon impacts infrastructure through a number of mechanisms:

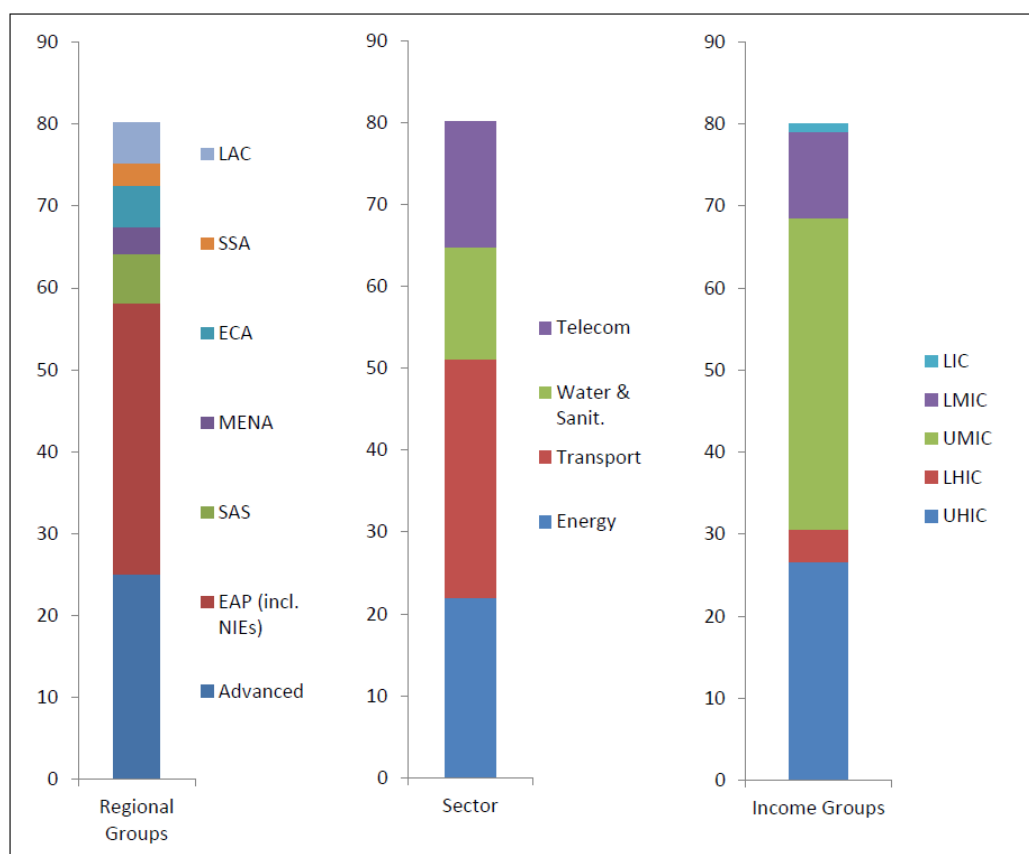
- A shift from low-energy intensity agricultural production to the production of high-energy intensive, specialized commodities;
- A need for additional transport-related infrastructure to meet the increasing level of motorized traffic;
- A significant boost in construction and development required by urban concentration of economic activity.

Estimates of precise estimates for infrastructure needs vary considerably, but all suggest that the gaps are large across all developing regions. Bhattacharya and colleagues estimated total infrastructure requirements over the next 15 years will be on the order of \$75 - \$86 trillion, much more than the current estimated stock of \$50 trillion.⁵ These estimates are even larger than what had been estimated in the New Climate Economy's 2014 report, since \$89 trillion (\$96 trillion in 2015 dollars) includes investments in primary energy generation and energy efficiency in addition to core infrastructure. The equivalent figure for core infrastructure in the NCE report of 2014 is \$57 trillion. Around 70 percent of the projected investment needs (\$3.5 - \$4.0 trillion on average) will be required in EMDCs (except China), accounting for most of the increase (Figure 2). With rapidly growing populations and urbanization, investment requirements in Africa will grow most rapidly. But, investment rates are projected to increase significantly in all developing regions with the notable exception of China. EMDCs also face

⁵ Bhattacharya, A., Meltzer, J., Oppenheim, J., Qureshi, Z., & Stern, N. (2016). "Delivering Sustainable Infrastructure for Better Development and Better Climate." Brookings Institution. December 2016.

much larger gaps in quality and coverage of infrastructure (Figure 3). Investment rates are therefore appropriately higher in EMDCs but will need to be significantly scaled up in both middle and low income countries to close the large and persistent infrastructure gaps.

Figure 2. Projected cumulative infrastructure demand by regional groups, sector, and income groups. 2015-2030.

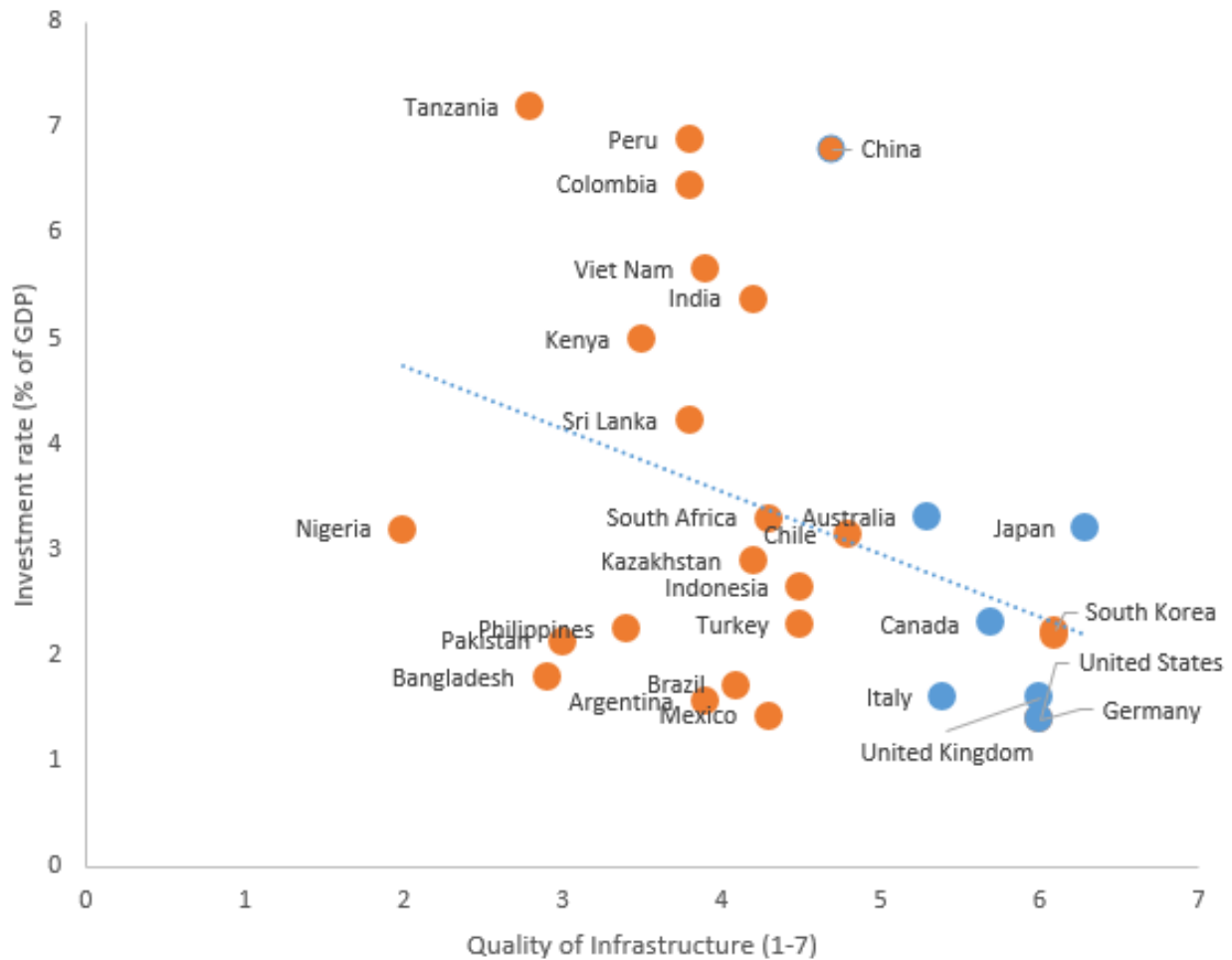


Source: Bhattacharya et al. (2016)

Note: Projections based on mid-point of range estimates. Excludes fossil fuel extraction and use, expenditure to enhance energy use efficiency, and operation and maintenance costs.

The opportunity to scale up and improve the quality of investments in infrastructure is timely for several reasons. First, advances in technology, land use and urban development have reduced costs such as for renewable energy and paved the way to create more livable and economically dynamic cities. Second, the private sector is well positioned to play a major role in both investing in and in financing infrastructure. Third, there is widespread recognition of the importance of a sharper focus on sustainability and climate resilience highlighted by the adverse impacts of climate in many parts of the world.

Figure 3. Quality of infrastructure and investment rate in selected countries



Source: Asian Development Bank (2017), Infralatom, and Global Infrastructure Hub. (2017)

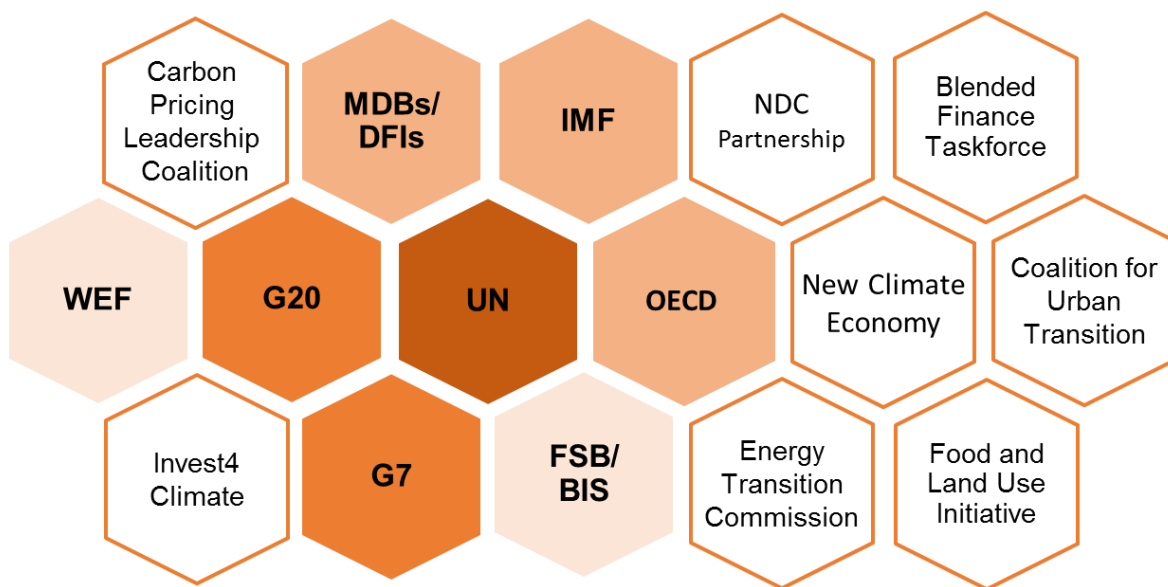
Well-targeted climate action can also deliver other co-benefits, including reduced air pollution and congestion, while avoiding the costs of a high-carbon growth path including remedial measures that will become progressively costlier over time. The next two decades will be of critical importance in shaping the new infrastructure to support a robust and sustainable growth trajectory. The window for making the right choices is uncomfortably narrow because of a shrinking carbon budget, the lock-in of capital, technology and emission patterns for decades and because remedial measures will become progressively costly. Postponement of actions is highly dangerous because of increasing uncertainties and likelihood of catastrophic risks even if there is a linear relationship between concentrations and temperatures. At the same time, the attractiveness of a low-carbon growth path is increasing, because of technological and cost advances. It is also clear that strong climate action has important co-

benefits in terms of sustained growth, improvement in the quality of life with economic benefits, and delivery on the SDGs. However, if we do not take the opportunities now, 2°C target will be out of reach with all the grave consequences. Next twenty years will be decisive in world history: deep responsibility as well as great opportunity.

3. Expanding Partnership and Collective Actions on Sustainable Infrastructure

Since the milestone agreements of 2015/2016, there has been stepped-up actions on the part of key institutions and the launch of a wide ranging set of initiatives. Existing institutions including the United Nations, G20, OECD, IMF, MDBs, BIS, FSB, and WEF have initiated many actions and strengthened collaboration on the sustainable development agenda with an important focus on sustainable infrastructure. A number of new initiatives have been launched to address more specific issues such as the implementation of the NDCs, carbon pricing, energy transition or blended finance (Figure 4).

Figure 4. Expanding global partnership on sustainable infrastructure



3.1. Evolving institutional architecture

The United Nations has led the sustainable development agenda by setting goals and collaborating across UN bodies and other international organizations. The Addis Ababa Action Agenda emphasized the central role of infrastructure and the importance of bolstering its financing. It launched the Global Infrastructure Forum as well as the Inter-Agency Taskforce on Financing for Development to follow up the Addis Ababa Action Agenda. The Task Force comprises of over fifty UN agencies and offices, and other international organizations including

the World Bank, the IMF, and the WTO. It published its inaugural report in 2016, which includes the commitments and actions in the Addis Agenda and the monitoring framework to assess annual progress. The 2017 report called for national actions to increase investments in sustainable development with the predictions indicating slow progress on the Addis Ababa Action Agenda. The 2018 report focuses on financing for three key infrastructure areas--water, energy, and ecosystems. The United Nations Environment Programme has been playing a leading role on aligning the financial system with the sustainable development goals through the financial inquiry project that has just come to a close.

The G20 has put infrastructure on its agenda since 2012 but in a fragmented way. Finance Ministers have emphasized its role in growth and have focused on how to unlock investments and boost financing especially from the private sector. In 2015 the G20 under the Australian Presidency established the Global Infrastructure Hub to pursue concerted efforts to strengthen the knowledge base and mobilize private financing. Most recently, in 2018, G20 Finance Ministers under the Argentinian Presidency have launched an initiative to promote infrastructure as an asset class and has set out a road map to deliver on “quality infrastructure”. The work and deliberations of the Finance Ministers has put relatively little emphasis on sustainability and climate resilience. Separately the Sherpa track and Energy Ministers have focused on challenges of delivering on energy access while reducing emissions and since 2016 on how to deliver on the ambitions of the Paris Agreement on climate change. During the German Presidency in 2017, an Energy and Climate Sustainability Working Group was established that produced the Hamburg Climate and Energy Action Plan for Growth that committed the G20 to implement the Paris Climate Agreement and global energy transition in line with the SDGs. Even though the US did not sign up to the Action Plan, the Energy and Climate Action Plan serves as a road map for the G20’s pursuit of climate and sustainability objectives. Separately, the Development Working Group which reports to the Sherpa track has focused on infrastructure development with emphasis on low-income countries and put forward proposals to strengthen project preparation facilities.

Other than leading the sustainable development agenda, G20 has developed and disseminated knowledge on various sustainable development topics. G20 Green Finance Study Group suggested a number of options for countries to enhance financial system to mobilize private capital for green investment, and filled the knowledge gaps in environmental risk analysis and the use of publicly available environmental data. The Global Infrastructure Hub has built up an extensive knowledge base, and provides regular reports on knowledge sharing to G20 Finance Ministers and Central Bank Governors.

The infrastructure agenda has also figured prominently in the work of the Business 20 (B20) and the Think Tank 20 (T20). The T20, a network of research institutes and think tanks, provides research-based policy advices to the G20. The B20 is a dialogue with the global

business community. Under these dialogues, a number of groups in climate, energy, and infrastructure have been organized. The Climate Policy and Finance Task Force under T20 proposed a policy package of low-carbon growth through a significant increase of sustainable infrastructure, mobilizing sustainable finance, and adoption of carbon pricing.⁶ The Task Force also suggested how to bolster the G20's role in green finance including by promoting the standardization of green finance practices, enhancing transparency of information, and supporting market development for green investments.

Several groups have worked on sustainability or infrastructure agenda under the B20. One of them was the Energy, Climate and Resource Efficiency Task Force in 2017. The Task Force recommended to G20 robust carbon pricing, effective and predictable energy policies, and establishing a G20 Resource Efficiency Platform.⁷ Financing Growth & Infrastructure Task Force recommended to boost infrastructure investment through three policy actions: 1) developing and promoting bankable infrastructure project pipelines, 2) enhancing the role of MDBs; and 3) fostering green finance.⁸ Other than these two Taskforces, Responsible Business Conduct & Anti-Corruption Cross-thematic Group also suggested policy actions relevant to sustainable infrastructure. One of the recommendations of the group was to enhance responsible business conduct in infrastructure projects through promoting responsible government conduct and transparency, promoting integrity among participating businesses, and coordinated efforts by companies, governments and civil society to fight against corruption.⁹

The IMF has focused on important aspects of the infrastructure agenda. To assist with enhancing the quality of public investments, it developed the Public Investment Management Assessment (PIMA) tool. It has also set up jointly with the World Bank tools and platforms for Public Expenditure and Financial Accountability Framework (PEFA) and the PPP Fiscal Risk Assessment Model (P-FRAM), both of which are important tools to strengthen governance and upstream screening of infrastructure projects. The IMF has also played a pioneering role on carbon pricing and fossil fuel subsidies, both in assessing their impacts and their potential to

⁶ Bak, C., Bhattacharya, A., Edenhofer, O., & Knopf, B. (2017). "Towards a comprehensive approach to climate policy, sustainable infrastructure, and finance." Co-Chair Brief.

⁷ B20 Taskforce Energy, Climate and Resource Efficiency. (2017). "A Climate for Change Embracing the Transition towards Energy-Efficient, Climate and Resource-Friendly, Competitive Economies." Policy Paper 2017.

⁸ B20 Taskforce Financing Growth & Infrastructure. (2017). "Investing in Resilient, Future-oriented Growth: Boosting Infrastructure Investment and Balancing Financial Regulation." Policy Paper 2017.

⁹ B20 Cross-Thematic Group Responsible Business Conduct & Anti-Corruption. (2017). Promoting Integrity by Creating Opportunities for Responsible Businesses. Policy Paper 2017.

generate revenues.¹⁰ The *Managing Director's Statement on the Role of the Fund in Addressing Climate Change* underscores the significant risks for macroeconomic performance of climate change, and the IMF's expertise on policy responses to the risks.¹¹

Other than the efforts for climate mitigation, the Fund has been interested in other issue of climate change including climate adaptation, climate finance, and energy tax system. It helped small countries enhance their disaster risk management frameworks. It also collaborated with G20 Green Finance Study Group. Much work has been done on fossil fuel subsidies, guidance for energy price reform and regulatory policies. Most recently, *World Economic Outlook October 2017*, included the chapter on the effects of climate change on economic activity.¹²

The OECD has long-standing engagement and undertaken extensive work on infrastructure development. It carried out pioneering assessments of infrastructure requirements and the policy and financing agenda in 2006 and 2012. It has put a great deal of emphasis on energy transitions through its own work and that of the IEA and IRENA. In 2017, as a contribution to the G20, it prepared a special report, *Investing in Climate, Investing in Growth*, that suggests that reducing climate risks and the pursuit of growth can be mutually reinforcing with the right policies and incentives.¹³ The OECD has also been anchoring the G20-OECD Working Group to promote long-term institutional investment and has been active in virtually all facets of the G20 work program including most recently on the work on quality infrastructure including the data initiative.

The MDBs have had the most extensive and direct engagement on the infrastructure agenda. Although historically they have been an important source of financing for infrastructure projects in EMDCs, that role waned in the 1990s in the face of mounting criticism about the environmental and social impacts of large scale projects. With growing recognition of the growth and development impacts of sound infrastructure, MDBs have re-engaged in the support of infrastructure development. These efforts have received a major boost through the articulation of the new global agenda and the recognition of the central role of sustainable infrastructure. As set out in their joint report to the G20 Hangzhou Summit in 2016, MDBs have stepped up their role in infrastructure development and financing and have set goals to expand their financing further in the medium-term. MDB commitments on infrastructure are also

¹⁰ e.g. IMF. (2012). *Fiscal Policy to Mitigate Climate Change: A Guide for Policymakers*. Washington DC: IMF.

¹¹ IMF. (2015). "The Managing Director's Statement on The Role of The Fund in Addressing Climate Change." November 25, 2015.

¹² IMF. (2017). *World Economic Outlook: Seeking Sustainable Growth—Short-Term Recovery, Long-Term Challenges*. Washington DC: International Monetary Fund.

¹³ OECD. (2017). *Investing in Climate, Investing in Growth*. Paris: OECD.

closely related to their commitments to step up support for climate action since the dominant part of their contribution is through enhanced support for sustainable infrastructure. The climate lens is bringing a sharper focus to the sustainability of individual projects and the overall support from MDBs. The MDBs set up the Global Infrastructure Forum in 2016 to bring together the MDBs and other stakeholders in partnership with the UN. The MDBs are also collaborating on many different facets of the infrastructure agenda including project preparation, data and blended finance.

In addition to the official institutions, there is a growing engagement of the private sector and other stakeholders on the infrastructure agenda. As noted the B20 has been actively engaged in bringing private sector perspectives on the infrastructure agenda. The Business and Sustainable Development Commission (BSDC) was specifically established in 2016 to highlight and assess the role of the private sector in the pursuit of the sustainable development goals. The BSDC in turn set up the Blended Finance Taskforce in 2017 to engage with the private sector on how to mobilize the scale of financing needed to achieve the SDGs with a focus on sustainable infrastructure.

Several initiatives have also been launched to give impetus to scaling up efforts on sustainable infrastructure and the climate goals. Most notably, the New Climate Economy (NCE), which brings together high level Commissioners with background in policy and finance, has undertaken pioneering work on growth and climate and the role of sustainable infrastructure. Its pioneering report in 2014 set out clearly that growth and climate were not conflicting objectives and the 2016 report on the Sustainable Infrastructure Initiative highlights the central role of sustainable infrastructure. The 2018 report will focus on what it will take to accelerate actions to deliver on the scale and urgency of the new growth agenda and the attainment of the SDGs and the Paris Climate Goals. The NCE has been working closely with several related and more focused initiatives including the Energy Transition Commission, the Food and Land Use Initiative, the Coalition of Urban Transitions, the NDC Partnership and the Blended Finance Taskforce. The Carbon Pricing Leadership Coalition anchored by the World Bank has also been playing a key role in promoting the wider adoption of carbon pricing and had set up a High Level Commission on Carbon Pricing that delivered its report in 2017.

Another group of stakeholders that have played an important role in setting the new agenda are the standard setters for sustainable infrastructure. As described in Section 5.2.3, there has been a great deal of work to develop better standards and tools to enhance the quality of sustainable infrastructure projects and their foundations.

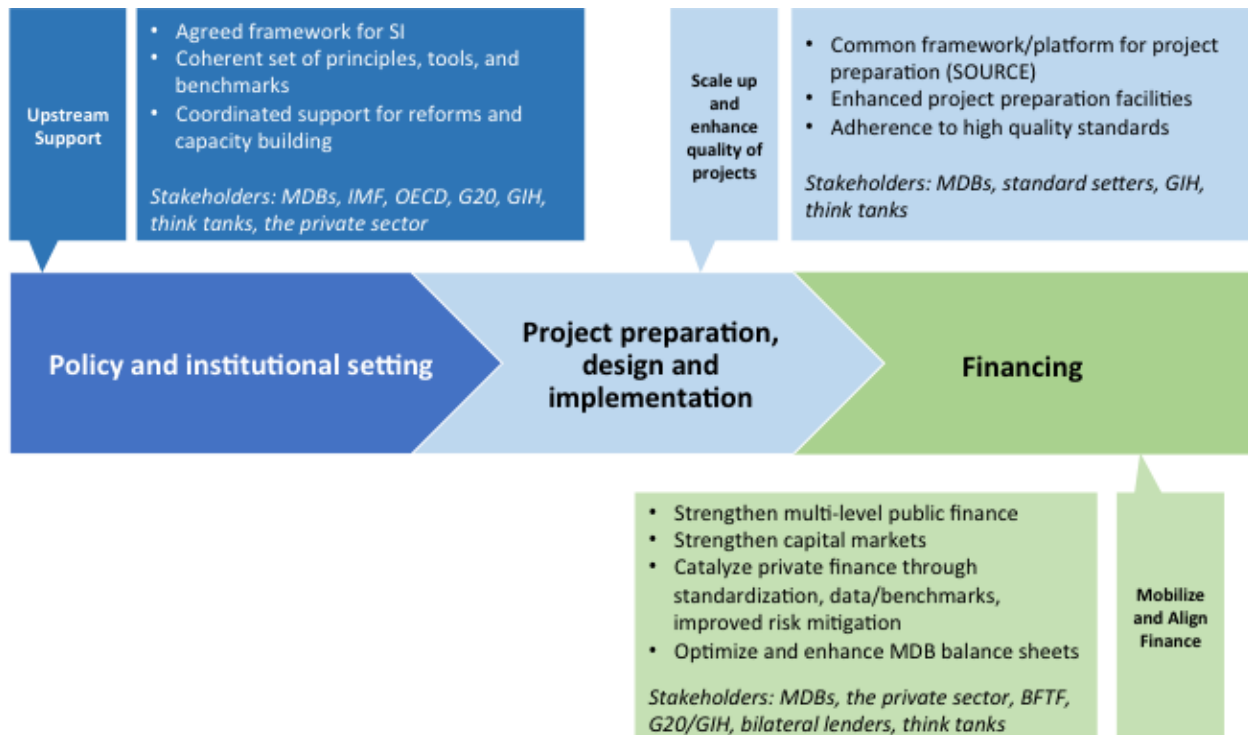
A list of the key engagements on the infrastructure agenda are summarized in the Annex. Some of the outcomes and deliverables from these existing initiatives include:

- UN and UNFCCC follow-up; FFD Forum/Interagency Taskforce; UNHLP on 2030 Development Agenda; COP follow-up on implementing the Paris Agenda.
- G20 Processes and Working Groups (ongoing); B20, T20 and C20.
- MDB Initiatives and Collaboration including Global Infrastructure Forum
- Engagement and work of other IOs including the IMF and OECD; OECD Study on Growth, Investment and the Low-Carbon Transition (May 2017)
- The New Climate Economy (GCEC 2014-2016 and supporting work)
- Business and Sustainable Development Commission (BCSD January 2017)
- Energy Transitions Commission (ETC Report October 2016)
- IEA/IRENA “Perspectives for the Energy Transition” (March 2017)
- UNEP Inquiry (2017)
- Carbon Pricing Leadership Coalition and Stern/Stiglitz Commission on Carbon Pricing (2017)
- Task Force on Climate-related financial disclosures (TCFD)
- IDB-Mercer Initiative on Convening the Conveners (2017)

3.2. Emerging Platforms for Collaboration

The broadening and deepening of engagement by both official institutions and other stakeholders is leading to emerging platforms for collaboration. Figure 5 outlines how these engagements can help unlock and scale up the delivery of sustainable infrastructure starting with upstream policy and institutional support, project preparation and adherence to high quality standards and mobilizing and aligning finance. This architecture could serve as a blueprint for coordinated actions by the international community and by countries and the private sector. Concerted efforts and enhanced collaboration will be needed to develop the sub-elements, tackle gaps and ensure an overall coherent and coordinated approach to scaling up and enhancing the quality of sustainable infrastructure.

Figure 5. Evolving agenda and institutional architecture on sustainable infrastructure



4. Towards a Shared Understanding of Sustainable Infrastructure

The complexity of infrastructure investments and the need to attract new sources of financing require a common understanding of sustainable infrastructure. Many approaches have been taken to develop a shared definition of sustainable infrastructure. Although these approaches have provided a better understanding, the concept of sustainable infrastructure is still not clearly understood. They have even created some confusion and have been a barrier to attract investments.¹⁴ In addition, the term, ‘sustainable infrastructure’ is easily confused with similar terms such as ‘green infrastructure,’ ‘quality infrastructure,’ and ‘smart infrastructure.’ A shared understanding of sustainable infrastructure would enable a more concerted approach by providing clear goals for projects and helping to identify key actions at each stage of the project cycle to bring together various stakeholder groups in a concerted and coordinated way.

Bhattacharya and colleagues defined sustainable infrastructure as “infrastructure that is socially, economically, and environmentally sustainable”.¹⁵ In line with this research, the 2016 report of the New Climate Economy described what each dimension of sustainable infrastructure—economic, social, and environmental sustainability—means.¹⁶ The report asserts that environmentally sustainable infrastructure limits all types of pollution and supports sustainable use of natural resources. Socially sustainable infrastructure contributes to enhanced livelihoods and social wellbeing, protects the resources of communities, and builds resilience to natural hazards and climate change. Economically sustainable infrastructure does not burden governments with debt, or impose too high costs on users, and also helps job creation, economic growth, and capacity building of local suppliers.

In 2016, the G7 Ise-Shima summit endorsed the G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment. The five principles include: (i) ensuring effective governance, economic efficiency in view of life-cycle cost as well as safety and resilience against natural disaster, terrorism, and cyber-attack risks; (ii) ensuring job creation, capacity building and transfer of expertise and know-how for local communities; (iii) addressing social and environmental impacts; (iv) ensuring alignment with economic and development strategies including aspect of climate change and environment at the national and regional levels; and (v) enhancing effective resource mobilization including through PPP.¹⁷ These principles cover the

¹⁴ Mercer & IDB. (2016). “Building a Bridge to Sustainable Infrastructure.” Mercer and Inter-American Development Bank.; Mercer, & IDB. (2017). “Crossing the Bridge to Sustainable Infrastructure Investing: Exploring ways to make it across”. Mercer and Inter-American Development Bank.

¹⁵ Bhattacharya, A., Oppenheim, J., & Stern, N. (2015). “Driving sustainable development through better infrastructure: Key elements of a transformation program.” Brookings Global Working Paper Series.

¹⁶ New Climate Economy. (2016). *The Sustainable Infrastructure Imperative: Financing for better growth and development*. London: New Climate Economy.

¹⁷ G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment. Retrieved from <http://www.mofa.go.jp/files/000160272.pdf>

four dimensions of sustainability: economic, environmental, social, and institutional. Moreover, by including the principle of effective financial resource mobilization, the Ise-Shima principles underscores the importance of financial aspect of sustainability.

The UNEP inquiry and Global Infrastructure Basel Foundation (GIB) provided a definition of sustainable and resilient infrastructure in its 2016 working paper. Sustainable and resilient infrastructure “integrates ESG aspects into a project’s planning, building and operating phases while ensuring resilience in the face of climate change or other shocks such as rapid migration, natural disasters or economic downturns”.¹⁸ It said that service needs “minimizes or reverses environmental damage, improves social equality and does not waste resources.” The report also mentioned economic aspect by pointing out that sustainable and resilient infrastructure is a key component of a “functioning economy.”

Project-level standards, rating schemes, and principles for sustainable infrastructure have also defined sustainable infrastructure. Most of them tend to focus on social and environmental dimensions of sustainability. For instance, SuRe, the Standard for Sustainable and Resilient Infrastructure, which was developed by GIB, defines the sustainability of an infrastructure as “its ability to meet service needs in a manner that does not make wasteful use of resources, minimizes or reverses environmental damage and improves social equality”.¹⁹ IS rating scheme defines infrastructure sustainability as “as infrastructure that is designed, constructed and operated to optimize environmental, social and economic outcomes over the long term”.²⁰ CEEQUAL focuses on environmental and social aspects of projects in that it awards projects that “go beyond legal, environmental, and social minima to achieve distinctive environmental and social performance in their work”.²¹ Equator principles did not include a definition, but it stated that the aim of the principles is to ensure projects are developed in “a socially responsible manner and reflects sound environmental management practices.”²²

Building on the existing work, the Brookings Institution, the Inter-American Development Bank, and the Public-Private Infrastructure Advisory Facility (PPIAF) has been developing a framework for sustainable infrastructure including the definitions and attributes of sustainable infrastructure.²³ According to this work, sustainable infrastructure is defined as:

¹⁸ UNEP, & GIB. (2016). “Sustainable Infrastructure and Finance: How to contribute to sustainable future.” Geneva: Inquiry: Design of a Sustainable Financial System.

¹⁹ SuRe® - the Standard for Sustainable and Resilient Infrastructure v 0.3. Global Infrastructure Basel. Global Infrastructure Basel Foundation. 2016

²⁰ Infrastructure Sustainability Council of Australia. “IS International rating tool: Briefing Report,” 2017.

²¹ CEEQUAL: Scheme Description for Projects and Term Contract. 2015. Retrieved from <http://www.ceequal.com/scheme-descriptions/>

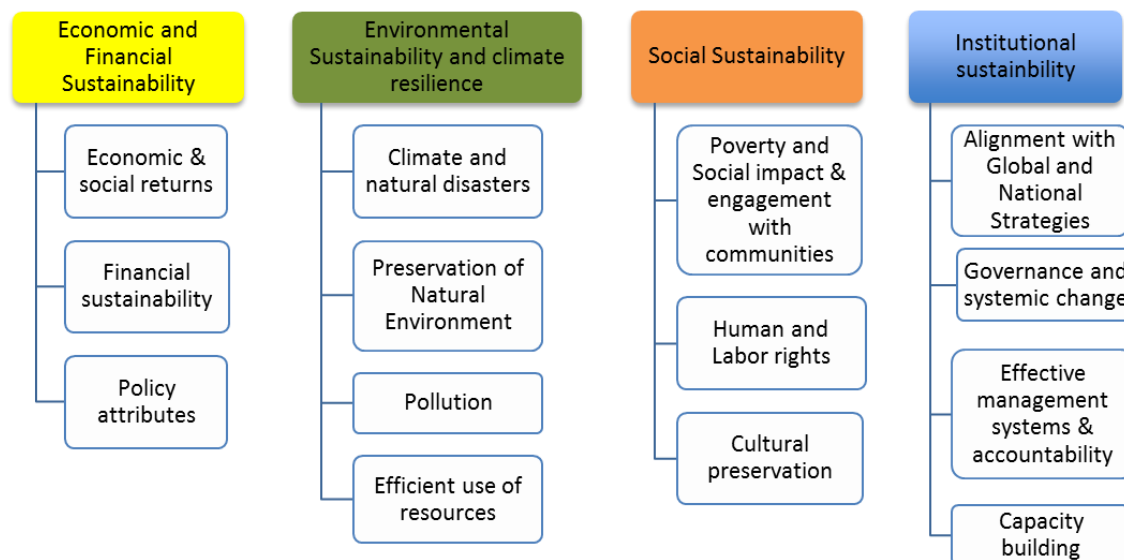
²² The Equator Principles. 2013. Retrieved from http://www.equator-principles.com/resources/equator_principles_III.pdf

²³ Bhattacharya, A., Contreas, C. & Jeong, M. (forthcoming). “Defining a Common Framework for Sustainable Infrastructure.” Unpublished manuscript.

Infrastructure projects that are planned, designed, constructed, operated, and decommissioned in a sustainable manner so as to ensure economic, financial, social, environmental (including climate resilience), and institutional sustainability over the entire lifecycle of the project. Sustainable infrastructure have four dimensions of sustainability, which are (i) economic and financial sustainability, (ii) environmental sustainability and climate resilience, (iii) social sustainability, and (iv) institutional sustainability.

For each dimension of sustainability, the joint work developed a comprehensive definition, categories of attributes, and a set of detailed attributes that needs to be considered in project preparation and design. Economic and financial sustainability includes 17 attributes under three categories. Environmental sustainability consists of 17 criteria under four categories. Social sustainability includes 16 attributes under three categories. Institutional sustainability consists of 16 attributes under four categories (Figure 6).

Figure 6. The Four Dimensions of Infrastructure Sustainability



Source: Bhattacharya, Contreras, and Jeong (forthcoming) and IDB (2018)

Economic and financial sustainability

Infrastructure project is economically sustainable if it *generates a positive net economic return, taking into account all benefits and costs over the project lifecycle including positive and negative externalities and spillovers. In addition, for infrastructure to be financially sustainable,*

it must generate an adequate risk-adjusted rate of return for project investors. Sustainable infrastructure projects must therefore generate a sound revenue stream based on adequate cost recovery and supported, where necessary, by availability payments. Sustainable infrastructure must be designed to support inclusive and sustainable growth and boost productivity, and deliver high quality and affordable services. Risks must be fairly and transparently allocated to the entities most able to control the risk or to absorb its impact on the investment outcomes over the lifecycle of the project.

Under this definition, 17 attributes were developed under three categories: economic & social returns, financial sustainability, and policy attributes. *Economic and social returns* focuses on ensuring inclusive and sustainable growth. The category includes four attributes: economic and social return over project life cycle; growth, productivity, and spillovers; job creation and spillovers; and service access, quality, reliability, and affordability. The second category, *financial sustainability*, includes nine attributes: adequate risk adjusted rate of return; clarity on revenue streams; effective risk allocation & management; operational profitability; asset profitability; positive net present asset value; liquidity ratios; solvency ratios; and mobilization of local financing. Finally, the category of *policy attributes* includes four relevant attributes: effective regulation; debt and fiscal sustainability; pricing and incentive alignment; and asset maintenance and optimal use.

Environmental sustainability and climate resilience

An infrastructure project is environmentally sustainable and climate resilient if the project *preserves, restores and integrates the natural environment including biodiversity and the ecosystem. Sustainable Infrastructure supports the sustainable and efficient use of natural resources including energy, water, and material use. Environmentally sustainable infrastructure limits all types of pollution over the lifecycle of the project and contributes to a low-carbon, resilient and resource-efficient economy. Sustainable infrastructure projects should be sited and designed to ensure resilience to climate and natural disaster risks. Sustainable infrastructure often depends on national circumstances, where the overall performance will need to be gauged relative to what could have been built or developed instead.*

Seventeen attributes were developed under four categories to ensure environmental sustainability and climate resilience. The first category, *climate and natural disasters*, includes three attributes: reduction of GHG emissions; climate risks and resilience; and disaster risk management. Given the fundamental importance of preservation of the environment, the second category, *preservation of the natural environment*, was developed with six attributes: biodiversity; natural capital; areas of high ecological value and farmland; ecological connectivity and ecosystem services; soils management; invasive species; and public amenities. The third

category, *pollution*, has four attributes, which are air contamination; water pollution; other forms of pollution; and hazardous materials. Finally, to ensure efficient use of resources, the fourth category, *efficient use of resources*, was developed with four attributes: efficient use of water resources; material use and recycling; energy use and renewable sources; and waste management and recycling.

Social sustainability

Social sustainability is ensured if an infrastructure project is *inclusive – it serves all stakeholders, including the poor – and contributes to enhanced livelihoods and social wellbeing over the lifecycle of the project. Benefits generated by sustainable infrastructure projects should be shared equitably and transparently. Services provided by sustainable infrastructure projects should promote gender equity, health, safety, and diversity while complying with human and labor rights. Where it is unavoidable, displacement and relocation of people must be managed in a fair and equitable manner. Infrastructure investment and operations must integrate cultural and heritage preservation.*

Regarding social sustainability, 16 attributes were developed under three categories. The first category is *poverty and social impact & engagement with communities*, including ten attributes: equitable distribution of benefits; stakeholder engagement and community consultation and participation; grievance redress mechanism; resettlement and displacement; community access to resources; community compensation and benefit sharing; community mobility and connectivity; disabilities and accessibility; community health and safety; and occupational health and safety. The second category, *human and labor rights*, includes preserving rights of affected groups; labor standards; community security and crime prevention; and gender inclusive project design. The final category is *cultural preservation*, which includes cultural resources and heritage and indigenous and traditional people.

Institutional sustainability

To ensure institutional sustainability, an infrastructure project should be *aligned with national and international commitments and based on transparent and consistent governance systems over the project cycle. Robust institutional capacity and clearly defined procedures for project planning, procurement, and operation are enablers for institutional sustainability. The development of local capacity including mechanisms of knowledge transfer, promotion of innovative thinking and project management are critical skills to enhance sustainability and promote systemic change. Sustainable Infrastructure must develop technical and engineering capacities as well as systems for data collection, monitoring and evaluation.*

The attributes for institutional sustainability consist of 16 attributes under four categories. The first category, *alignment with global and national strategies*, has two attributes: national and international commitment; and sector, land use and urban planning integration. The next category, *governance and systemic change*, includes two attributes, which are corporate governance structures and anti-corruption and transparency framework. The third category is *effective management systems and accountability*, including project design and feasibility; project compliance; sustainable bidding and procurement; environmental and social impact assessment of the project; management systems and accountability; project information monitoring and sustainability tracking; and mapping of existing liabilities. The final category is *capacity building*, which consist of five attributes: integration of technological advances; knowledge transfer and collaboration; regulatory, institutional, and local capacity; data collection, monitoring and evaluation; and capacities for implementation.

This framework is expected to complement existing standards and tools rather than to replace them by providing an overarching framework for sustainable infrastructure. The framework will be improved through the discussion with the MDBs, standard setters, and other relevant stakeholders, and will be released to help all stakeholders to better understand sustainable infrastructure.

5. Upstream Policy and Institutional Setting

We are unable to transform tremendous opportunities and societal needs into sustainable infrastructure investment at the required speed and scale —essentially because of a lack of credible policy and institutions. Policy and institutions are crucial due to inherent characteristics of infrastructure investments. They are long-term, require large upfront investments but generate cash flows after many years. They are subject to high risks, especially in the initial phases. Infrastructure investments are typically complex, involving many parties. They are vulnerable to policy and political risks and require appropriate regulation, since they are often natural monopolies such as in transport, water, and power distribution. Investments depend on specific circumstances and tend to be less liquid and carry risks that are difficult to insure. However, even if revenues do not cover costs, indirect externalities and social benefits may be large but difficult to measure. Consequently, markets alone cannot provide effective infrastructure services and private investments cannot often be realized without some form of public support.

While these attributes affect investment decisions and outcomes in both developed and developing countries, EMDCs face additional limitations. First, policy and institutional gaps are greater. In particular, many lack a coherent and trusted legal and institutional framework, political and regulatory risks such as pricing and threat of unilateral and arbitrary action tend to be higher, and institutional capacities are less developed and governance is weaker. Second, many countries lack a pipeline of well-structured projects. Proposals that do come forward are often subject to higher costs. Implementation tends to be subject to greater delays and higher costs. EMDCs also face greater difficulties in mobilizing long-term finance and the costs of financing are much higher than what is available in developing countries. Third, infrastructure investments worldwide face sustainability gaps. Investment decisions are affected by major price distortions, notably pervasive fossil fuel subsidies and the absence of carbon pricing. These price distortions greatly affect the incentives to invest in low-carbon technologies, especially given the low prevailing prices for fossil fuels. While the broader impediments to infrastructure investment are now better recognized, there is little attention even in the G20 to incorporating sustainability criteria in investment planning and project selection. Consequently, infrastructure investments are not as sustainable as they should be and sometimes generate negative externalities or costs to others. Higher investment costs, higher financing costs, and higher sustainability costs act as a vicious cycle to impede the quantity and quality of infrastructure investment.

This chapter identifies ongoing solutions to address these challenges, and assesses how these solutions work in EMDCs. Given the importance of policy and institutional settings for sustainable infrastructure, tremendous work has been done to improve policies and

institutional underpinnings of sustainable infrastructure. Diverse international and national organizations have provided principles, benchmarks, guidelines, and project-level tools to improve policies and institutions for infrastructure investment. We reviewed this work by each component of a policy and institutional framework, and analyzed gaps in EMDCs.

Insufficiency of well-prepared projects is one of the main impediments to sustainable infrastructure investments. To address this gap, many project preparation facilities have been created, and standards and tools for project developers have been developed. Recently, a joint global initiative for advanced project preparation called SOURCE was launched to provide well-prepared projects. In emerging markets, these efforts have made limited progress at this point.

Fragmented data in infrastructure investment has undermined the efforts to accelerate investments in sustainable infrastructure. G20 and many other international organizations have collaborated to address this gap in recent years.

5.1. Policy and institutional framework

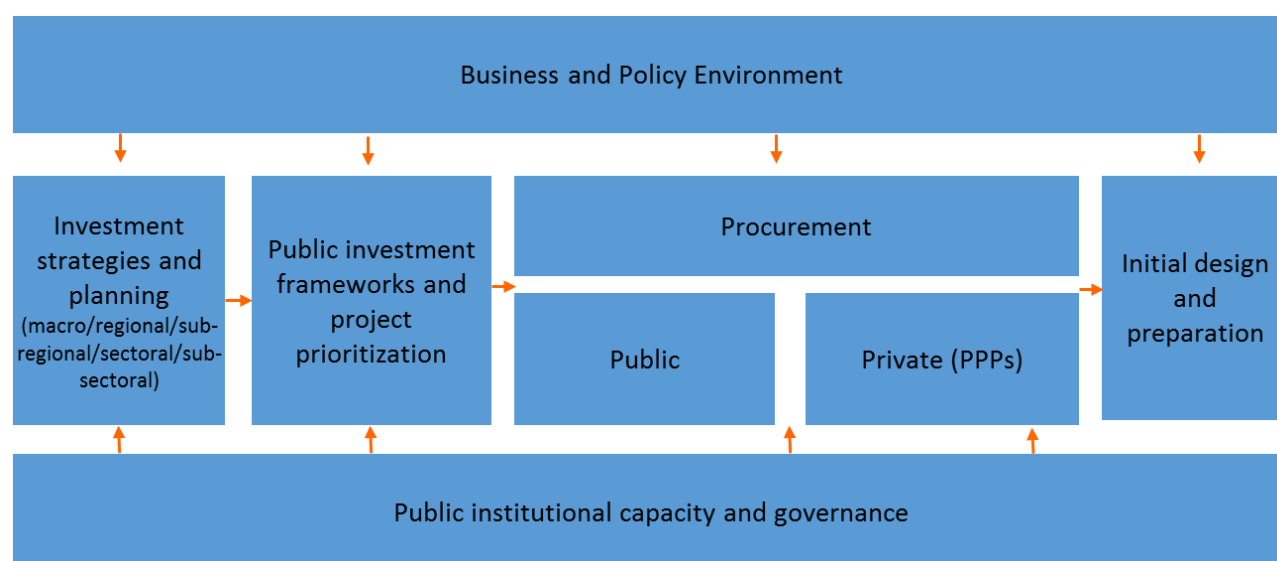
Public policy plays a central role for infrastructure both because of direct investments of public sector in infrastructure and setting up the framework that encourage private investors to invest in infrastructure. Given infrastructure's large-scale and long-term nature, providing sound and predictable policy environment is important to ensure sufficient investments in infrastructure. The indirect externalities and social and environmental benefits of infrastructure tend to be large, but they are not easy to measure. Most of infrastructure projects are related to complex policies and regulations. This makes infrastructure projects subject to significant policy risks. In this sense, markets cannot provide sufficient and sustainable infrastructure alone without public support.

A broad range of policies can influence infrastructure investments. According to Qureshi, public policy plays four roles in sustainable infrastructure.²⁴ First, public policy provides an overarching strategy for sustainable infrastructure, which is linked to national growth and development strategies. Second, it improves the policy environment, which provides incentives and enabling conditions for sustainable infrastructure investments. Third, public policy strengthens public investment management. Finally, it mobilizes financing by strengthening public finances and leveraging private finance. This shows that diverse policies including national investment strategies, fiscal policies, public investment management, and regulations on private investments work together to shape infrastructure investments.

²⁴ Qureshi, Z. (2016). "Meeting the Challenge of Sustainable Infrastructure: The Role of Public Policy" Brookings Institution.

A robust policy and institutional framework ensures the right selection of infrastructure projects as well as sufficient procurement of them. Moreover, it incentivizes the private sector to invest in sustainable infrastructure and promotes sustainability all the way from planning to project procurement. Figure 7 sets out a framework to capture the key elements of the policy and institutional setting that determines the selection and quality of infrastructure investments. The framework comprises different levels of policies and institutions given the complex nature of infrastructure projects.

Figure 7. Policy and institutional underpinnings to deliver sustainable infrastructure



In recent years, many principles, tools, and benchmarks have been developed to enhance a policy and institutional framework for public investments. We have reviewed the principles, guidance, recommendations, tools, and benchmarks that are related to policy and institutional underpinnings of infrastructure investment to identify current understanding and gaps. The review shows that tremendous work has been done, and is ongoing (Table 1). Multilateral development banks, the OECD, and the IMF are the major providers of them.

Table 1. Principles, benchmarks, and tools on policy and institutional underpinnings of sustainable infrastructure

| | Business and policy environment/Public institutional capacity and governance | Investment Strategies and Planning | Public investment frameworks and project prioritization | Procurement | |
|---------------------------------------|--|--|---|--|--|
| | | | | Public | Private (PPPs) |
| Principles and policy recommendations | <ul style="list-style-type: none"> Investing in Climate, Investing in Growth (OECD) Bhattacharya et al./NCE (2016) Towards a Framework for the Governance of Infrastructure (OECD) Getting Infrastructure Right: A Framework for Better Governance (OECD) Recommendation for Further Combating Bribery of Foreign Public Officials in International Business Transactions (OECD) Good Practice Guidance on Internal Controls, Ethics, and Compliance (OECD) High-Level Principles for Integrity, Transparency, and Effective Control of Major Events and Related Infrastructures (OECD) Principles of Corporate Governance (G20/OECD) Guidelines on Corporate Governance of State-Owned Enterprises (OECD) How to Improve the Financial Oversight of Public Corporations (IMF) Review Of 1997 Guidance Note on Governance—A Proposed Framework for Enhanced Fund Engagement (IMF) Principles for Private Sector Participation in Infrastructure (OECD) | <ul style="list-style-type: none"> Report on G20 Strategies (G20/OECD) Ise-Shima Principles for Promoting Quality Infrastructure Investment (G7) Leading Practices on Promoting and Prioritising Quality Investment (G20) Policy Framework for Investment (OECD) Quantifying the Socio-Economic Benefits of Transport (ITF) Strategic Infrastructure Planning: International Best Practice (ITF) Port Investment and container Shipping Markets (ITF) | <ul style="list-style-type: none"> Framework for Public Investment Management (WB) | <ul style="list-style-type: none"> Recommendation of the Council on Public Procurement (OECD) Contracts for Sustainable Infrastructure (IISD) Policy Guidelines for Managing Unsolicited Proposals in Infrastructure Projects (PPIAF) | <ul style="list-style-type: none"> Framework for Disclosure in PPP (WB et al.) Recommendations of the Council for Public Governance of PPP (OECD) Guidance on PPP Contractual Provisions (WB et al.) Allocating Risks in PPP Contracts (GIH) Guidebook on Promoting Good Governance in PPPs (UNECE) PPP Reference Guide (MDBs et al.) Project Checklist for Public-Private Partnerships (WB/OECD) |

| | | | | | |
|--------------------------|---|--|---|--|--|
| | <ul style="list-style-type: none"> • Private Sector Participation in Water Infrastructure: OECD Checklist for Public Action (OECD) • Guidelines for Multinational Enterprises (OECD) • G20 Anti-Corruption Working Group | | | | |
| Country-level benchmarks | <ul style="list-style-type: none"> • Global Competitiveness Indicators (WEF) • Doing Business (WB) • Indicators of Product Market Regulation (OECD) • Indicators of Regulatory Policy and Governance (OECD) • Competition law and policy indicators (OECD) | | <ul style="list-style-type: none"> • Public Investment Management Assessment (IMF) • Public Expenditure and Financial Accountability (PEFA) | <ul style="list-style-type: none"> • Benchmarking Public Procurement (WB) | <ul style="list-style-type: none"> • Infrascope (EIU/IDB/EBRD) • Climatescope (UKAID/Bloomberg) • Country Readiness Diagnostic for PPP (WB) • Benchmarking PPP Procurement (WB/PPIAF) • FDI Regulatory Restrictiveness Index (OECD) |
| Project-level tools | | | <ul style="list-style-type: none"> • Infrastructure Prioritization Framework (WB) • PPP Fiscal Risk Assessment Model (IMF/WB) | | <ul style="list-style-type: none"> • PPP Project Preparation Status Tool (PPP Knowledge Lab) • Qualitative Value-for-Money Toolkit (ESCAP) |

5.1.1. Public institutional capacity and governance

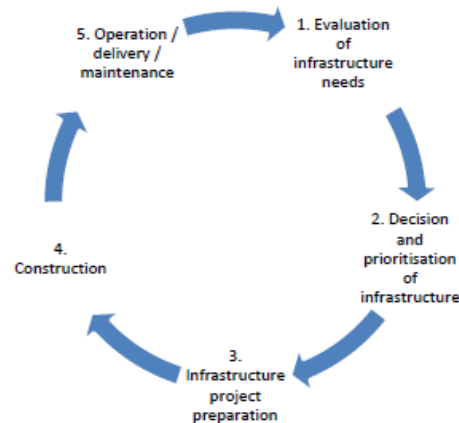
5.1.1.1. Ongoing approaches and solutions

Good governance is a crucial condition for infrastructure delivery. Poor governance is one of the main reasons of the failure of infrastructure projects to meet the timeframe, budget, and service delivery objectives.²⁵ In *Towards a Framework for the Governance of Infrastructure*, OECD defines infrastructure governance as “processes, tools, and norms of interaction, decision-making and monitoring used by governmental organizations and their counterparts with respect to making infrastructure services available to the public and the public sector.” It

²⁵ OECD. (2015). “Towards a Framework for the Governance of Infrastructure.” OECD. September 2015.

suggests that each phase of the life cycle of an infrastructure project relate to different governance challenges (Figure 8).

Figure 8. Infrastructure governance cycle



Source: OECD (2015)

The sound selection of infrastructure projects requires the ability to obtain evidence to identify infrastructure needs. Decisions and prioritization of infrastructure needs planning, processes, and tools to collect data on project dimensions and preference of stakeholders. The project preparation phase requires procedures and skills for technical design, affordability, and value-for-money issues. In the construction phase, appropriate skills and systems are necessary. Finally, the operational phase requires right incentives and tools for appropriate monitoring of performance.

Governance has been regarded as one of the main impediments of infrastructure investments in developing countries. The 2017 Global Infrastructure Forum recommended development partners for focusing on strengthening investment capacity and governance framework of their client governments as one of the main priorities.²⁶ In response to this call, the OECD and the World Bank in cooperation with other stakeholders have launched a series of Regional Roundtables on Infrastructure Governance program, which brings together government officials, the private sector, civil society and practitioners.

The program hosted two regional roundtables in Africa, and will host more roundtables in other regions in the coming year. The first roundtable in Cape Town in November 2017 re-

²⁶ Global Infrastructure Forum. (2017). "2017 Global Infrastructure Forum: Outcome Statement." <https://library.pppknowledge.org/documents/4707>

affirmed the importance of a clear plan for infrastructure programs to guide project selection considering development priorities and societal goals.²⁷ The needs for the poorest of the society were emphasized as one of the priorities of selecting, designing, and implementing infrastructure projects. The importance of enabling policy and business environment for the private sector was also been discussed. Further development and standardization of solutions, and mainstreaming the existing tools and resources were pointed out as a next step. As mentioned above, since many principles, tools, and benchmarks have already been developed by international organizations, and mainstreaming and improving them would be an efficient solution.

Other than this initiative, international organizations have done much work on infrastructure governance as well as on overall governance agenda. The OECD has been leading the agenda. It has published many principles and guidelines on diverse issues such as infrastructure governance, corporate governance, and anti-bribery. The IMF has engaged in a number of initiatives since the adoption of the 1997 Guidance Note on Governance. The G20 Anti-Corruption Working Group has sought to raise the standards of transparency and accountability across the G20.

The OECD has proposed a framework for the governance of public infrastructure that countries can use to assess their infrastructure management system. The framework consists of ten dimensions covering how governments “prioritise, plan, budget, deliver, regulate, and evaluate” infrastructure investment.²⁸ The ten dimensions include:

- Establish a national long-term strategic vision that addresses infrastructure service needs
- Manage the integrity and corruption threats at all stages of the process, from project conception to delivery
- Establish clear criteria to guide the choice of delivery mode
- Ensure good regulatory design and maintain a predictable regulatory framework for investment
- Integrate a consultation process early enough so that decisions benefit from real stakeholder engagement
- Co-ordinate infrastructure policy across levels of government in such a way that investment decisions by central and subnational governments are coherent.
- Guard affordability and value for money by using and applying cost-benefit and other methods rigorously and consistently
- Generate, analyse and disclose useful data to increase transparency and ensure accountability

²⁷ Chairman’s outcome statement. “Regional Roundtable on Infrastructure Governance,” Cape Town, November 2-3, 2017.

https://pppknowledgelab.org/sites/default/files/field/page/file/chairmansstatement_firstroundtableoninfrastructuregovernance_nov2017.pdf

²⁸ OECD. (2017). *Getting Infrastructure Right: A framework for better governance*, OECD Publishing, Paris: OECD.

- Integrate mechanisms to evaluate the performance of assets throughout their lifecycle
- Review existing infrastructure resilience in the face of evolving natural and manmade risks and develop guidelines to future proof new infrastructures.

The analysis of 25 OECD member countries and 2 non-member countries based on these dimensions showed some gaps in infrastructure governance. For instance, only 13 out of 27 countries have a long-term plan across sectors. The roles and the capacities of governments tend to be unclear and coordination needs to be strengthened. Intergovernmental coordination mechanisms exist only in about half of the countries. Responsibilities for the monitoring of the infrastructure projects are not well defined. Only half countries have specific measures against corruption and integrity threats. As a result, the OECD did not find any best practice country in terms of the framework for the governance of infrastructure.

The international consensus on the importance of infrastructure governance has become stronger. Recently, the 3rd OECD Forum on Governance of Infrastructure brought together more than 170 decision-makers from the international community, and reassured the key role of governance in infrastructure to scale up investments in infrastructure through new partnership between the public and the private and mobilizing domestic sources for investment in infrastructure. The Forum agreed on the need to adapt the risk sharing and governance models for each sector and each country. It found significant policy and market uncertainty on the future role and the sharing of risks between the public and the private, which impede private sector's participation in infrastructure investments. Good governance is required to increase the confidence of both public and market investors. To improve current infrastructure governance, the Forum stressed the role of technology such as blockchain technology and more comprehensive data, which is pursued by a range of initiatives such as SOURCE and the G20/OECD Taskforce on Long Term Investment.²⁹

Other than the framework for the governance of public infrastructure, the OECD has also provided another standards, principles, and guidance focusing on specific areas of governance such as anti-corruption, integrity, transparency, and control. The OECD Anti-Bribery Convention is an international anti-corruption instrument, which establishes legally binding standards to criminalize bribery of foreign public officials in international business. The Convention was officially adopted in 1997, and it agreed on the Recommendation for Further Combating Bribery of Foreign Public Officials in International Business Transactions in 2009.³⁰ In 2010, the Good Practice Guidance on Internal Controls, Ethics, and Compliance was adopted by the OECD Council as a part of the Recommendation.³¹ In addition, in cooperation with Italian

²⁹ OECD. (2018). "Summary: 3rd OECD Forum on Governance of Infrastructure: In the Public Interest – Delivery of Sustainable, Transparent, and Inclusive Infrastructure." 26th March 2018.

³⁰ OECD. (2009). "Recommendation of the Council for Further Combating Bribery of Foreign Public Officials in International Business Transactions," November 26, 2009.

³¹ OECD. (2010). "Good Practice Guidance on Internal Controls, Ethics, and Compliance," February 18, 2010.

Anti-Corruption Authority (ANAC), the OECD released the High-Level Principles for Integrity, Transparency, and Effective Control of Major Events and Related Infrastructures for better governance and management models for the implementation of large events and related infrastructure projects. The Principles provide recommendations covering seven areas of governance including: transparency, accountability and openness; institutional synergies, collaborative supervision and control; multidisciplinary and governance structures; early and ex ante controls; comprehensiveness and timeliness; adequate resources, skills and training; and international cooperation and access to data.³²

Another pillar of governance is corporate governance, which is the relationships between the management, the board, and the stakeholders of a corporation. The G20/OECD Principles of Corporate Governance were developed to help governments improve the legal, regulatory, and institutional framework for corporate governance. The Principles build on the common elements of corporate governance to embrace multiple models on corporate governance. The elements covered by the Principles include a legal, regulatory and institutional framework for corporate governance, stakeholders' rights, incentives throughout the investment chain, and disclosure. The Principle is one of the Financial Stability Board's key standards, and provided the basis for corporate governance assessment of the Report of the Observance of Standards and Codes of the World Bank.³³

The OECD has also published a few guidelines targeting specific groups of corporations: state-owned enterprises, the private sector, and multinational enterprises. Since state-owned enterprises tend to be prevalent in infrastructure industries, the governance of them is important to ensure the efficiency and sustainability of infrastructure projects. The Guidelines on Corporate governance of State-Owned Enterprises aims to make state-owned enterprises operate as efficient and transparent as private enterprises, and ensure them compete with private enterprises on a level playing field.³⁴ State-owned enterprises have their unique challenges such as politically motivated ownership interference and a complex web of agents. The Guidelines were developed to address these challenges in 2005. It consists of guidelines and sub-guidelines covering: rationales for state ownership, the state's role as an owner, state-owned enterprises in the marketplace, equitable treatment of shareholders and other investors, stakeholder relations and responsible business, disclosure and transparency, and the responsibilities of the boards of state-owned enterprises.

Recognizing the importance of the governance of state-owned enterprises, the IMF also proposed a policy and institutional framework for the financial oversight of the enterprises. It

³² OECD. (2016) *High-Level Principles for Integrity, Transparency and Effective Control of Major Events and Related Infrastructures*. Paris: OECD.

³³ OECD. (2015). "G20/OECD Principles of Corporate Governance." September 2015.

³⁴ OECD. (2015). *OECD Guidelines on Corporate Governance of State-Owned Enterprises*, 2015 Edition, Paris: OECD.

pointed out the essential building blocks of the framework including a comprehensive set of definitions and classifications; a mechanism that governments can review periodically the status of public corporations to ensure the commercial and economic viability; a policy framework that determines the ownership of public corporations, and their legal and institutional status; a robust system of financial controls and approvals; and arrangements for measuring and monitoring public corporations' financial performance.³⁵ Moreover, the measures to enhance the capacity of governments to oversee public corporations are also addressed.

Considering the importance of the private sector in infrastructure investments, the OECD has developed the *Principles for Private Sector Participation in Infrastructure* to help governments work with the private sector to finance infrastructure projects. The Principles consist of 24 principles covering five aspects of infrastructure governance: deciding on public or private provision of infrastructure services; enhancing the enabling institutional environment; goals, strategies and capacities at all levels; making the public-private co-operation work; and encouraging responsible business conduct.³⁶ Building on these Principles, the OECD developed the checklist for public action in water infrastructure to provide governments a practical guideline for the private sector's engagement in water infrastructure.³⁷ The Checklist has been used to assess the conditions for private sector participation in water infrastructure in Egypt, Lebanon, Mexico, Russia and Tunisia.

To promote responsible business conduct of multinational enterprises, the OECD developed the *OECD Guidelines for Multinational Enterprises*. The purpose of the Guidelines is "to ensure that the operations of these enterprises are in harmony with government policies, to strengthen the basis of mutual confidence between enterprises and the societies in which they operate, to help improve the foreign investment climate and to enhance the contribution to sustainable development made by multinational enterprises."³⁸ The Guidelines provide comprehensive recommendations in the areas of disclosure; human rights; employment and industrial relations; environment; combating bribery, bribe solicitation and extortion; consumer interests; science and technology; competition; and taxation.

The IMF has engaged in governance agenda since the adoption of "The role of the IMF in Governance Issues: Guidance Note" in 1997. Recently, it adopted the policy framework that supplements the Note.³⁹ The IMF has engaged in a number of initiatives including promoting

³⁵ IMF. (2016). "How to Improve the Financial Oversight of Public Corporations," November 2016.

³⁶ OECD. (2007). *OECD Principles for Private Sector Participation in Infrastructure*. Paris: OECD.

³⁷ OECD. (2009). *Private Sector Participation in Water Infrastructure: OECD Checklist for Public Action*. Paris: OECD.

³⁸ OECD. (2011). *OECD Guidelines for Multinational Enterprises*, Paris: OECD.

³⁹ IMF. (2018). "Review of 1997 Guidance Note on Governance—A Proposed Framework for Enhanced Fund Engagement." IMF Policy Paper. April 2018.

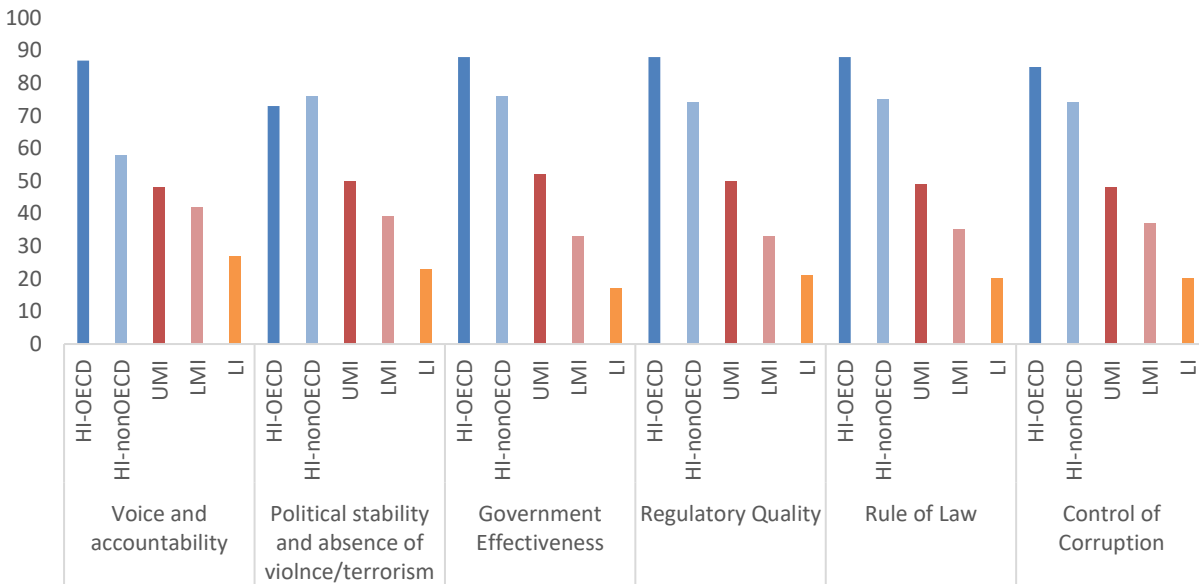
the reform of economic regulations, fiscal transparency and accountability, and the financial sector surveillance program and the standards and codes initiative. The recent review proposed four elements of the new policy framework including assessing the nature and severity of governance vulnerabilities in a systemic manner, assessing the economic impact of the governance vulnerabilities, guiding policy recommendations, and assessing governmental measures against corruption.

The G20 Anti-Corruption Working Group has raised the standards of transparency and accountability across the G20 since its launch in 2010. Building on the prior work, the G20 Argentina is addressing the issues including integrity and transparency both in private and public sector, beneficial ownership, practical cooperation, bribery, vulnerable sectors, and international organizations. In particular, the group focuses on integrity in state-owned enterprises and managing conflicts of interest.

5.1.1.2. Assessment of current status in emerging markets

In terms of governance, emerging economies have much room to improve compared to advanced economies. The 2016 World Governance Indicators show that high-income countries are better performing in terms of all the six dimensions of governance than middle-income countries (Figure 9). Compared to high-income countries, the governance performance of middle-income countries are especially lower in terms of *voice and accountability* and *control of corruption*.

Figure 9. World Governance Indicators by country group, 2016.



Source: World Governance Indicators, <http://info.worldbank.org/governance/wgi/index.aspx#home>

Some studies revealed that the status of emerging economies are especially limited in infrastructure governance. According to the study of the Hertie School of Governance and OECD, non-OECD countries perceived that the lack of coordination between central and regional levels, and across regional levels is one of the major challenges in managing public infrastructure. Moreover, inadequate participation of the private sector, civil society, citizens, and non-profit organizations was more challenging in non-OECD countries than OECD countries.⁴⁰

The Governance Report 2016 developed indicators of infrastructure governance with three dimensions: planning, management, and outcomes. The report measured the indicators in all OECD countries and ten non-OECD countries. The result shows that non-OECD countries tend to perform well below compared to OECD countries.⁴¹ In terms of infrastructure planning, other than China, all the non-OECD countries including Brazil, Mexico, and South Africa perform below average. Non-OECD countries are weaker in terms of infrastructure management as well, which includes coordination challenges, corruption, and practices and instruments. China's management performance is significantly lower than its planning performance. Most of the

⁴⁰ Hammerschmid, G. & Wegrich, K. (2016) "Infrastructure Governance and Government Decision-making" in *The Governance Report 2016*. ed. Hertie School of Governance. Oxford University Press. 31-54.

⁴¹ Haber, M. (2016). "Governance Indicators Infrastructure," in *The Governance Report 2016*. ed. Hertie School of Governance. Oxford University Press. 149-174.

other non-OECD countries also showed lower performances in infrastructure management compared to planning.

5.1.2. Business and policy environment

To drive the right investment in infrastructure, a sound business and policy environment is key. The business and policy environment is affected not only by investment strategies and policies but also by pro-growth structural reforms and climate change policies. All the component of the policies and institutions need to be integrated and coordinated to move towards a sustainable economy.

The OECD's recent report, *Investing in Climate, Investing in Growth*, suggested a constellation of policies from pro-growth reforms to policies targeted to climate change to drive low-emission and resilient growth.⁴² Three components of policy framework—a well-aligned investment environment, pro-growth structural reforms, and policies targeted to climate change—need to be well-aligned to trigger the right investments. For instance, if an investment environment favors carbon-intensive investments, a well-designed climate policy would be less effective. This holistic and integrated approach needs to be applied to a policy framework for sustainable infrastructure.

⁴² OECD. (2017). *Investing in Climate, Investing in Growth*. Paris: OECD.

Box 1. Three components of a policy framework for climate and growth

The recent publication of OECD, *Investing in Climate, Investing in Growth*, suggested how three key components of policy framework for climate and growth should be designed and coordinated.

1. *Pro-growth structural reforms*: Governments need to ensure that the economy is conducive to growth and open to competitive investment. Pro-growth structural reforms include product and labor market reforms, reforms to increase knowledge-based capital such as education and training, and financial policies and regulations that are friendly to innovations.

2. *Climate policy*: Putting a price on carbon is an essential low-carbon policy. Subsidies for fossil fuels should be reformed to fix price distortions. Carbon pricing should be complemented by additional policies such as investment incentives (e.g. incentives for renewable electricity), standards and regulations (e.g. technology and performance standards) and information provision (e.g. energy efficiency labeling). Sustainable agriculture and land-use policies are also crucial given the importance of land sectors for carbon emissions. To adapt to climate change and improve resilience, policies such as mainstreaming climate risk management into decision-making, and identifying adaptation actions in key areas are required.

3. *Investment conditions*: Both general investment environment and specific policies for competition, land-use planning, trade and tax need to be aligned with climate policies. Investment policies should be transparent and predictable, and should not discriminate foreign investors. Investment promotion and facilitation policies are needed given the high transaction costs of low-emission infrastructure projects. Land-use and transport planning should be designed to reduce energy and carbon-intensive behaviors, especially in urban areas. Trade obstacles to the diffusion of low-carbon technologies need to be addressed. Tax policies should not disadvantage low-carbon technologies. Policies shaping business conduct should encourage companies to make less carbon-intensive decisions.

Source: OECD. (2017). *Investing in Climate, Investing in Growth*. Paris: OECD.

5.1.2.1. Ongoing approaches and solutions

Tackling price distortions is a key step to scaling up investments in sustainable infrastructure. These distortions include the lack of carbon prices, a range of subsidies to promote carbon-intensive energy sources and to encourage inefficient use of natural resources, and the pricing of infrastructure that does not reflect the full costs of externalities.

Carbon pricing is the most important and essential climate policy to shift investments toward low-emission and climate-resilient options.⁴³ It encourages emitters to invest in low-emission options, and sends a signal for policy commitments. A patchwork of regulations is less efficient than carbon pricing since it cannot send a clear price signal to the market. Given this importance, increasing number of countries have adopted some measures to price carbon, but carbon prices are still much less than the price that is needed to meet the goal of global average temperature to below 2°C. Carbon prices range from less than \$1 to \$130 per tCO₂e, and the prices of majority of emissions are less than \$10/tCO₂e.⁴⁴ Moreover, the coverage of carbon pricing is still insufficient to significantly reduce emissions. Around 40 countries and 20 cities have implemented or have planned pricing carbon, which cover a 13% of global annual emissions in total.⁴⁵

The momentum from the Paris Agreement, however, provides an opportunity to accelerate the wider adoption of carbon pricing. More than 90 countries included carbon-pricing schemes in their Nationally Determined contributions (NDCs). International groups such as G20, OECD, and the World Bank have driven carbon pricing agenda. OECD and the World Bank suggested the FASTER principles for successful carbon pricing.⁴⁶ The Carbon Pricing Leadership Coalition (CPLC) was established to provide political leadership on carbon pricing, led by the World Bank in 2015.

Beyond offering political leadership, the CPLC is developing approaches on how to design and implement carbon pricing. According to OECD's report, *Investing in Climate, Investing in Growth*, for the carbon pricing to be effective, prices should be sufficiently high and apply to a broad range of emissions.⁴⁷ It is also important that transitional supports should not weaken abatement incentives for emitters. The pricing policy should be designed long-term and in a stable manner to send a strong signal to the market. The other crucial aspect of carbon pricing is the use of revenue. It should be socially beneficial and helpful to increase support for carbon pricing. High-level Commission on Carbon Prices identified that carbon prices should be at least US \$ 40-80/tCO₂e by 2020, and \$50-100/tCO₂e by 2030 to achieve the Paris Climate goal.⁴⁸

⁴³ OECD. (2017). *Investing in Climate, Investing in Growth*. Paris: OECD, 2017.

⁴⁴ Bhattacharya, A., Meltzer, J., Oppenheim, J., Qureshi, Z., & Stern, N. (2016). "Delivering Sustainable Infrastructure for Better Development and Better Climate." Brookings Institution. December 2016.

⁴⁵ New Climate Economy. (2016). *The Sustainable Infrastructure Imperative: Financing for better growth and development*. London: New Climate Economy.

⁴⁶ OECD and World Bank. (2015). "The FASTER Principles for Successful Carbon Pricing: An Approach Based on Initial Experience." September 2015.

⁴⁷ OECD. (2017). *Investing in Climate, Investing in Growth*. Paris: OECD, 2017.

⁴⁸ Carbon Pricing Leadership Coalition. (2017). "Report of the High Level Commission on Carbon Prices." May 29, 2017.

Fossil fuel subsidies are another critical aspect of price distortions. Removing fossil fuel subsidies is expected to reduce global CO₂ emissions by more than 20%.⁴⁹ Other than global climate benefits, it will also provide local benefits such as reducing air pollution and generating significant fiscal gains. Although its negative impacts on carbon-intensive industries are a concern, it can be addressed by complementary policies. A few studies show that the benefits of removing fossil fuel subsidies are large including the potential to generate substantial revenues.⁵⁰

Since 2013, more than 30 countries have taken actions to reform fossil fuel subsidies. As well as individual countries, several group of countries have made commitments to reform fossil fuel subsidies—G20, Asia-Pacific Economic Co-Operation (APEC), and the nine-nation Friends of Fossil Fuel Subsidy Reform. These groups could encourage domestic reform efforts and facilitate sharing information and experience among countries. Regular, up-to-date, and publicly available information sharing of all participant countries would be necessary to build this momentum.⁵¹

Price distortions should be addressed in non-energy sectors as well. Water subsidies encourage inefficient and unsustainable use of natural resources. Cases show that water subsidies are inequitable in that the benefits are distributed unequally. More broadly, pricing of infrastructure services should reflect the full costs of infrastructure. Poor pricing will result in insufficient provision of infrastructure, and this would make the users of infrastructure reluctant to pay them, which would lead to another price distortion. Poor pricing also discourages investments in infrastructure since it does not provide robust and predictable revenue streams to investors. Pricing reflecting the actual value of infrastructure can ensure efficient and sufficient investments in infrastructure.

Well-aligned and coordinated policies and institutions can stimulate right investments by providing a stable and predictable business climate. The OECD's report, *Investing in Climate, Investing in Growth*, provides policy recommendations both for infrastructure investment and overall investment for sustainable growth. The report suggested developing long-term low-emission strategies, mainstreaming climate mitigation and adaptation in infrastructure plans, and improving the transparency of infrastructure project pipelines.⁵² From a broader perspective, it proposes strong and coherent climate policy to shift investment towards low-emissions and climate resilient options. Moreover, the report recommends changing

⁴⁹ Bhattacharya, A., Meltzer, J., Oppenheim, J., Qureshi, Z., & Stern, N. (2016). "Delivering Sustainable Infrastructure for Better Development and Better Climate." Brookings Institution. December 2016.

⁵⁰ Rydge, J. (2015). "Implementing Effective Carbon Pricing." New Climate Economy Working Paper.; Goulder, L. (2013). "Climate Change Policy's Interactions with the Tax System." *Energy Economics*, 40.

⁵¹ OECD. (2017). *Investing in Climate, Investing in Growth*. Paris: OECD, 2017.

⁵² OECD. (2017). *Investing in Climate, Investing in Growth*. Paris: OECD, 2017.

investment conditions for low-emission and resilient infrastructure. The work of Bhattacharya and colleagues and the 2016 New Climate Economy report suggested how to strengthen investment frameworks to boost infrastructure investment. They pointed out the importance of national integrated strategic framework, which ensure coherence across policies and facilitate coordination across sectors and different levels of governments.⁵³

A number of country-level benchmarks have been used to provide information on each country's business environment. The Global Competitiveness Indicators (GCI) of the World Economic Forum combines 114 indicators on productivity and efficiency of countries' economies, which are grouped into 12 pillars. Its 2017-2018 report covers 137 economies.⁵⁴ Infrastructure is one of the pillars, and the indicators under the pillar focus on the quality of infrastructure. Although sustainability is one of the goals of the GCI, sustainability is not critically addressed by the indicators. Doing Business is another well-known benchmark, which was developed by the World Bank to encourage economies to compete towards more efficient regulations. It measures 11 areas of business regulations for domestic firms. Its 2018 report covers 190 economies.⁵⁵

The OECD developed a number of indicators to measure market and regulatory structure of countries. The Indicators of Product Market Regulation measure the economy-wide policy regimes such as state control, barriers to entrepreneurship, and barriers to trade and investment and sectoral regulations in energy, transport, and communications. The OECD also provides the Indicators of Regulatory Policy and Governance. They measure regulatory impact assessment, stakeholder engagement, and ex post evaluation. Competition law and policy indicators measure 12 areas on competition regimes such as competences, powers to investigate, and procedural fairness. These indicators cover mostly OECD member countries.

5.1.2.2. Assessment of current status in emerging markets

Globally, fossil fuels subsidies are decreasing partly because of low prices of fuels and continuing reform efforts of governments. In 2016, the value of fossil-fuel subsidies decreased by 18% compared to the previous year.⁵⁶ However, the use of fossil fuel subsidies are still significant in emerging economies. According to IEA, most of the global fossil fuel subsidies are from emerging economies and developing countries (Figure 10). Countries in the Middle East

⁵³ Bhattacharya, A., Meltzer, J., Oppenheim, J., Qureshi, Z., & Stern, N. (2016). "Delivering Sustainable Infrastructure for Better Development and Better Climate." Brookings Institution. December 2016.

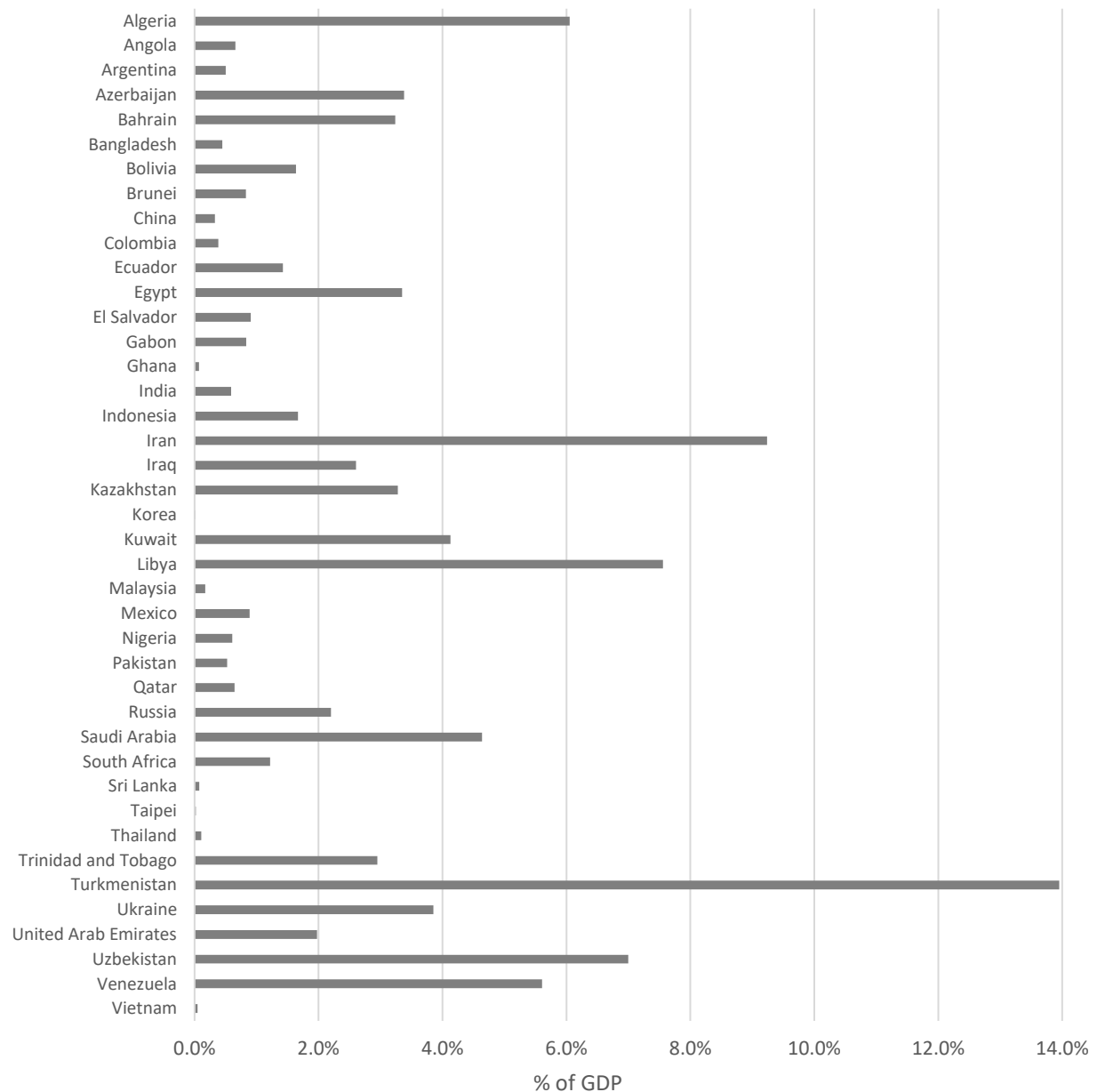
⁵⁴ World Economic Forum. (2017). The Global Competitiveness Report 2017–2018. Geneva: World Economic Forum.

⁵⁵ World Bank. (2017). *Doing Business 2018: Reforming to Create Jobs*. Washington DC: World Bank.

⁵⁶ IEA. (2017). *World Energy Outlook 2017*. International Energy Agency.

tend to provide significant energy subsidies. China accounts for the biggest share of energy subsidies due to its subsidies of oil and electricity.

Figure 10. Energy subsidies by country.

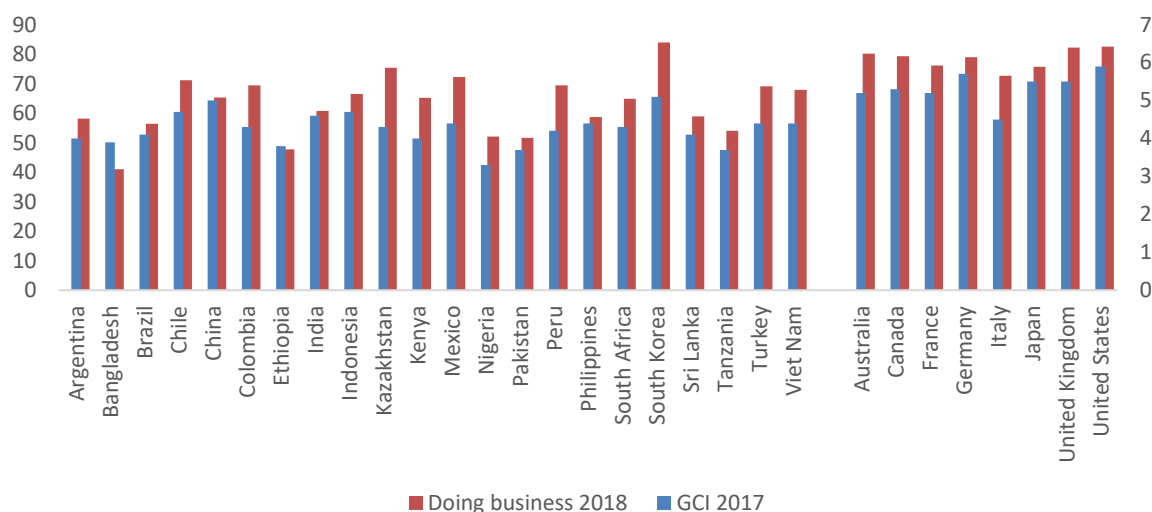


Source: IEA (2017)

Carbon pricing policies are expanding in emerging economies. A number of emerging markets including Mexico, Chile, South Africa, and Kazakhstan have implemented or planned carbon pricing policies—emission trading system or carbon tax. China is developing its plans for a national emission trading system, starting in 2017. China’s adoption of national emission trading system is expected to contribute to climate change mitigation enormously by doubling the coverage of carbon pricing from 13 percent to 25 percent of the global greenhouse gas emissions.⁵⁷ Mexico is planning to implement a national carbon market, starting in 2018. Colombia and Chile, which already adopted carbon tax, are considering setting up an emission trading system.

The most recent result of the GCI and Doing Business shows that advanced economies are better performing compared to emerging economies. Overall, developed countries have higher scores of both GCI and Doing Business than developing countries (Figure 11). Most of emerging economies have significant room for improvement in terms of business regulations.

Figure 11. Global Competitiveness Indicators and Doing Business Indicators in selected countries.



Source: World Bank (2017) and World Economic Forum (2017)

Although emerging economies are still behind at this point, the competitiveness of some economies have been rapidly improved in recent years. For instance, India’s competitiveness scores have improved in recent couple of years based on significant improvement of infrastructure and health and primary education. According to Doing Business

⁵⁷ World Bank. (2016). “Carbon Pricing Watch 2016.” May 25, 2016.

2018, about 75% of economies in South Asia have implemented at least one business regulation reform from June 2016 to June 2017. Thailand implemented eight reforms, and Indonesia implemented seven reforms. Given this trend, the business environment of emerging economies is expected to be improved continuously.

5.1.3. Investment strategies and planning

5.1.3.1. Ongoing approaches and solutions

Well-designed investment strategies and planning promotes investments in infrastructure by helping investors with planning investments with sufficient information. In this sense, a number of principles and recommendations have been developed to help governments formulate and implement better investment strategies.

G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment are high-level principles aiming to promote investments in quality infrastructure. The Principles provide a broad guidance to governments on infrastructure investment strategies. They consist of five elements covering effective governance; job creation and knowledge transfer; social and environmental impacts; alignment with economic and development strategies; and mobilizing resources including the private sector.⁵⁸

G20/OECD Report on G20 Investment Strategies provides a more comprehensive guidance. In February 2015, G20 Finance ministers and Central Bank Governors stated that they were committed to boosting investment in G20 countries via concrete and ambitious investment strategies that will also support their collective growth objective. G20 Finance Ministers and Central Bank Governors reiterated that boosting investment is a top priority at their September 2015 meeting. As part of this, the G20 Investment and Infrastructure Working Group has conducted a voluntary exercise to compile information and data on countries' investment strategies, including the main challenges being addressed, existing policy priorities, and policy context of these strategies. The report initiated by the G20 Turkish Presidency and prepared by the OECD contains a comparative analysis of the information on investment strategies in G20 countries. The report was agreed by G20 Leaders at their Summit meeting in Antalya on 15-16 November 2015.

In this report, a wide range of investment strategies were developed by categories. Infrastructure is one of the categories with investment ecosystem and small and medium-sized enterprises (SMEs). The report made suggestions to improve infrastructure investment

⁵⁸ G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment, Retrieved at: <http://www.mofa.go.jp/files/000196472.pdf>

strategies in six areas. First, it suggests the necessity of improvements of investment climate. A coordination of infrastructure development across different levels of governments would be beneficial. Investment strategies can be at the national, regional, provincial, state, or local level, but all levels of policies should be coordinated. Second, alternative sources of infrastructure financing should be facilitated. It suggested “wider implementation of user charging, concessional government loans, phased grants/availability payments, targeted payments, and value capture” as well as “bank lending, corporate bonds, asset-backed securities, venture investment funds, non-financial corporate debt financing tool, stocks, insurance bonds plan, industrial investment fund, trust plan and financing leases, private equity and project bonds”.⁵⁹ Addressing infrastructure bottleneck, a lack of long-term financing, insufficient risk capital instruments were also pointed out as needed actions. Third, it emphasizes the role of multilateral development banks and national development banks. Fourth, private participation in infrastructure is made easier when governments implement appropriate institutional arrangements for improving regulatory predictability. Fifth, governments can provide more competitive environment with more open and transparent procurement process. Finally, it suggested that insufficient availability and low quality of data should be addressed.

In 2014, the G20 also developed a set of practices especially targeting infrastructure investment. The practices consist of the preconditions for an attractive market for investment in infrastructure and the practices in three areas: project identification and prioritization; project preparation; and project procurement and decision-making.⁶⁰ The practices aim to help governments to put in place the frameworks to encourage the private sector’s involvement in infrastructure investment by providing guidance to identify, prioritize, plan, and deliver infrastructure projects.

The OECD’s *Policy Framework for Investment* suggests guidance in 12 policy fields including investment in infrastructure. The framework suggests that the selection of infrastructure projects and the choice between public and private should be decided by “an impartial assessment of what best serves the public interest” and it is best achieved through full cost-benefit analysis.⁶¹ It also suggests that all aspects of sustainable development should be taken account including environmental and social impact and climate resilience considerations.

A number of principles were developed to provide more specific guidance in the sub sectors of infrastructure such as transport and port investments. International Transport Forum (ITF)’s report, *Quantifying the Socio-economic Benefits of Transport*, provides recommendations

⁵⁹ OECD. (2015). “G20/OECD Report on G20 Investment Strategies.” OECD.

⁶⁰ Leading Practices on Promoting and Prioritising Quality Investment, Retrieved at: <http://www.g20.utoronto.ca/2014/5%20A%20set%20of%20Leading%20Practices%20on%20Promoting%20and%20Prioritising%20Quality%20Investment.pdf>

⁶¹ OECD. (2015). *Policy Framework for Investment*. Paris: OECD.

to tackle the challenges of the standard application of transport cost-benefit analysis (CBA). Other than the recommendations for a better application of CBA, it suggested the benefits of complementary tools such as economic impact analysis and qualitative explanation of non-quantifiable impacts.⁶² Another report of the ITF, summarizing the discussion among 27 international experts, *Strategic Infrastructure Planning: International Best Practice*, reviews the experience of strategic infrastructure planning in a selection of countries, and provides policy insights.⁶³ The ITF also published a report on port investment and container shipping markets, which investigate the aspects that need to be considered before the investment decision of large-scale port projects.⁶⁴

5.1.3.2. Assessment of current status in emerging markets

Many developing countries have national or sub-national infrastructure plans. According to InfraCompass, a tool to guide governments on creating the best conditions for infrastructure delivery developed by Global Infrastructure Hub, 25 countries out of 48 countries that it investigated have national or sub-national infrastructure plans, including Brazil, China, Colombia, India, Indonesia, Mexico, and South Africa.

The qualities of the plans, however, vary greatly among countries. For instance, China, Colombia, and India have infrastructure plans, but the plans do not include project pipelines (Table 2). Brazil does not have a guideline for the appraisal of infrastructure projects. Bhattacharya and Holt found that a very few of emerging economies and developing countries have a comprehensive and coherent infrastructure plan through reviewing infrastructure plans of countries.⁶⁵

⁶² ITF. (2017). "Quantifying the Socio-economic Benefits of Transport," ITF Roundtable Reports. OECD.

⁶³ ITF. (2017). "Strategic Infrastructure Planning: International Best Practice." OECD.

⁶⁴ OECD and ITF. (2015). "Port Investment and Container Shipping Markets," ITF Roundtable, No 157. OECD.

⁶⁵ Bhattacharya, A. & Holt, R. (2015). *Meeting the Infrastructure Financing Challenges in Emerging Markets and Developing Countries*. Mimeo.

Table 2. Infrastructure plan in selected emerging economies

| | National or Sub-National Infrastructure Plan | Project Pipeline | Guidelines for the appraisal of infrastructure projects |
|--------------|--|------------------|---|
| Brazil | Yes | Yes | No |
| Chile | No | Yes | Yes |
| China | Yes | No | Yes |
| Colombia | Yes | No | Yes |
| India | Yes | No | Yes |
| Indonesia | Yes | Yes | Yes |
| Mexico | Yes | Yes | Yes |
| Peru | Yes | Yes | Yes |
| Philippines | No | Yes | Yes |
| South Africa | Yes | Yes | Yes |

Source: InfraCompass, <https://infracompass.github.org/Overview>

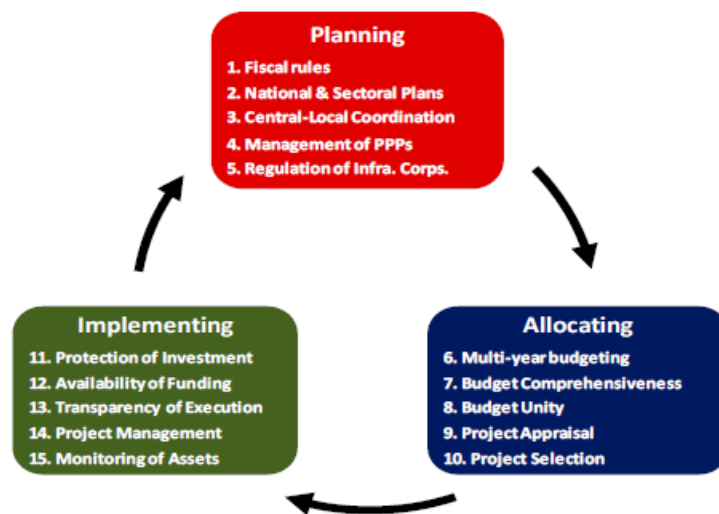
5.1.4. Public investment framework and project prioritization

5.1.4.1. Ongoing approaches and solutions

The IMF launched the Public Investment Management Assessment (PIMA) in July 2015 to help countries to evaluate the quality of the public investment management practices. PIMA assesses the design and effectiveness of 15 key institutions at the three stages of public investment decision making cycle—planning, allocating, and implementing (Figure 12). The framework incorporates elements related to macro-fiscal frameworks, integration of investment planning in medium-term budgeting, coordination of public investment across all levels of government, and private sector participation in infrastructure provision.⁶⁶

⁶⁶ IMF. (2015). “Making Public Investment More Efficient.” June 2015.

Figure 12. PIMA Framework



Source: IMF (2015)

The World Bank published a Diagnostic Framework for Assessing Public Investment Management to identify “must-have” institutional features minimizing major risks and providing an effective process for managing public investments in 2010. While PIMA evaluates the investment management practices of countries, the framework identifies the bare bones of features than a best practice. It covers project implementation as well as project design and selection. It consists of two parts—the descriptions of key features of public investment management and diagnostic questions and indicators to assess the functioning of public investment management systems. Table 3 summarizes the key features by stage of public investment.

Table 3. The must-have features of the Framework for Assessing Public Investment Management

| Stage of public investment | Key features |
|---|--|
| Investment guidance, project development, and preliminary screening | <ul style="list-style-type: none"> • Broad strategic guidance for public investment • Formal process for project development • First level screening |
| Formal project appraisal | <ul style="list-style-type: none"> • Pre-feasibility study • Feasibility study compiling all relevant data, refining project outputs and outcomes, outlining and analyzing in-depth the selected alternative of achieving project objectives, as well as undertaking various background assessments including environmental and social impact analysis • Rigorous cost-benefit or cost effectiveness analysis • Capacity of staff with project evaluation skills |
| Independent review of appraisal | <ul style="list-style-type: none"> • Independent peer review • Clarity of specific responsibilities |
| Project selection, detailed design and budgeting | <ul style="list-style-type: none"> • Link to the budget cycle |
| Project implementation | <ul style="list-style-type: none"> • Being scrutinized for implementation realism and with regard to efficiency |
| Project adjustment | <ul style="list-style-type: none"> • Flexible funding review process • Capacity to monitor implementation |
| Service delivery | <ul style="list-style-type: none"> • Asset registers need to be maintained • Asset values recorded |
| Basic completion review and evaluation | <ul style="list-style-type: none"> • Basic completion review and ex-post evaluation of finished projects |

Source: Rajaram, Le, Biletska and Brumby (2010).

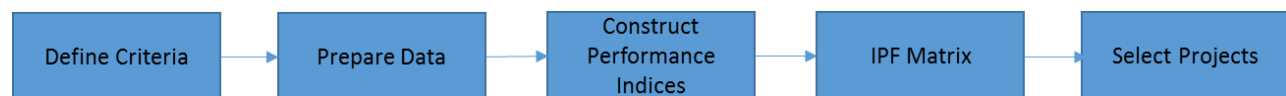
The Public Expenditure and Financial Accountability (PEFA) program provides a framework to measure the strengths and weaknesses of public financial management using indicators. The framework consists of 7 pillars and 31 indicators, which are disaggregated into 94 dimensions. The pillars include budget reliability, transparency of public finances, management of assets and liabilities, policy-based fiscal strategy and budgeting, predictability and control in budget execution, accounting and reporting, and external scrutiny and audit.⁶⁷

⁶⁷ PEFA Secretariat. (2016). *Framework for assessing public financial management*. Washington DC: PEFA Secretariat.

The World Bank developed a practical tool that help governments select projects. Although full social cost-benefit analysis and full-fledged feasibility assessments are ideal for project prioritization, many governments have limited capacity and public resources to implement them. The Infrastructure Prioritization Framework (IPF) was developed by the World Bank to address this limitation in 2016. The IPF enables governments to select projects with limited institutional and technical capacities and partial project-level information. It is an interim decision making tool until more developed selection tools are available.

With the IPF, the criteria for project selection are set by the consensus of stakeholders, and they may differ from country to country. Then, the IPF constructs criteria into two indices—social-environmental and financial-economic index. These indices create a four-quadrant matrix with incorporating a budget constraint. The matrix helps project selection by showing higher priority projects, higher social/environmental priority projects, higher financial/economic projects, and lower priority projects (Figure 13).

Figure 13. The IPF process



Pilots have been done in a number of countries including Argentina, Sri Lanka, Panama and Vietnam. The pilots enabled to identify a set of issues for future refining of the framework. More pilot projects are ongoing in other countries such as Chile, Japan, and Indonesia.⁶⁸

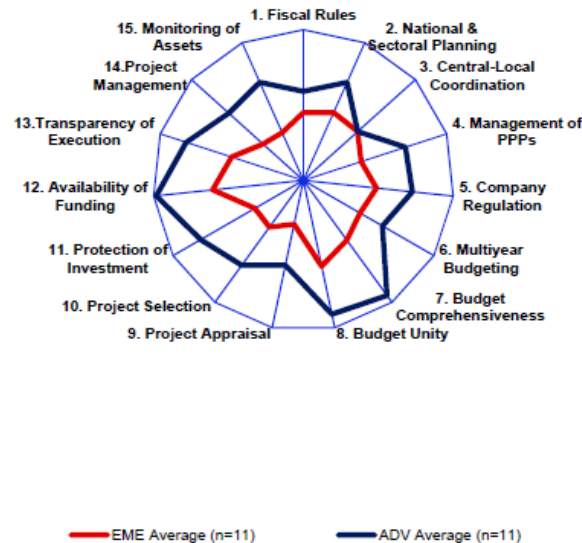
PPP Fiscal Risk Assessment Model (P-FRAM) is another tool helping project prioritization. The IMF and World Bank launched P-FRAM to assist governments to assess potential fiscal risks from PPP projects during the World Bank and IMF 2016 Spring meeting. P-FRAM is an analytic tool enabling obtaining PPP project data, quantifying the impact of the project on government's deficit and debt, and performing sensitivity analysis of the project's potential fiscal impact. P-FRAM generates standardized outcomes on fiscal risks such as project cash flow, fiscal tables and charts, debt sustainability analysis, sensitivity analysis, and a summary risk matrix of the project

⁶⁸ World Bank. (2016). "Infrastructure Prioritization Framework: A tool to support infrastructure planning processes." November 2016.

5.1.4.2. Assessment of current status in emerging markets

For emerging economies, a weaker part of policy and institutional settings is in implementation than in planning. According to the assessment of PIMA, the implementation phase of public investment management was the weakest among the three phases of public investment in emerging economies.⁶⁹ Figure 14 shows that the PIMA scores in terms of all the institutions in implementation phase—protection of investment, availability of funding, transparency of execution, project management, and monitoring of assets—are significantly lower in emerging economies than those in advanced economies. The evidence of the application of Diagnostic Framework for Assessing Public Investment Management also shows that only a few developing countries were able to meet the required features of project design and selection, and project implementation. Many countries have met only some of the features of project implementation.⁷⁰

Figure 14. PIMA score by country group



Source: Gupta (2017)

⁶⁹ Gupta, S. (2017). "Public Investment and PPPs." G20 Meeting, Buenos Aires, September 8, 2017.

⁷⁰ Rajaram, A., Le, T. M., Biletska, N., & Brumby, J. (2010). "A Diagnostic Framework for Assessing Public Investment Management."

A lack of long-term perspective in budgeting can be another barrier of infrastructure investments in emerging economies. If a project is funded on an annual basis, the inclusion of large and long term projects would be limited. According to the Public Expenditure and Financial Accountability (PEFA) scores, many emerging economies and developing countries barely have multi-year perspective in fiscal planning, expenditure policy and budgeting.⁷¹ Among selected emerging economies and developing countries, Pakistan is the only country that has A rating in terms of existence of sector strategies with multi-year costing of recurrent and investment expenditure (Table 4). India received a D rating since none of sector strategies have substantial inclusion of costing of investments and recurrent expenditure. Many other developing countries' sectoral strategies are not linked to aggregate fiscal forecasts.

⁷¹ PEFA Secretariat. (2016). Framework for assessing public financial management. Washington DC: PEFA Secretariat.

Table 4. PEFA scores in existence of sector strategies with multi-year costing of recurrent and investment expenditure in selected countries

| Country | Rating | Note | Year |
|--------------|--------|--|------|
| Brazil | C | None of the sector strategies are fully costed or consistently linked with aggregate fiscal forecasts | 2009 |
| Ethiopia | C | Sector strategies are inconsistent with aggregate fiscal forecasts | 2015 |
| India | D | None of the sector strategies have substantially complete costing of investments and recurrent expenditure | 2010 |
| Indonesia | B | From the 2011 budget, all line ministries prepare detailed forward estimates for two-out years. The forward estimates are the detailing of program and activity allocations in the government 5-year and 1-year strategic plans. | 2012 |
| Kenya | C | The estimated costs of sector strategies tend to exceed what is fiscally realistic, and they tend not to include the recurrent cost implications of proposed investments | 2012 |
| Pakistan | A | Sectoral costing for current (recurrent) expenditure and capital expenditure are broadly consistent with fiscal forecast | 2012 |
| Peru | C | Sectoral strategies are not necessarily linked to the fiscal forecasts | 2009 |
| South Africa | B | All Departments prepare linked strategies and most of them are fully costed to reflect both investment cost and forward linked recurrent expenditure | 2014 |
| Viet Nam | C | Sector strategies for the medium-term development of a number of main sectors have been prepared, but these are not consistent with aggregate fiscal projections | 2013 |

Source: PEFA, <https://pefa.org/assessments/listing>

Fay and colleagues pointed out several issues on budgeting and budget execution in Latin American countries. A lack of information on timelines of financial flows was one of them.⁷² For instance, in Jamaica, a survey shows that more than 70% of projects received information on financial flows three months or less before the project starts. The other issue is

⁷² Fay, M., Luis Alberto, A., Fox, C., Narloch, U., Straub, S. & Slawson, M. (2017). "Rethinking Infrastructure in Latin America and the Caribbean: Spending better to achieve more." The World Bank.

misalignment of the fiscal calendar with the project implementation calendar. The implementation calendar of most infrastructure projects is during the dry or summer season between November and March, which is not aligned with the calendar year. Moreover, many Latin American countries under-execute their investment budget. Especially, Brazil shows a significant gap between committed and executed funds. For instance, in 2013, the Federal Audit Court found that a third of road construction projects were halted, and three quarters of the projects had less than 25% of an execution rate.

5.1.5. Public procurement

5.1.5.1. Ongoing approaches and solutions

A few principles and benchmarks have been developed to guide public procurement, and they tend to focus on ensuring institutional sustainability than incorporating the other dimensions of sustainability. The OECD Council on Public Procurement provided recommendation for modernizing public procurement system, which can be applied to all levels of governments.⁷³ The Recommendation covers all the stages of procurement cycle, and provide recommendations in 12 aspects of public procurement:

- Adequate degree of transparency of the public procurement system
- Integrity of the public procurement system through general standards and safeguards
- Access to procurement opportunities for potential competitors of all sizes
- Balanced policy objectives
- Transparent and effective stakeholder participation
- Efficiency throughout the public procurement cycle
- Supporting appropriate e-procurement innovation
- Developing capacity
- Performance improvements through evaluation
- Risk management strategies
- Supporting accountability throughout the cycle of procurement
- Integration of public procurement into overall public finance management

The Recommendation offers a broad range of advices by integrating public procurement with other elements of governance such as budgeting and financial management. It supports the role of public procurement for the proper allocation of public resources, and greater

⁷³ OECD. (2015). "Recommendation of the Council on Public Procurement." OECD.

efficiency of public spending as well as mitigating risks of inefficiency and corruption. For instance, for risk assessment, it recommended to develop risk assessment tools to identify and address threats to the public procurement system, and to publicize the risk management strategies. Incorporating social or environmental sustainability into the public procurement system is limitedly addressed.

To address the knowledge gaps in public procurement, the World Bank launched a platform for Benchmarking Public Procurement in 2013. Its 2015 report covered only 10 economies, but most recent 2017 report covers 180 economies.⁷⁴ The report provides a comparative evaluation of the regulatory environment of countries, which influence private sector to do business with governments. The indicators cover 8 areas of public procurement: needs assessment, call for tender, and bid preparation; bid submission phase; bid opening, evaluation, and contract award phase; content and management of the procurement contract; performance guarantee; payment of suppliers; complaints submitted to the first-tier review body; and complaints submitted to the second-tier review body. The 2017 report found room for improvement in public procurement system such as delays of payments, and a gap between economies on online portal procurement system.

Procurement of infrastructure is commonly contracted through solicited procurement processes, but governments' lack of capacity to identify, prioritize, and procure projects has driven an alternative way of procurement—unsolicited proposal, which a private sector entity reaches governments with a proposal to develop an infrastructure project. The number of countries adopting unsolicited proposal are increasing, but many challenges exist including poor quality of the results of a project, corruption, and misuse of public resources.⁷⁵ To ensure positive results of unsolicited proposals policies, Public-Private Infrastructure Advisory Facility (PPIAF) recommended guiding principles, high-level policy decisions, and the main considerations by each stage of unsolicited proposals.⁷⁶

Recently, the report of International Institute for Sustainable Development (IISD), *Contracts for Sustainable Infrastructure*, provides guidance on integrating sustainability into infrastructure contracts. It offers an outline of approaches of infrastructure contracts to guarantee and maximize economic, social, and environmental benefits of infrastructure projects. The report suggests including economic, social, and environmental 'obligations' in the

⁷⁴ World Bank. (2017). *Benchmarking Public Procurement 2017: Assessing Public Procurement Regulatory Systems in 180 Economies*. Washington DC: World Bank.

⁷⁵ PPIAF. (2014). *Unsolicited Proposals – An Exception to Public Initiation of Infrastructure PPPs: An Analysis of Global Trends and Lessons Learned*. Washington DC: Public-Private Infrastructure Advisory Facility.

⁷⁶ PPIAF. (2017). *Policy Guidelines for Managing Unsolicited Proposals in Infrastructure Projects: Volume 1 Main Findings & Recommendations*. Washington DC: Public-Private Infrastructure Advisory Facility.

contact.⁷⁷ For instance, under social obligations, the report suggest various options that can be considered including mandatory hiring of the local workforce for unskilled labor positions, requirements to protect human rights, and requirement to comply domestic and international anti-corruption and anti-bribery standards.

⁷⁷ International Institute for Sustainable Development. (2017). "Contracts for Sustainable Infrastructure: Ensuring the economic, social, and environmental co-benefits of infrastructure investment projects." IISD Report. December 2017.

Box 2. Approaches to Contracts for Sustainable Infrastructure

In *Contracts for Sustainable Infrastructure*, the IISD suggested the approaches that governments can adopt when they negotiate and draft sustainable infrastructure contracts. It includes specific suggestions for the contract under nine categories:

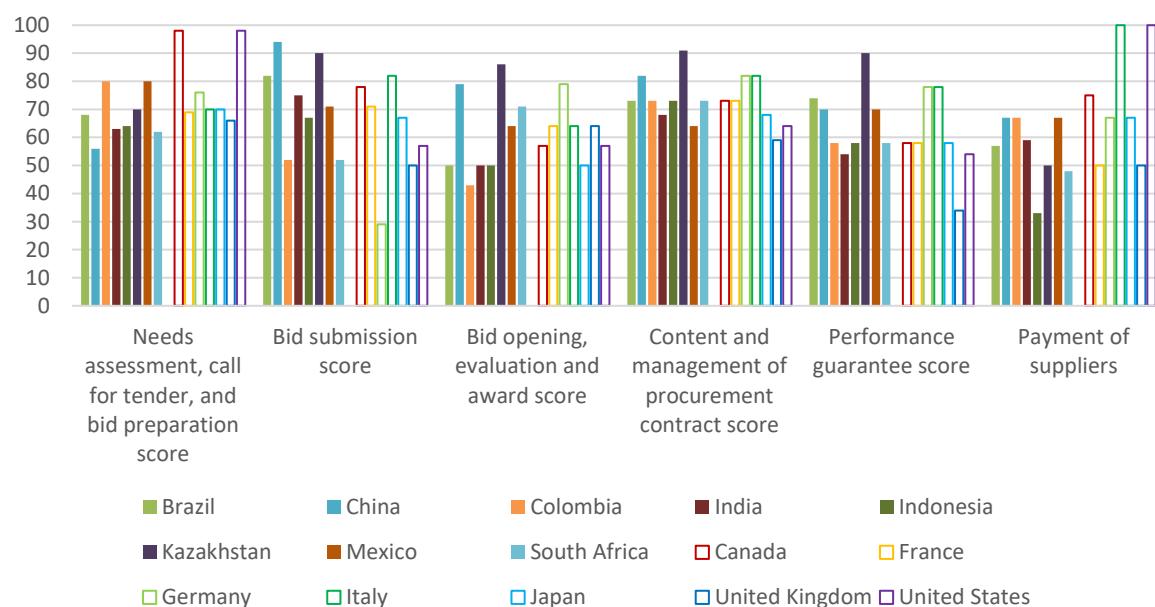
1. *Feasibility study and impact assessment*: The contract should ensure that investors take all the steps for project assessment—feasibility or pre-feasibility studies, assessing the socioeconomic and environmental risks and impacts, and establishing the plans to address them—in close consultation with the affected communities and subject to government approval.
2. *Economic obligations*: Governments should consider clauses to ensure that the infrastructure project leads to economic co-benefits beyond direct benefits such as economic development of community and technology transfer.
3. *Social obligations*: Infrastructure contracts should include clauses that state social benefits and quantify the benefits as objectively as possible.
4. *Environmental obligations*: Governments should consider including environmental clauses to specify, complement and strengthen the domestic environmental standards applicable to the investment, as well as to empower the regulatory and oversight powers of the government agencies responsible for environmental protection.
5. *Stabilization clause*: Governments should carefully consider whether to include stabilization clauses to freeze the domestic laws applicable in infrastructure contracts.
6. *Periodic review and renegotiation*: Governments should carefully consider whether to include periodic review and renegotiation provisions in their contracts with private investors.
7. *Grievance mechanisms and dispute settlement*: Grievance mechanisms are key for individuals, communities and governments to express their sustainability concerns regarding the investment and to seek the enforcement of the investor's economic, social and environmental obligations
8. *Transparency, reporting and public engagement and scrutiny*: Transparency and public engagement are necessary to monitor the sustainability performance of an infrastructure investment and require the investor's compliance with the sustainability commitments undertaken under the contract.
9. *Penalties and termination*: Penalties can serve as an incentive for investors to comply with their obligations regarding the sustainability of their infrastructure investment.

Source: International Institute for Sustainable Development (2017)

5.1.5.2. Assessment of current status in emerging markets

Procurement processes have significant room for improvement in emerging economies. Emerging economies tend to less perform than advanced economies in terms of providing information to prospective bidders. According to *Benchmarking Public Procurement 2017*, most emerging economies have lower scores for needs assessment, call for tender, and bid preparation indicator than G7 countries (Figure 15). The indicator measures the transparency of bid preparation phase including consultation process with private sector, internal market analysis, the method of procurement, and the online accessibility of information for potential bidders. China, India, Indonesia, and South Africa show a significant gap in terms of the transparency of bid preparation. None of these countries set up a consultation process between procuring entity and private sector for needs assessment. China does not have internal market analysis guidelines for market research for public procurement.

Figure 15. Benchmarking Public Procurement 2017 Indicators in selected countries



Source: World Bank (2017)

Payment of suppliers can also have a room for improvement in emerging economies. Most of the emerging economies scored less than 70 in *payment of suppliers* indicator. The indicator measures the procedure regarding suppliers' request for payment, the timeframe to process payment, the timeframe for suppliers to receive payment, and the available penalties

to suppliers in case of payment delays. Indonesia has the lowest score, which is less than 40. This country does not have legal timeframe for the purchasing entity to process payment, and suppliers cannot request payment through online. Kazakhstan and South Africa also have lower scores compared to G7 countries.

Another gap in procurement policies is in incorporating sustainability. Governments need to incorporate sustainability criteria into procurement process to ensure promoting sustainable approaches to project development and management. To date, about three-quarters of OECD countries have policies encouraging sustainable public procurement at the central government level, and some developing countries are adopting those practices.⁷⁸ Although more countries are adopting sustainable procurement policies and practices, many of them face challenges to implement the policies, such as the perception that green products and services are more expensive than non-green ones, public official's lack of technical knowledge; and the absence of monitoring mechanisms to evaluate the performances of green procurement system.⁷⁹ Very few EMDCs have programs of green procurement in place and none a broader framework for sustainable procurement.

China launched governmental green procurement programme in 2006, which requires all levels of governmental bodies to give priority to environmental labeling products and banned to purchase the products harming the environment and human health. However, China's green procurement programme has some challenges. It lacks specific and comprehensive regulations, which directly support the programme. Moreover, the decentralized management of the programme and the difficulty of accessing purchasing data hinder building monitoring and evaluation mechanisms.⁸⁰

5.1.6. PPP frameworks

5.1.6.1. Ongoing approaches and solutions

Many principles, benchmarks, and tools have been developed to evaluate and support the implementation of PPPs. A number of international organizations including the World Bank, OECD, and United Nations Economic Commission for Europe (UNECE) suggested principles and policy recommendations in PPPs. Each principle has different focus such as disclosure,

⁷⁸ Qureshi, Z. (2016). "Meeting the Challenge of Sustainable Infrastructure: The Role of Public Policy" Brookings Institution.; OECD. (2015). "Smart Procurement: Going Green – Better Practices for Green Procurement," GOV/PGC/ETH(2014)1/REV1.

⁷⁹ OECD. (2015). "Smart Procurement: Going Green – Better Practices for Green Procurement," GOV/PGC/ETH(2014)1/REV1.

⁸⁰ OECD. (2015). "Smart Procurement: Going Green – Better Practices for Green Procurement," GOV/PGC/ETH(2014)1/REV1.

governance, and risk allocation for PPP projects. A few country-level benchmarks have been developed to evaluate the capacities of countries to implement PPPs. Two project-level tools in PPPs help with preparing and screening PPP projects (Table 5).

Table 5. Existing principles, tools, benchmarks on PPPs

| Category | Principles/tools/benchmarks | Developed by | Focus |
|---------------------------------------|---|--|--|
| Principles and policy recommendations | Framework for disclosure in PPP | World Bank/Construction Sector Transparency Initiative/PPIAF | Disclosure in PPP |
| | Recommendations of the Council for Public Governance of PPP | OECD | Public governance of PPP |
| | Guidance on PPP Contractual Provisions | World Bank/PPIAF/GIF | Provisions included in a PPP contract |
| | Allocating Risks in PPP Contracts | Global Infrastructure Hub | Risk allocation |
| | Guidebook on Promoting Good Governance in Public-Private Partnerships | UNECE | Overarching principles |
| | PPP Reference Guide | MDBs/OECD/UNECE/UN ESCAP/GIH | PPP framework and implementation |
| | Project Checklist for Public-Private Partnerships | World Bank/OECD | Key requirements in both PPP programs and projects |
| Country-level benchmarks | Infrascope | EIU/IADB/EBRD | Capacity for PPPs in infrastructure |
| | Climatescope | UKAID/Bloomberg | Ability to attract investors for clean energy projects |
| | Country Readiness Diagnostic for Public-Private Partnerships | World Bank | PPP readiness |
| | Benchmarking Public-Private Partnerships Procurement | World Bank/PPIAF | Key aspects of regulatory framework for PPPs |
| Project-level tools | PPP Project Preparation Status Tool | PPP Knowledge Lab | Preparation status of a PPP project |
| | Qualitative Value-For-Money Toolkit | UN ESCAP | Screening PPP projects |

Multilateral development banks have developed a number of principles and recommendations to support PPP implementation. The Framework for Disclosure in PPP

provides a structure to disclose information for policy makers, which consists of recommendations in nine areas: legislative or policy mandate, detailed guidance, pre-procurement disclosure, post-procurement disclosure, confidential information, standard contract provisions, platform, timelines, and template.⁸¹ Guidance on PPP Contractual Provisions suggests key considerations to the contracting authorities for specific provisions included in PPP contract.⁸² The PPP Reference Guide provides governments a comprehensive guide on the basic understanding of PPPs, the elements of PPP framework, and guidance on each stage of developing and implementing PPP project.

OECD published Recommendations of the Council for Public Governance of PPP to provide principles for public governance of PPPs. It recommends 12 principles under three categories: 1) establish a clear, predictable and legitimate institutional framework supported by competent and well-resourced authorities; 2) ground the selection of PPPs in Value for Money; and 3) use budgetary process transparency to minimize fiscal risks and ensure the integrity of the procurement process.⁸³ Global Infrastructure Hub released Allocation Risks in PPP Contracts to provide annotated risk allocation matrices for PPP transactions. It includes risk allocation matrices by 12 sectors in transport, energy, and water and sanitation.⁸⁴

UNECE suggested seven overarching principles to improve governance in PPPs. The principles include coherent policies with clear objectives and principles, capacity building with new institutions and training of public officials, predictability and security in legal frameworks, mitigating the risks of private sector, transparent, neutral, and non-discriminatory selection process, putting people first, and integrating the principles of sustainable development into PPP projects.⁸⁵

Project Checklist for Public-Private Partnerships aims to help policymakers ensure that key requirements in both PPP programs and PPP projects are accomplished. The Checklist includes both project-specific questions and the questions on the policy and institutional environment. It consists of four categories—politics, law and institutions, economics and finance, and execution.⁸⁶ The Checklist was initially developed for G20 by the World Bank, and was expanded with additional inputs of the OECD such as the Principles for Public Governance of PPPs.

⁸¹ World Bank, Construction Sector Transparency Initiative, and PPIAF (2015). "A Framework for Disclosure in Public-Private Partnership Projects." The World Bank.

⁸² World Bank, PPIAF and Global Infrastructure Facility. (2017). *Guidance on PPP Contractual Provisions*. Washington DC: World Bank.

⁸³ OECD. (2012). "Recommendations of the Council for Public Governance of PPP." OECD.

⁸⁴ Global Infrastructure Hub. (2016). *Allocation Risks in PPP Contracts*. Sydney: Global Infrastructure Hub.

⁸⁵ UNECE. (2008). *Guidebook on Promoting Good Governance in Public-Private Partnerships*. Geneva: United Nations.

⁸⁶ World Bank and OECD. (2015). "Project Checklist for Public-Private Partnerships." August 8, 2015.

Other than these principles and recommendations, a number of indicators have been developed to measure countries' capacity for PPPs. Infrascope has launched in 2009 with Latin America and Caribbean, and has expanded to other regions including Asia, Eastern Europe and the CIS, and Africa. It evaluates readiness and capacity of countries to implement PPPs in five areas: enabling laws and regulations, the institutional framework, operational maturity, investment and business climate, and financing facilities for infrastructure projects. Climatescope ranks countries by their abilities to attract investors for clean energy projects. The indicators are organized under four parameters, which are enabling framework, clean energy investment, low-carbon business, and GHG management activities.

The World Bank developed two benchmarks to assess countries' capacities for PPPs. Country Readiness Diagnostic for PPP was released in 2016 and currently being piloted. The Diagnostic is structured around key themes with related key questions. The key themes include PPP experience, stakeholder support and ownership, legislative and regulatory framework, institutional framework, funding and managing fiscal risk, access to finance, and transparency and disclosure.⁸⁷ Benchmarking PPP Procurement assesses key aspects of government capabilities to prepare, procure, and manage PPPs. It was launched in 2015, and its 2017 report covered 82 economies. The areas measured include regulatory and institutional framework for PPPs, preparation of PPPs, procurement of PPPs, unsolicited proposals for PPPs, and PPP contract management.

Two project-level tools exist to help governments to assess PPP projects. PPP Project Preparation Status Tool is developed by PPP Knowledge Lab to assess the preparation status of a PPP project. Qualitative Value-for-Money Toolkit was released in 2016 by UN ESCAP to provide a set of criteria for government officials to assess if a PPP project is likely to achieve Value-for-Money. The project screening process is divided into two stages: elimination stage and selection stage. Elimination stage identified whether the project is eligible as a PPP project, and selection stage assessed the project with multiple criteria.

5.1.6.2. Assessment of current status in emerging markets

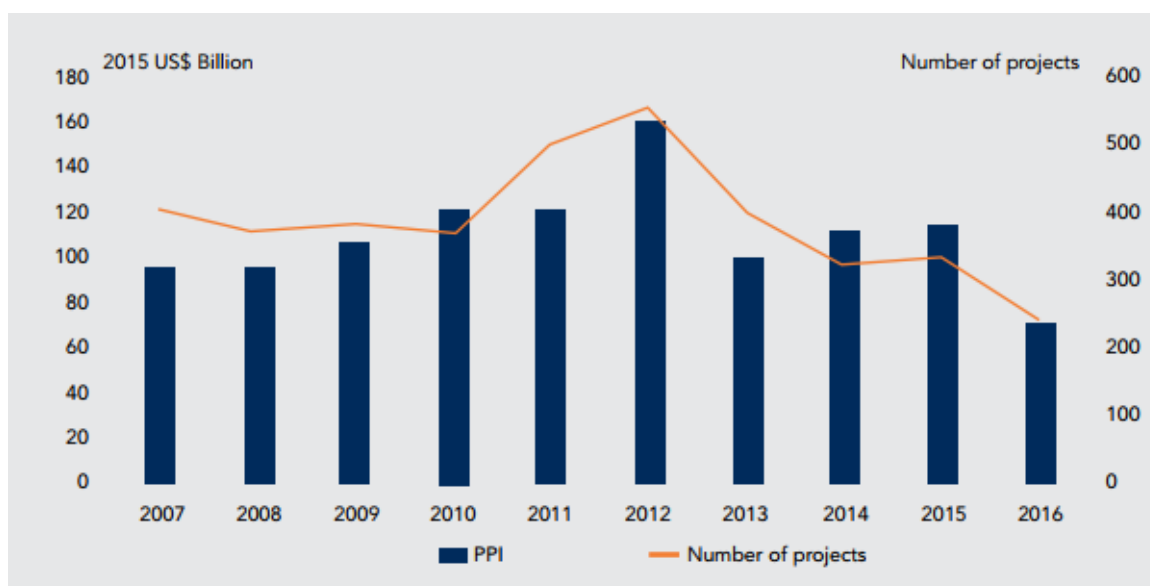
In recent years, private participation in infrastructure investments has significantly dropped in emerging markets and developing economies. This declining trend is due to less number of projects than smaller project sizes; the number of projects shows similar trend with the value of projects (Figure 16). The lower investment was driven mostly by the decreasing investment in three major countries—Brazil, India, and Turkey.⁸⁸ In Brazil, private participation

⁸⁷ World Bank. (2016). "Country Readiness Diagnostic for Public-Private Partnerships," June 2016.

⁸⁸ World Bank. (2017). "2016 Private Participation in Infrastructure (PPI) Annual Update"

in infrastructure has dropped due to the end of the infrastructure boom for the World Cup and Olympics.⁸⁹ Investment in India has continuously decreased since 2010.⁹⁰

Figure 16. Infrastructure projects with private participation in emerging markets and developing economies, 2007-2016.



Source: World Bank (2017)

As well as declining private participation, the cancellation of PPP projects also raises a great concern especially in emerging and developing economies under stringent fiscal constraints.⁹¹ The total value of the cancelled PPP projects from 1991 to 2017 in 119 developing countries was \$66.2 billion, or 4.6% of total investments.⁹² The cancellation of a project may cause efficiency losses and disruption of the provision of infrastructure services and it discourages private investments.

Empirical evidence shows that policy and institutional factors are closely related to project cancellation directly and indirectly. According to the study of the Asian Development Banks, law and order, and degree of corruption are significantly associated with the hazard rate

⁸⁹ World Bank (2015). "2015 Latin America and the Caribbean (LAC) PPI Update"

⁹⁰ World Bank (2015). "2015 South Asia (SAR) PPI Update"

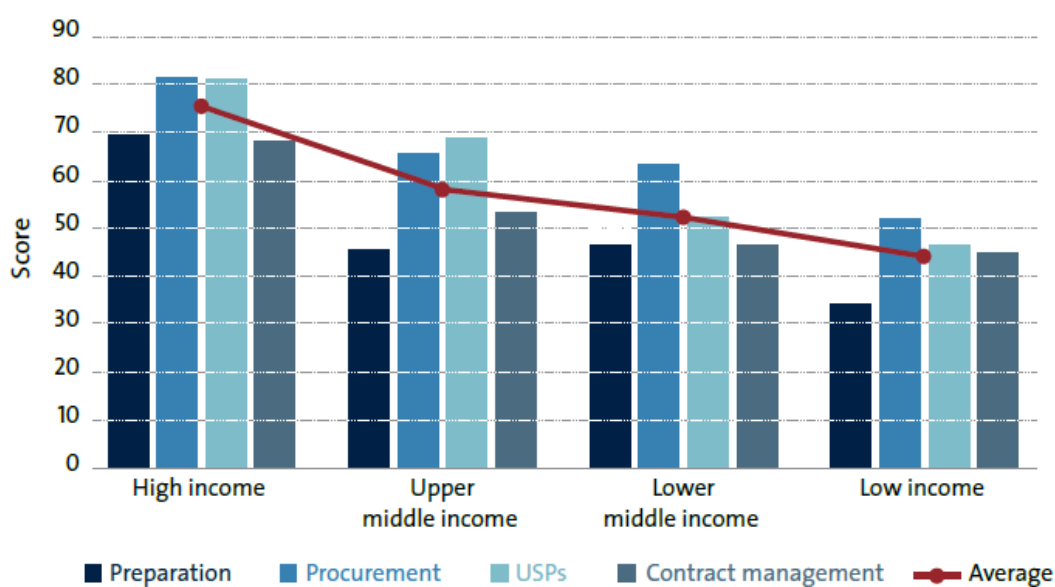
⁹¹ Asian Development Bank. (2017). Asian Development Outlook 2017 Update: Sustaining Development through Public-Private Partnership. Manila: Asian Development Bank.

⁹² World Bank (2017). "2016 Private Participation in Infrastructure (PPI) Annual Update"

for the cancellation of PPP projects.⁹³ Moreover, the policies and institutions regarding project design also influence project cancellation. For instance, solicited projects are less likely to be cancelled than unsolicited projects since they are in accordance with government development plans and investment priorities. The projects through unsolicited proposals tend to have less likelihood of cancellation if they are through competitive bidding.⁹⁴

The policy and institutional framework for PPPs is one of the weaknesses that can be improved in emerging markets and developing economies. According to the Benchmarking PPP Procurement scores, high-income countries are better performing in terms of regulatory frameworks and institutional arrangements for PPPs. High-income countries have higher scores in all areas of PPPs: preparation, procurement, unsolicited proposals, and contract management (Figure 17).

Figure 17. Benchmarking PPP Procurement 2017 scores by income group



Source: World Bank & PPIAF (2017)

Middle- and low-income countries have much room for improvement in project preparation. PPP preparation starts with identifying projects that could be developed as PPPs.

⁹³ Lee, H. and K. Kim. (2017). "Traditional Procurement (TP) vs. Public Private Partnership (PPP): Comparison of Procurement Modalities focusing on Bundling Contract Effects." Asian Development Bank.

⁹⁴ Lee, H. and K. Kim. (2017). "Traditional Procurement (TP) vs. Public Private Partnership (PPP): Comparison of Procurement Modalities focusing on Bundling Contract Effects." Asian Development Bank.

Feasibility studies should be followed, and additional assessments on the allocation of risks, market needs and capacities are needed. Finally, PPP structure is set based on the appraisal process. The Benchmarking PPP Procurement 2017 found a significant gap in project preparation. For instance, only 23 % of the surveyed 82 economies have detailed procedures to ensure PPPs are consistent with public investment priorities.⁹⁵ Emerging economies' gaps in terms of PPP project preparation tend to be more significant than advanced economies. For instance, China has procedures for economic analysis assessment and financial viability assessment, but specific methodologies are not developed. Indonesia has the procedures for most of the areas of project preparation, but the details or methodologies are barely developed.

Contract management is another weak area of PPP procurement in emerging economies. A well-designed contract management framework enables to facilitate well implementation of a PPP project. Figure 10 shows significant room for improvement in terms of contract management in middle- and low-income countries. Many countries are lack of robust mechanisms to manage PPP contracts. For instance, China does not regulate the procedures for a change in the structure of the private partner. Colombia does not have a dispute resolution mechanism. Pakistan does not provide rules for modifying PPP contracts, and regulations of circumstances that may occur during the PPP contract.

The rules and regulations for unsolicited proposals also can be improved. Although most of the countries that regulate unsolicited proposals require a competitive procedure, the duration of the period for submission of proposals vary widely from 15 days to 180. Among 56 countries with regulations of unsolicited proposals, only 20% of the countries have more than 60 days of the period for submission of proposals, which is regarded as enough time to conduct due diligence and develop a high-quality proposal.⁹⁶

Another challenge of PPPs comes from informational asymmetries between the government and the firm as well as among the multiple levels of governments.⁹⁷ A moral-hazard problem arises since the firm is not motivated to provide efforts in order to maximize returns when the government cannot observe. Moreover, the government is not likely to have the information such as service demand or the production cost, which the firm knows by the time the project is in operation. This asymmetry of information also exists between different levels of governments. Sub-national governments are able to hide costs or pass them to higher level of governments. The issue of informational asymmetries is critical for PPPs because it is

⁹⁵ World Bank & PPIAF. (2017). *Benchmarking Public-Private Partnerships Procurement 2017: Assessing Government Capability to Prepare, Procure, and Manage PPPs*. Washington DC: World Bank.

⁹⁶ World Bank & PPIAF. (2017). *Benchmarking Public-Private Partnerships Procurement 2017: Assessing Government Capability to Prepare, Procure, and Manage PPPs*. Washington DC: World Bank.

⁹⁷ Ahmed, E., Bhattacharya, A., Vinella, A. & Xiao, K. (2018). "Involving Private Sector and PPPs in Financing Public Investments: Some Opportunities and Challenges." In *Fiscal Underpinnings of Sustainable Development in China*. eds. Ahmed, E. et al. Springer. 123-159.

impossible to assign the risks of PPP projects properly without full information.⁹⁸ Moreover, the absence of full information leads to generate inadequate investments. It can either generate an irrational boom or discourage investments by providing uncertain business environment.

In developing countries, this is a bigger problem due to less efficient sub-national governments. The majority of PPP projects are found at the sub-national level. Therefore, PPP projects need to represent local liabilities, and the payment schedule should be linked to own-source revenue generation in order to reduce the risk of liabilities adding up, which can lead to a macroeconomic crisis. Although there is no standardized information in Canadian sub-national governments, this does not significantly impede PPPs because the local governments have their own-source revenue.⁹⁹ On the other hand, many sub-national governments in developing countries generate little revenue. The local governments in Latin America manage about 3 percent of GDP, while those of advanced countries have more than 3 percent of GDP. Therefore, developing countries face higher risks of PPP projects compared to advanced economies.

Insufficient public sector capacity is another impediment to PPPs in emerging economies. Private sector participation in the provision of public services is positively associated with institutional quality.¹⁰⁰ This implies a challenge to PPPs in emerging markets and developing economies, which tend to less perform than advanced economies in terms of governance. Moreover, many emerging markets and developing economies lack of a dedicated unit for a national PPP program. While about 40% of countries lack a dedicated unit for PPPs worldwide, almost 60% of countries in developing Asia lack the unit.¹⁰¹

Other than public sector capacity, the capacity of the private sector also plays a critical role for PPPs. Not only the traditional skills such as in construction and operations, but also higher skills such as financing, contracting, and governance are important for the private sector to participate in PPP projects. Many emerging markets and developing economies have gaps in terms of both skills of the private sector. For instance, construction labor productivity tends to be lower in developing economies compared to advanced economies. Many developing countries' construction labor productivity is below international average (Figure 18). Some emerging markets have high growth rate of the labor productivity, but no emerging market is in the category of 'outperformers,' which has both high labor productivity and high growth rate of

⁹⁸ Ahmed, E., Vinella, A. & Xiao, K. (2018). "Contracting Arrangements and PPPs for Sustainable Development: Working paper commissioned by the G-24 as part of its work program on financing for development." September 2017.

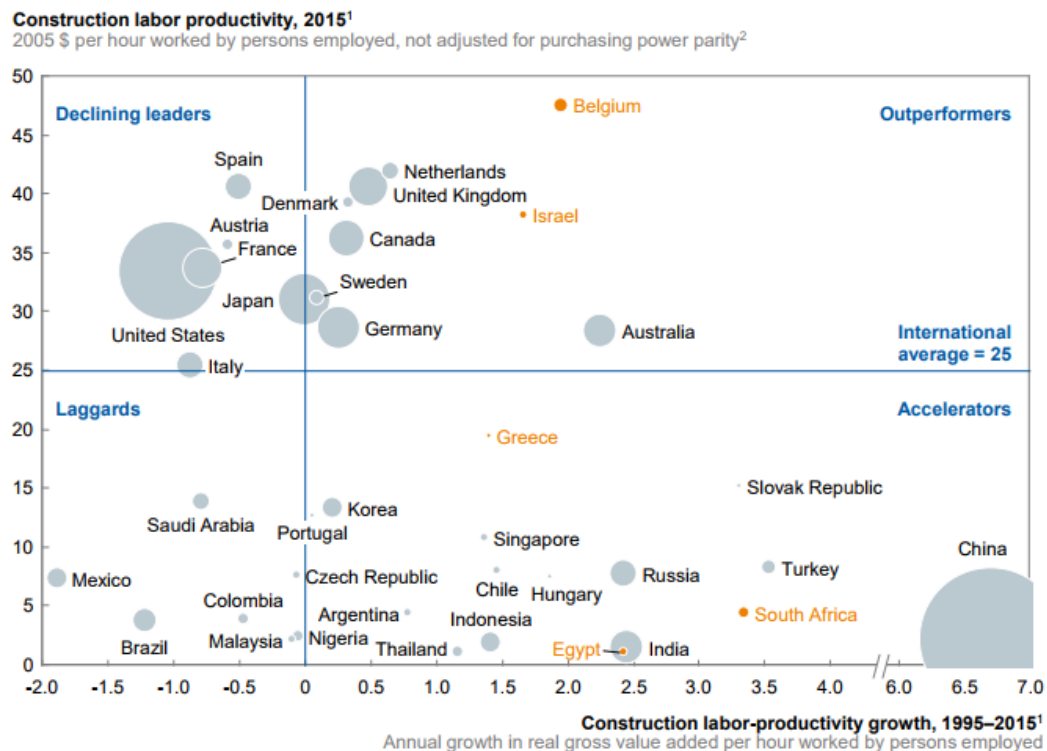
⁹⁹ Ahmed, E., Bhattacharya, A., Vinella, A. & Xiao, K. (2018). "Involving Private Sector and PPPs in Financing Public Investments: Some Opportunities and Challenges." In *Fiscal Underpinnings of Sustainable Development in China*. eds. Ahmed, E. et al. Springer. 123-159.

¹⁰⁰ Schomaker, R. (2014). "Institutional Quality and Private Sector Participation: Theory and Empirical Finding." *European Journal of Government and Economics* 3(2).

¹⁰¹ Asian Development Bank. (2017). *Asian Development Outlook 2017 Update: Sustaining Development through Public-Private Partnership*. Manila: Asian Development Bank.

labor productivity. Compared to advanced economies, the variations of construction labor productivity and the growth rate of the productivity are higher.

Figure 18. Construction labor productivity, 2015.



Source: Bughin et al. (2017)

Non-traditional skills of the private sector also leave room for improvement in emerging and developing economies. Compared to the firms in high-income countries, more firms in middle- and low-income countries do not use banks to finance investment (Figure 19). This implies that firms' skills in financing may be less developed in developing countries. The share of firms offering formal training also shows significant gap in middle- and low-income countries. While almost 40% of firms offer formal training in high-income countries, 27% of firms offer formal training in low-income countries.

Figure 19. Non-traditional skills of firms



Source: World Development Indicators. <https://data.worldbank.org/data-catalog/world-development-indicators>

5.2. Project preparation

Many infrastructure projects are not “bankable,” meaning they do appear to be likely to deliver high enough risk-adjusted returns to attract private-sector equity or debt. Or, costs and risks may not appear to be allocated appropriately. Middle- and low-income countries face additional challenges. Not only do they often lack project-development resources, but their governments may not be able to afford the funding commitments required or cannot offer sufficient guarantees to mitigate the perceived risk of the project. These kinds of pipeline problems make it more costly for investors to raise funds and invest in infrastructure. According to the head of asset management at a major South American investment bank, in one middle-income country where it does business, private-sector investment lags because “funds must be raised, but then with no actionable project, you’re either collecting fees over and above the cost of capital or paying a deal team to not do anything while they wait for the project to materialize.”ⁱⁱ Building a sustainable infrastructure pipeline is even more difficult because it must take into account climate-change mitigation and adaptation planning. Even when plans are in place, a lack of defined standards for sustainable infrastructure, such as for resiliency and energy efficiency, complicates project design and creates more reasons for the private sector to stay away.

Project preparation facilities (PPFs) have been created to address these challenges. Although numerous global and regional PPFs have supported project preparation, they have rarely been very impactful to provide sufficient bankable projects. SOURCE has been launched

as a global platform for project preparation in 2016, and the number of users is increasing globally. To ensure sustainability of infrastructure projects, many standards and tools have been created in recent years, but most of them were developed and have been used in advanced economies.

5.2.1. Project preparation facilities (PPFs)

The lack of well-prepared projects is one of the main challenges to attract investments. In response to this need, numerous project preparation facilities were created recently. In the past 10 years, at least 64 PPFs were operated to unlock private sector investments.¹⁰² Most of the PPFs have regional basis, and 14 PPFs are operating globally (Table 6).

Table 6. Infrastructure project preparation facilities by region

| <i>Regional Focus</i> | <i>Number of IPPFs</i> | <i>Total Funds (US\$)</i> |
|---------------------------------|------------------------|---------------------------|
| Sub-Saharan Africa | 18 | ~30 billion |
| Latin America and the Caribbean | 7 | ~57 million |
| Middle East and North Africa | 5 | ~453 million |
| South, East, and Southeast Asia | 20 | ~58 billion |
| Global | 14 | ~43 billion |

Source: Moser (2016)

PPFs aim to develop bankable, investment-ready projects. They provide technical or financial supports to project owners or concessionaries. PPFs support activities such as (i) pre-feasibility and feasibility studies and project design (ii) environmental, social and gender studies; (iii) risk assessments; (iv) identification of programme/project-level indicators; and (v) pre-contract services, including the revision of tender documents.¹⁰³ PPFs can also provide assistance to public agencies to support financial, legal, and technical advisory services to facilitate investments into infrastructure projects.

¹⁰² Moser, H. (2016). "Barriers to Bankable Infrastructure." CSIS. March 2016.

¹⁰³ Green Climate Fund. (2016). "Operational guidelines for the Project Preparation Facility" 23 June 2016. Available at: https://www.greenclimate.fund/documents/20182/226888/GCF_B.13_14_-_Operational_guidelines_for_the_Project_Preparation_Facility.pdf/5d6bfb4f-a688-45bc-89f5-655519bec625

5.2.2. SOURCE: A Joint Global Initiative for Advanced Project Preparation

Despite the creation of numerous PPFs, an effort for a common framework for project preparation led to the creation of a tool called SOURCE. SOURCE is a joint global initiative for advanced project preparation, which was developed by major MDBs and is managed by the Sustainable Infrastructure Foundation (SIF), to address the global infrastructure gap and advance the UN Sustainable Development Agenda by delivering well-prepared projects. It is initiated by AsDB in 2010, and was officially launched globally in January 2016.

SOURCE is a global platform enabling all the infrastructure stakeholders including MDBs, Development Finance Institutions (DFIs), investors, consultancy, contractors and lenders to work together with the common goal of bridging the project preparation and development requirements of the public and private sectors. It provides a number of tools for project preparation and management including a project preparation tool, a project selection tool, a project coordination tool, and a project monitoring tool. As well as acting as a project preparation and management platform, SOURCE also provide an infrastructure data management platform, a knowledge and learning platform, and an engagement platform.

SOURCE provides users with the best practices of project preparation. The best practices are developed by collecting and aggregating the standards and experience from public and private infrastructure professionals globally. SOURCE is structured with a series of questions, which are called as templates, including all areas of a project lifecycle from the definition to the operation period. The questions cover governance, technical, economic, legal, financial, environmental, and social dimensions. This enables public entities to manage risks and to integrate Sustainable Development Goals into the project preparation process. The users of SOURCE follow eight steps: stages 1 to 4 for project preparation, stages 5 and 6 for project tendering preparation, stage 7 for works and stage 8 for operations. The templates of SOURCE are developed jointly with the private sector, implementing agencies, and MDBs. This enables SOURCE to make MDB's knowledge products available to decision makers and the stakeholders of infrastructure projects.

SOURCE also acts as a data bank, which provides consistent data on all aspects of an infrastructure project through standardized templates covering countries, sectors, themes, and procurement models. It collects data through the entire infrastructure project life cycle from users, aggregates it, and provide it to the third parties such as international organizations, research institutes, and long-term investors confidentially and anonymously. Since SOURCE is available in 10 languages, it allows capturing and customizing the data depending on country contexts.

SIF set a goal of developing 200 templates, having 10,000 users and 2,000 infrastructure projects by 2020. After two years of operation, SOURCE currently hosts the preparation of 190

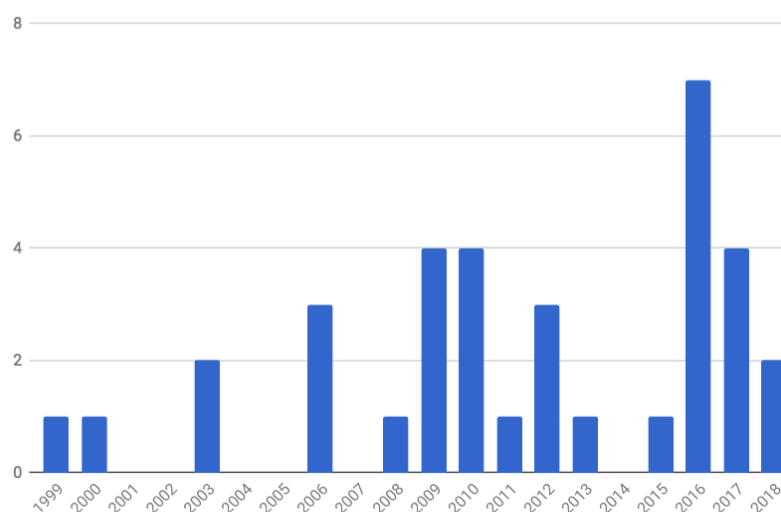
infrastructure projects covering all the areas of infrastructure investments, and supports about 1,300 users across 44 countries.

SOURCE provide benefits to all levels of stakeholders. SOURCE provides global benefits through improving the quantity, quality, and accessibility of infrastructure projects, connecting project developers with long-term investors, enhancing project developers' capacity and collaboration with project stakeholders, and collecting structured infrastructure data. It helps government agencies by linking project stakeholders on a same platform and standardizing protocols in a cost-efficient way. SOURCE helps MDBs through providing a consistent and transparent interface with member countries, standard to assess project readiness, and a global platform to promote and advocate safeguards, guidelines, knowledge products and good practices.

5.2.3. Standards and tools

Many tools, guidelines, protocols and principles have been created in recent years to quantify sustainable infrastructure since wide spectrum of actors involve in the lifecycle of an infrastructure project. They range from high-level motivational principles to comprehensive rating schemes. As sustainability has become more prominent in recent years, it has been between 2016-2017, when more indicators and frameworks to quantify sustainability have been developed (Figure 20). The update of existing frameworks has also increased in the recent months.

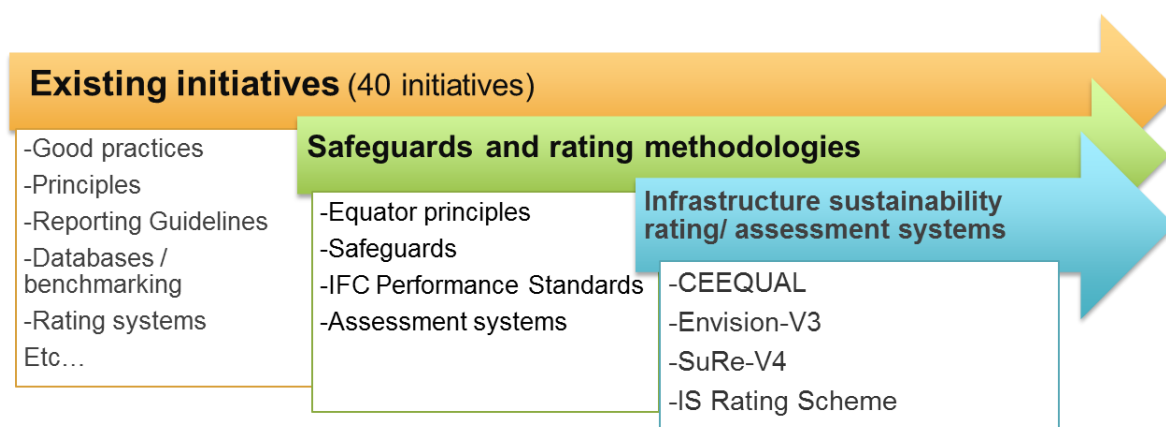
Figure 20. Number of sustainable infrastructure tools created by year



Source: Bhattacharya, Contreras, and Jeong (forthcoming)

Existing standards and tools encompass high-level principles, safeguards and good practices, reporting guidelines, database and benchmarking, and infrastructure sustainability rating systems. Among 40 initiatives exist in total, 4 major tools are especially focusing on quantifying sustainable infrastructure (Figure 21).

Figure 21. Standards and tools to quantify sustainable infrastructure



Source: Bhattacharya, Contreras, and Jeong (forthcoming)

These four rating schemes were developed focusing on the construction and design phase of a project. Recently, some of them have also worked in developing guidelines for the operation and maintenance phase. CEEQUAL, launched in 2003, is the methodology with a larger number of projects assessed. Envision and IS-Scheme were launched in 2012, and lastly SuRe was released in 2015. Limited geographic overlap has been observed on the application of these tools. The use of the tools tended to be limited to the country where the tool has been developed and neighboring areas (Table 7). Certain tools were used in China, Hong Kong or other countries in Southeast Asia, but it is still very limited.

Table 7. Main rating schemes for sustainable infrastructure

| Name | Country | Rating schemes | Tool development | Application |
|---|-------------|--|---|--|
| CEEQUAL (UK & Ireland Projects / International Projects) | UK | <ul style="list-style-type: none"> UK & Ireland Projects V 5.2 (Design & As Built) International Projects (Design & As Built) Term Contracts Operation & maintenance (O&M) | <p>First released 2003</p> <p>International Projects_2011</p> <p>Maintenance manual 2011</p> <p>V 5.0 _ August 2012</p> <p>V 5.1 _ May 2013</p> <p>V 5.2 _ October 2015</p> <p>2015_ Became part of BRE</p> | <p>670 Total registered projects</p> <p>270 Awarded projects</p> <p>£28 billion (has been/ or currently assessed)</p> <p>•UK & Ireland •Hong Kong (*)</p> <p>•Sweden •Other Nordic Countries (not specified)-(*)</p> <p>•Gulf States Region (In progress)</p> <p>1250 Professional certified Assessors</p> <p>(*) Special weighted scores</p> |
| ENVISION Rating System | USA | <ul style="list-style-type: none"> Envision®V-3 (Design & construction) Envision checklist (Design). Operation & maintenance: in progress | <p>V1_2012</p> <p>V2_2015</p> <p>V3_September 2017</p> | <p>Official certification:</p> <p>•\$10 billion certified and \$23 billion on the pipeline</p> <p>•USA _ 40 projects already certified</p> <p>•Turkey 1 project (new Istanbul airport)</p> <p>•Partnership in Italy (where Envision has been applied for several years)</p> <p>Research application:</p> <p>•Case studies (LAC) 38 projects in 14 countries</p> <p>Used by in 500 municipalities (around US)</p> <p>50 US municipalities are members of ISI</p> <p>Around 6500 Professional accredited</p> |
| IS rating scheme | Australia | <ul style="list-style-type: none"> IS Rating Scheme V.1.2 (Design & As Built) IS Operation rating V 1.2 (Operation) IS International V 1.0 (Design & As Built) | <p>V 1.0_ 2012</p> <p>IS v1.2 D & AB _ May 2016</p> <p>IS Operation V.1.2_2017</p> <p>IS V2.0 _ In progress</p> <p>IS International tool-2017</p> | <p>30 evaluated projects</p> <p>\$6.3 billion (aus dollars) in capital value</p> <p>60 more Projects registered</p> <p>Total \$83 billion in projects capital value</p> <p>•Australia and New Zealand</p> <p>•China (Recent agreements signed)</p> <p>•Other locations in south East Asia (not specified)</p> |
| SuRe® Standard. The Standard for Sustainable and Resilient Infra. | Switzerland | <ul style="list-style-type: none"> SuRe® Standard. V 1.0 (Project lifecycle) SmartScan Tool (Self-Assessment tool) Credit SuRe (Sustain. & Resilience Credit Rating for Infra.)(In progress) SuRe Underwriting (In progress) | <p>V 0.1_ Sept 2015 (Consultation draft)</p> <p>V 0.2_ Dec. 2015</p> <p>V 0.3 _ July 2016</p> <p>V 0.4 _ August 2017</p> <p>V 1.0_ November 2017</p> | <p>10 projects currently rated under the SuRe system.</p> <p>The previous tool (different from SuRe) was applied to approximately 150 projects in 42 countries in America, Europe, Africa and Asia.</p> <p>Low level of detail on the scope of the implementation</p> |

Source: Bhattacharya, Contreras, and Jeong (forthcoming)

5.2.4. Assessment of current status in emerging markets

Project preparation facilities have not been very impactful to increase the number of bankable projects in developing countries. Many PPFs do not have a clear and long-term strategy, and distribute their funds without systemic prioritization.¹⁰⁴ They rarely leverage private sector expertise to improve project development. Many PPFs rely on public funds, and do not have a sound mechanism to recover expenses. PPFs need to be reformed to have a clear strategy, which enables an optimal allocation of resources to support project preparation. In addition, they have to build a sustainable financing model, which enables to recover their costs from project owners. SOURCE is expected to fill the current gap of PPFs, but it is in its initial stage. The use of SOURCE should be expanded, and the tools should evolve with the needs in emerging markets.

The standards and tools for sustainable infrastructure are mainly used in advanced economies. The four main tools for sustainable infrastructure have been developed in advanced countries, and they have been applied mostly in home countries and neighboring areas (Table 7). They have been applied in some projects in China, Hong Kong, and Southeast Asia, but it is still very limited.

One of few standards developed in emerging economies is the *Guidelines of Sustainable Infrastructure for Chinese International Contractors* developed by Chinese International Contractors Association (CHINCA) and Dagong Global Credit Rating Group. The guidelines are for Chinese companies engaged in overseas infrastructure projects, incorporating concepts from other standards such as Envision and SuRe as well as domestic laws and rules.¹⁰⁵ Compared to the other standards, the guidelines put more emphasis on the project's impact on local economy, pollution, and health and safety.

¹⁰⁴ World Economic Forum. (2015). "Africa Strategic Infrastructure Initiative: A Principled Approach to Infrastructure Project Preparation Facilities."

¹⁰⁵ China International Contractors Association. (2018). "Guidelines of Sustainable Infrastructure for Chinese International Contractors." <http://www.chinca.org/EN/info/18013108264011>

Box 3. Guidelines of Sustainable Infrastructure for Chinese International Contractors

The Guidelines aim to guide and promote Chinese companies to fund, plan, design, build, and operate infrastructure projects overseas in a sustainable manner. They cover the entire cycle of infrastructure projects from funding to closure. The Guidelines consist of many detailed attributes of a project to be sustainable under four dimensions of sustainability—economy, society, environment, and governance. The categories of the guidelines are:

1. Guidelines for Economic Sustainability

- Financial Performance
- Implications for local industries
- Benefits for local economy

2. Guidelines for Social Sustainability

- Protection of employees' rights and interests
- Occupational health and safety management
- Supply chain management
- Quality management
- Co-existence with community residents

3. Guidelines for Environmental Sustainability

- GHG emission reduction
- Pollution control
- Species protection
- Ecosystem management
- Marine environmental protection
- Sustainable use and protection of resources

4. Sustainability Governance Rules

- Definition of sustainability governance rules
- Sustainability governance system
- Sustainability information disclosure
- Sustainable development report
- Sustainability evaluation system
- Sustainability emergency management

Source: China International Contractors Association. (2018). Guidelines of Sustainable Infrastructure for Chinese International Contractors. <http://www.chinca.org/EN/info/18013108264011>

5.3. Addressing data gaps

Fragmented data in infrastructure investment has undermined the efforts to accelerate investments in sustainable infrastructure. Improving the availability and quality of data on infrastructure investments enables to support more diversified financing on sustainable infrastructure by attracting more investments from a larger base of investors. Governments can also better plan infrastructure investments with the assessments of the impact generated by infrastructure projects. Against this backdrop, many initiatives are underway to address data gaps (Table 8).

Table 8. Selected initiatives to address data gaps

| Initiative | Organization | Summary description |
|--|--|--|
| G20/OECD Taskforce on Institutional Investors and Long-Term Investment Financing | G20/OECD/APEC/FSB/ other IOs | <ul style="list-style-type: none"> Includes work on addressing key data gaps and developing network to aggregate and share information on infrastructure projects and financing |
| G20 Data Gaps Initiative | G20/FSB/IMF/WB/UN/ BIS/Eurostat/ECB/OECD | <ul style="list-style-type: none"> Aims to address gaps identified in the global financial crisis by providing reliable statistics for policy use |
| Infrastructure Data Initiative | EIB/Long Term Investors Club/GI Hub/OECD | <ul style="list-style-type: none"> Aims to address the issue of establishing infrastructure as an asset class through improving the availability of data, especially micro level |
| EDHEC Infra Database | EDHEC Risk Institute | <ul style="list-style-type: none"> A collection of cash flow, investment and balance sheet data from infrastructure investors and creditors Covers more than 500 infrastructure assets over 10 countries |
| Global Emerging Markets Risk Database (GEMs) | EIB/IFC | <ul style="list-style-type: none"> The largest default and loss database for emerging markets In 2015, the database included about 7,700 counterparts, 1,600 default events, and 1,750 resolved contracts. |
| Moody's risk performance studies | Moody's | <ul style="list-style-type: none"> Ongoing project reporting on the historical performance of rated infrastructure project debt, including 5,308 transactions from 1983 to 2015 |
| MSCI-IPD | MSCI | <ul style="list-style-type: none"> Launched a several initiatives to create global private equity infrastructure index including MSCI Australia Unlisted |

| | | |
|---|--|---|
| | | Infrastructure Index and IPD Global Infrastructure Direct Asset Index |
| Infralatom | IADB/CAF/ECLAC | <ul style="list-style-type: none"> Measures infrastructure investments in Latin America countries to standardize estimation of resources to infrastructure |
| MDBs' collating mobilization data | MDBs/IFC | <ul style="list-style-type: none"> MDBs are collating mobilization data, which are coordinated through IFC |
| Private Participation in Infrastructure Projects Database | World Bank | <ul style="list-style-type: none"> Identifies and disseminates information on private participation in infrastructure projects in low- and middle-income countries. Provides project-level information covering at least 20% of private participation in 139 low- and middle-income countries |
| Infrascope | EIU/IADB/EBRD | <ul style="list-style-type: none"> Evaluates readiness and capacity of countries to implement sustainable and efficient infrastructure projects |
| InfraCompass | Global Infrastructure Hub | <ul style="list-style-type: none"> Analyses 49 countries in terms of six key drivers of quality infrastructure planning and delivery |
| SOURCE | MDBs/SIF | <ul style="list-style-type: none"> Aims to create a platform by aggregating and processing information in all dimensions of infrastructure project preparation |
| INFRADEV Clearinghouse | Global Clearinghouse for Development Finance | <ul style="list-style-type: none"> Enables risk mitigation product providers from the public and private sectors to provide information in one 'marketplace' about their products |
| GRESB Infrastructure Assessment | Global ESG Benchmark for Real Assets | <ul style="list-style-type: none"> Provides systematic assessment, scoring and benchmarking for ESG performance of infrastructure companies and funds |

Many data initiatives focus on finance and risk data. *EDHEC Infra Database* is a collection of cash flow, investment and balance sheet data, and *Global Emerging Markets Risk Database* includes the data on default and loss. *Moody's risk performance studies* focus on debts and loans of infrastructure projects. The other initiatives covering a range of project information including finance and risk data have not been comprehensive enough to tackle data gaps. For instance, *Infrascope* and *InfraCompass* provide information on the drivers of quality infrastructure, readiness and capacities for infrastructure projects only in country-level. World Bank's *Private Participation in Infrastructure Projects Database* has a broad coverage of 139 low- and middle-income countries, but it is limited in private participation of projects.

The need for a more comprehensive project/firm level database has become more evident. According to OECD, three factors have driven the increased needs for micro data.¹⁰⁶ The first is the evolution of expectations of key stakeholders on reliable and quantitative evidence. The second is the needs of private sector for more evidence on risk and return of their investments. Finally, increased interest in how to measure infrastructure's support for economic development has driven the increased needs for micro data. Despite this importance of micro data, existing databases are limited in providing the full spectrum of data needed due to many issues such as coverage shortcomings, inconsistencies, differences of definition for infrastructure, and confidentiality.

Recently, an "Infrastructure Data Initiative" has been launched to address the challenges of existing initiatives, led by the European Investment Bank, Long Term Investors Club, Global Infrastructure Hub, and OECD. It aims to ensure accessible repository on historical long-term data on infrastructure at an asset level held by MDBs, DFIs, private sector and governments to policymakers, regulators, investors and researchers. Recently, this project is developing a proposal to create a standard reporting template and a new infrastructure database of long-term performance.¹⁰⁷ The project plans to support the development of infrastructure performance benchmarks based on the database. The database enables to generate financial performance benchmarks, economic and social impact analysis of projects, and sustainability, inclusive growth, environmental and climate related risks performance.

The database is planned to include financial and economic information, relevant qualitative information, data on sustainability and ESG, and will cover a range of geographies including emerging and developed economies. The presentation of outputs is aggregated and anonymous basis to protect the confidentiality of contributors. The proposed initiative comprises of three stages: 1) framework development phase; 2) data gathering; and 3) development of performance benchmarks (Table 9).

¹⁰⁶ OECD. (2017). "Breaking Silos: Actions To Develop Infrastructure As An Asset Class And Address The Information Gap: An Agenda for G20." November 2017.

¹⁰⁷ European Investment Bank, Global Infrastructure Hub, OECD, Long-term Investors, and Long-term Infrastructure Investors Association. (2017). "The Infrastructure Data Initiative: Aggregating data and developing performance benchmarks for infrastructure as an asset class."

Table 9. Stages of Infrastructure Data Initiative

| Stages | Tasks |
|---------------------------------------|---|
| Framework development phase | <ul style="list-style-type: none"> • Definition of the data requirements • Creating standard reporting and collection template for obtaining financial and non-financial data • Creation of guidelines to facilitate data collection |
| Data gathering | <ul style="list-style-type: none"> • Analysis of existing databases • Adjusting databases to be able to obtain future information according to the standard reporting and collection template • Creating data feed to the central repository |
| Development of performance benchmarks | <ul style="list-style-type: none"> • Creating benchmarks |

The Infrastructure Data Initiative is in line with the work of G20/OECD Task Force on Institutional Investors and Long-term Financing, which include addressing key data gaps and developing network to aggregate and share information on infrastructure projects and financing. The Task Force, which consist of G20, OECD, Asian Pacific Economic Cooperation, Financial Stability Board (FSB), and other international organizations, held two workshops on infrastructure as an asset class and data collection for long-term investment in 2017. The Infrastructure Data Initiative was launched as a result of these workshops given the importance of micro-data for long term financing.¹⁰⁸

The Task Force is considering advancing the agenda of data gaps with more actions. The actions include exploring scope for analysis, building on available national account data, creating databases of infrastructure projects at sector level using commercial databases, promoting a definition of sustainable infrastructure investments to facilitate data collection on sustainability factors, and promoting standardization of project documentation.

¹⁰⁸ OECD. (2017). "Breaking Silos: Actions To Develop Infrastructure As An Asset Class And Address The Information Gap: An Agenda for G20." November 2017.

6. Mobilizing and Aligning Finance

Financing of sustainable infrastructure in EMDCs faces two interrelated challenges: mobilizing finance at the scale needed; and aligning finance more strongly with sustainability criteria. Given the scale of investments needed in sustainable infrastructure in emerging and developing countries, a major scaling-up of finance is needed from all sources, especially from the private sector. The complex nature of infrastructure poses challenges for mobilizing both public and private finance. Public finance plays a central role because a significant proportion of infrastructure investment will remain in the public domain and because the public sector needs to in many cases to provide availability payments or guarantees to catalyze private financing. This makes robust public finance foundations a key prerequisite. All levels of public finance need to be developed since an increasing proportion of investments will take place at local and municipal levels. Greater efforts are warranted therefore to mobilize and better utilize public finance and catalyze private finance for investments in infrastructure. To unlock private financing, many new and innovative initiatives are now underway. International public finance has played an important role to catalyze private financing, and it has much potential to contribute to attracting the private sector. Multilateral development banks and other DFIs have a particularly important role to play since they can help tackle upstream constraints and crowd in private finance. Other than mobilizing financing, reflecting sustainability into financing is also required for sustainable infrastructure investments. A number of initiatives are underway to better align finance with sustainability principles, including expanding green finance and expanding the scope to sustainable finance more broadly, follow-up on the Task Force on Climate-related Financial Disclosures, the G20 Sustainable Finance Study Group, and the UN Environment Program and World Bank Roadmap for a Sustainable Finance System.

An important distinction needs to be drawn between infrastructure funding and infrastructure finance with important implications for the links between public and private finance is. Infrastructure funding refers to the ultimate sources of revenue, often collected over a span of many years, which are used to pay the costs of providing infrastructure services. The most common sources of funding are: general purpose tax revenues; revenues from user charges; and other charges or fees dedicated to infrastructure. User charges are often insufficient to cover the full costs of infrastructure services but at the same time infrastructure projects typically generate spillovers that increase economic activity and property valuation elsewhere. Tapping these through targeted taxes and returning them to the project through availability payments can make infrastructure projects viable and attract private financing. Infrastructure financing turns the infrastructure funding into capital that can be used today to build or make improvements in infrastructure. Only if a project can demonstrate reasonable

predictability in funding sources for both capital expenditures and for operations and maintenance (O&M), can financing be attracted from the private sector.

6.1. Strengthening multi-level public finance

Robust public finance foundations remain an essential foundation for investments in sustainable infrastructure given the public good nature of the investments. Given the complex nature of infrastructure, public finance should play a key role in infrastructure investments. Current fiscal landscape, however, is not ideal to provide sufficient resources to infrastructure projects. To meet the growing needs of infrastructure, public finance should be expanded by tapping for additional resource mobilization through tax and expenditure policies. Tax and expenditure policies should be strengthened not only at the national level but also at the sub-national and local levels.

Removing excessive and regressive tax exemptions, taxing negative externalities, and making fuller use of property taxes can be options to expand fiscal space for infrastructure investments.¹⁰⁹ In emerging economies and developing countries, these actions are more important since they have lower tax per GDP ratios compare to developed countries. To improve it, the World Bank and the IMF launched an initiative to help developing countries strengthen their tax systems to fill financing gaps and to promote development.¹¹⁰ They planned to deepen the dialogue with developing countries on international tax issues, and to develop tools to help the countries strengthen their tax policies.

Carbon taxation can raise substantial revenues to fund infrastructure as well as shift investments towards sustainable infrastructure. A carbon tax of \$30 per tCO₂e could generate substantial revenue, which would be more than 1 percent of GDP in large emission countries.¹¹¹ Fuller charging of environmental costs would raise substantially more revenue. Removing fossil fuel subsidies would also save significant fiscal resources. The benefits of removing the subsidies would be larger in emerging and developing countries since fossil fuel subsidies are much larger in these countries as we discussed earlier.

Structural reform of national tax policy frameworks is important to generate financing for sustainable infrastructure and to create incentives for investments. Some emerging countries reformed their tax systems to add more efficient sources of revenue in recent

¹⁰⁹ Qureshi, Z. (2016). "Meeting the Challenge of Sustainable Infrastructure: The Role of Public Policy." Brookings Institution.

¹¹⁰ World Bank & IMF, "World Bank and the IMF Launch Joint Initiative to Support Developing Countries in Strengthening Tax Systems." July 10, 2015. <http://www.worldbank.org/en/news/press-release/2015/07/10/world-bank-and-the-imf-launch-joint-initiative-to-support-developing-countries-in-strengthening-tax-systems>

¹¹¹ Parry, I. (2015). "The Right Price," *Finance and Development*, Vol. 52, No. 4 (2015): 10-13.

years.¹¹² China replaced the business tax by value added tax (VAT) in May 2016. This reduced the cost of doing business, and also generated full information on value added. India has also initiated integrating VAT recently. Although these reforms enhance overall efficiency of the tax system and provide a better business environment, they generate revenue losses for provinces and lower-level of governments. In China, replacing business tax generated losses has been a concern, especially in the middle-income provinces since the business tax was one of the major sources of revenues in the provinces. Although a compensation mechanism was created to fill this gap, this generates incentives for local governments to play games with the central government. This suggests the necessity of additional tax reforms at the local level. Additional progress on tax reforms should focus on new revenue assignments at all levels of government.¹¹³

The national tax agenda should be complemented by a local tax system. Since a significant share of infrastructure needs are related to urban areas, the role of municipal governments are important. Qureshi suggests two key roles of local governments to strengthen fiscal capacities.¹¹⁴ First, local governments should boost their own-source revenues. These can be raised by using property taxes and user charges. Property and local taxation is important in that it facilitates access to credit for local investments and public infrastructure. In emerging economies, advanced-country models of administration are barely working. Therefore, the relatively simple identification of occupancy and links with local services needs be considered to overcome this challenge.¹¹⁵ Second, intergovernmental fiscal relations need to be reviewed to empower cities and local governments. Intergovernmental tax sharing needs to be better aligned with important expenditure responsibilities at the subnational level.

Piggy-backed tax options can provide greater revenue to local governments. Ahmad suggested that a higher carbon tax could be justified in the polluted metropolitan areas in China or South Asia, which can be achieved through piggy-back on the national tax.¹¹⁶ A piggy-back approach can be taken in other cases to provide own-source revenue for local governments without separate administrative mechanisms.

New mechanisms for property taxation are needed in EMDCs. This is because the US-style ownership-cum-valuation model has not worked in many emerging market economies,

¹¹² Ahmad, E. (2017). "Political Economy of Tax Reforms for SDGs: Improving the Investment Climate; Addressing Inequality; Stopping the Cheating. Working Paper commissioned by the G-24 as part of its work program on domestic resource mobilization and financing for development." August 2017.

¹¹³ Ahmad, E. (2018). "Rebalancing, Taxation, and Governance: Fiscal Policies for Sustainable Growth," in *Fiscal Underpinnings for Sustainable Development in China*, eds. Ahmad, E. et al. Springer. 3-28.

¹¹⁴ Qureshi, Z. (2016). "Meeting the Challenge of Sustainable Infrastructure: The Role of Public Policy." Brookings Institution.

¹¹⁵ Ahmad, E. (2017). "Political Economy of Tax Reforms for SDGs: Improving the Investment Climate; Addressing Inequality; Stopping the Cheating. Working Paper commissioned by the G-24 as part of its work program on domestic resource mobilization and financing for development." August 2017.

¹¹⁶ Ahmad, E. (2017). "Public Investment for Sustainable Development." Working Paper commissioned by the G-24 as part of its work program on financing for development. September 2017.

given difficulties with establishing ownership and also valuation and changes in valuation are not firmly based. An alternative includes flat taxes or bands based on occupancy, size of property linked to the cost of public services. This is a promising area for policy based research that can be put into operation quickly and at a fraction of the cost of establishing a full cadaster (see Ahmad, Brosio and Gerbrandy, 2017)¹¹⁷. Both satellite imagery and block-chain technology enhance the possibilities of what can be a significant enhancement in the ability of emerging market and developing countries to develop a local tax base that also unlocks access to credit in a sustainable manner.

Strengthening fiscal positions using the above measures enhances the scope for using government balance sheets to finance infrastructure investments. Good infrastructure investments may not raise public debt to GDP ratio, and they can improve government balance sheets. Thus, additional borrowing to finance infrastructure could be contemplated. However, in current fiscal stress in many countries, borrowing should be carefully managed. Guidance and advices of international financial institutions would be very beneficial from this perspective.

On the investment side, there has been a great deal of emphasis on cross-border and national connectivity infrastructure to generate sustainable growth and employment, create common markets and new value chains and to address spatial inequalities. However, without additional measures at the state/province and local levels, the advantages may not be realized. This is seen with the EC structural funds in Europe (see Ahmad, Bordinon and Brosio 2016)¹¹⁸, and more recently with the BRI (Ahmad, Neuweg and Stern 2018)¹¹⁹. Critical issues relate to financing the needed investments over the medium-term, and the effects of different tax and resource generation options at different levels of government on incentives to invest, impact on emissions and on income distribution.

6.2. Unlocking private finance

The increasing needs for infrastructure investments and the constraints of public finance stress have highlighted the need to mobilize private finance. Despite this importance, private finance has not been significantly scaled up due to a number of long-standing impediments, notably actual and perceived risks regarding revenues and other policy-induced risks, high transaction costs stemming from the business environment and shortcomings in

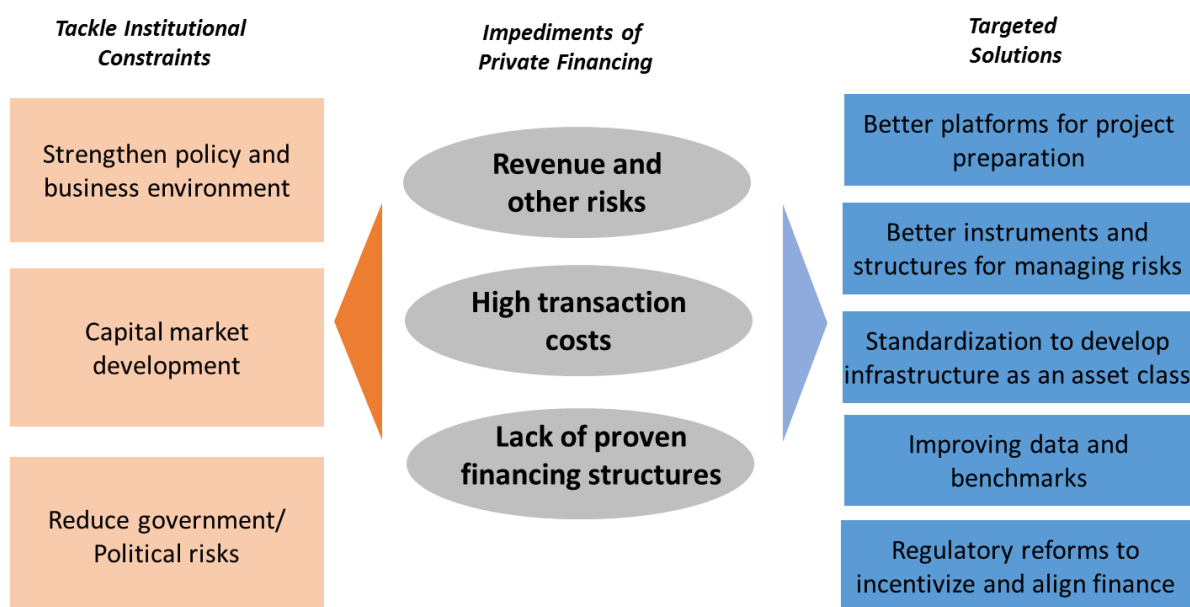
¹¹⁷ Ahmad, E., G. Brosio and J. Gerbrandy, 2017, “*Property Taxation: Incentives for meeting the SDGs in Developing Countries*,” August 2017, European Commission Project FED/2016/380/048.

¹¹⁸ Ahmad, E., M. Bordinon and G. Brosio, 2016, *The Eurocrisis and Multilevel Finance*, Elgar.

¹¹⁹ Ahmad, E., I. Neuweg and N. Stern, 2018, “China, the World and the Next Decade: Better Growth, Better Climate,” *China Development Forum*.

governance, and the lack of proven financing structures. To tackle these impediments, fundamental reforms are needed in the policy and business environment, steps taken to tackle government policy and policy risks and deepen domestic financial capital markets. While these reforms will necessary take time, more targeted solutions can be pursued to tackle constraints and unlock a virtuous cycle of action. These solutions include better platforms for project preparation, better instruments and structures for managing risks, standardization to develop infrastructure as an asset class, improving data and benchmarks, and regulatory reforms to incentivize and align finance (Figure 22).

Figure 22. Impediments and solutions for private financing



Many international and national initiatives are underway to push forward on reforms and find more targeted solutions. Strengthening local capital markets for long-term financing is being supported by international organizations. Developing instruments and structures for managing risks has received much attention by diverse stakeholders. A number of initiatives are ongoing to provide better instruments to manage risks including the Blended Finance Taskforce. In addition, new financial instruments have been developed to increase the flow of private capital to sustainable infrastructure. The G20/OECD Task Force on Institutional Investors and Long-term Financing has worked to augment the financing from institutional investors. These are being built on under the Argentinian G20 Presidency to develop

infrastructure as an asset class. Other than these efforts, international organizations are collaborating to provide solutions to unlock private finance through developing better platforms for project preparation, improving data and benchmarks, and pursuing regulatory reforms to incentivize and align finance.

The development of domestic capital markets for long-term financing is essential to meeting the infrastructure financing needs in EMDCs. Local capital markets in EMDCs leave room for improvement in terms of size, efficiency, and stability compared to advanced economies (Table 10). Successful development of domestic capital markets depend on the reforms addressing underlying market, policy and governance failures.¹²⁰ The reforms include the policies promoting macrofinancial stability, a contestable banking system with sound regulation, a legal and contractual environment protecting investors and property rights, financial infrastructures limiting information asymmetries, and institutions countering the effects of weak governance.

Table 10. Indicators for financial development and structure, 2015.

| | High Income | Middle Income | Low income | Brazil | China | Colombia | India | Indonesia | Mexico | Kazakhstan | South Africa |
|--|-------------|---------------|------------|--------|-------|----------|-------|-----------|--------|------------|--------------|
| Bank credit/bank deposits (%) | 98.4 | 83.9 | 74.5 | 119.0 | 312.3 | 180.8 | 77.3 | 93.5 | 77.1 | 103.1 | 111.0 |
| Bank return on assets (% before tax) | 1.0 | 1.5 | 2.5 | 0.4 | 1.3 | 2.0 | 0.5 | 2.2 | 1.6 | 0.8 | 1.3 |
| Bank return on equity (% before tax) | 10.8 | 14.2 | 18.8 | 4.9 | 19.0 | 17.4 | 7.1 | 17.1 | 14.8 | 8.3 | 20.8 |
| Central bank assets/GDP (%) | 2.1 | 2.0 | 3.9 | 20.4 | 2.2 | 0.0 | 4.0 | 3.2 | | 2.1 | 1.3 |
| Deposit money bank assets/GDP (%) | 101.0 | 47.3 | 18.6 | 103.9 | 153.4 | 51.7 | 69.3 | 37.0 | 40.0 | 38.2 | 77.9 |
| Financial system deposits/GDP (%) | 78.9 | 42.5 | 18.0 | 56.2 | 45.0 | 24.2 | 65.0 | 33.7 | 29.3 | 33.5 | 59.7 |
| Liquid liabilities/GDP (%) | 83.5 | 48.1 | 26.7 | 78.7 | 188.4 | 35.8 | 75.5 | 33.4 | 29.3 | 34.1 | 42.2 |
| Private bond market capitalization/GDP (%) | NA | NA | NA | 30.5 | 38.4 | 0.5 | NA | 2.2 | 15.9 | NA | 18.4 |
| Stock market capitalization/GDP (%) | 70.0 | 35.0 | NA | 31.1 | 64.1 | 33.3 | 71.5 | 42.0 | 35.0 | 13.9 | 245.4 |
| Stock price volatility (%) | 16.2 | 13.7 | 22.2 | 24.8 | 26.5 | 16.7 | 14.7 | 14.6 | 13.4 | 25.9 | 14.4 |

Source: The Global Financial Development Database. Available at:

<http://www.worldbank.org/en/publication/gfdr/data/global-financial-development-database>

¹²⁰ Bhattacharya, A., Meltzer, J., Oppenheim, J., Qureshi, Z., & Stern, N. (2016). "Delivering Sustainable Infrastructure for Better Development and Better Climate." Brookings Institution. December 2016.

Given the importance of domestic financial markets, international organizations have supported the development of domestic capital markets, especially for emerging markets. In 2011, G20 launched an initiative to develop local currency bond markets (LCBMs), targeting three key areas: 1) scaling up technical assistance; 2) improving the database; and 3) monitoring the progress on an annual basis.¹²¹ Following this initiative, the IMF, the World Bank, the EBRD, and the OECD developed a diagnostic framework to identify preconditions, key components, and constraints for the development of LCBMs. The key components include broad range of financial market components such as macroeconomic policy framework, composition and needs of the issuer and investor base, primary and secondary market structures and market dynamics, regulatory and legal framework, and market infrastructure.¹²²

Other than strengthening these key components, the IMF and the World Bank have suggested additional actions for LCBM development in emerging markets. One of the areas of action is an expanded use of LCBM instruments including infrastructure project bonds. In addition EMDCs need to establish a robust regulatory and institutional framework, which enables cost efficient structuring, issuance, and placement of infrastructure project bonds, is required to mobilize issuers, investors, and intermediaries.¹²³ Credit risk enhancement instruments are also important to improve a credit risk profile to be acceptable to institutional investors. An infrastructure bond market can benefit from LCBM, but eventually the market can contribute to the development of LCBM as well. An infrastructure project bond market is expected to strengthen long-term fixed-income market, which support LCBMs.

The role of institutional investors has received much attention because their current infrastructure assets are very limited despite their significant potential to act as a source of infrastructure financing. Globally less than 3 percent of the portfolio of pension funds for instance are allocated to infrastructure. The OECD has worked on this issue since it launched the project on institutional investors and long-term investment in 2012. In 2013, with the G20, the OECD released high-level principles of long-term investment financing by institutional investors. The principles addressed regulatory and institutional impediments to long-term investment by institutional investors.¹²⁴ The report for the G20 by the World Bank, the IMF, and the OECD identified the challenges to mobilize institutional investors for infrastructure and SME

¹²¹ G20 Heads of State and Government, "G20 Action Plan to Support the Development of Local Currency Bond Markets." November 3-4, 2011.

¹²² IMF, World Bank, EBRD, and OECD. (2013). "Local Currency Bond Markets—A Diagnostic Framework." July 9, 2013.

¹²³ IMF. (2016). "Staff Note for the G20 IFAWG Development of Local Currency Bond Markets: Overview of Recent Developments and Key Themes." Seoul, Korea, June 20, 2016.

¹²⁴ OECD. (2013). "G20/OECD High-Level Principles of Long-Term Investment Financing by Institutional Investors." OECD. September 2013.

financing in emerging economies, and provided recommendations to tackle the challenges.¹²⁵ To enhance the enabling environment, a developed fixed income market and a stable macroeconomic environment are needed. A robust pipeline of infrastructure projects should be provided, which can be developed by various policies and supports such as legal and institutional arrangements for PPPs. The instruments need to suit the demand for institutional investors. Ensuring that institutional investors can invest in alternative assets and considering the creation of a separate bucket for infrastructure are the examples of the options to adjust the instruments.

As a more targeted approach, sound structuring of risks has been one of the focus areas of work to unlock private finance. A number of initiatives are now underway to manage risks from private sector perspective. One of the central approaches is “blended finance,” which means using of concessional capital to crowd-in private finance. A small amount of concessionary funding deployed for catalytic instruments like guarantees makes an investment attractive to private investors by mitigating risks. The survey of OECD and WEF showed that blended finance has contributed to unlocking private capital for emerging market investments. Among 19 funds and facilities, which provided a breakdown of their blended finance sources of capital, \$2.7 billion was indicated to be sourced from private capital.¹²⁶ According to the survey, the private sector respondents indicated that they were motivated to invest in blended finance structures to access to high-growth markets, to respond to client demand for responsible investment, and to find financially attractive investment opportunities.

Although blended finance has much potential to tap private finance, it needs to be guided by governments to ensure it meets the SDGs.¹²⁷ Currently, all SDGs are not equally covered by blended finance activities. Most of blended finance activities are targeting climate mitigation and climate adaptation. Blended finance needs to expand to a broader range of development issues. In this regard, the OECD Development Assistance Committee (DAC) developed Blended Finance Principles to assist governments to engage in blended finance. The Principles consist of five principles addressing five areas of blended finance: why, who, where, how, and what for (Table 11). The first principle points out that blended finance activities should be based on the development rationale. The second is emphasizing that blended finance should mobilize private finance. In the third principle, the importance of local development needs, priorities, and capacities is underscored. The fourth principle indicates that the motivations of both development and commercial parties should be leveraged, and the risks

¹²⁵ World Bank, IMF, and OECD. (2015). “Capital Market Instruments to Mobilize Institutional Investors to Infrastructure and SME Financing in Emerging Market Economies.” Report for the G20.

¹²⁶ OECD and WEF. (2017). “Insights from Blended Finance Investment Vehicles & Facilities.” January 2016.

¹²⁷ OECD. (2018). Making Blended Finance Work for the Sustainable Development Goals. Paris: OECD.

should be allocated in a targeted, balanced, and sustainable manner. Finally, blended finance operations should be monitored by a clear and transparent framework.

Table 11. OECD DAC Blended Finance Principles

| Principle | | Sub-principles |
|-----------|--|--|
| Why | Principle 1: Anchor blended finance use to a development rationale | Use development finance in blended finance as a driver to maximize development outcomes and impact |
| | | Define development objectives and expected results as the basis for deploying development finance |
| | | Demonstrate a commitment to high quality |
| Who | Principle 2: Design blended finance to increase the mobilization of commercial finance | Ensure additionally for crowding in commercial finance |
| | | Seek leverage based on context and conditions |
| | | Deploy blended finance to address market failures, while minimizing the use of concessionality |
| | | Focus on commercial sustainability |
| Where | Principle 3: Tailor blended finance to local context | Support local development priorities |
| | | Ensure consistency of blended finance with the aim of local financial market development |
| | | Use blended finance alongside efforts to promote a sound enabling environment |
| How | Principle 4: Focus on effective partnering for blended finance | Enable each party to engage on the basis of their respective development or commercial mandate |
| | | Allocate risks in a targeted, balanced and sustainable manner |
| | | Aim for scalability |
| What for | Principle 5: Monitor blended finance for transparency and results | Agree on performance and result metrics from the start |
| | | Track financial flows, commercial performance, and development results |
| | | Dedicate appropriate resources for monitoring and evaluation |
| | | Ensure public transparency and accountability on blended finance |

Source: OECD (2018)

Another challenge of blended finance is scaling up. The Blended Finance Taskforce, which was launched by the Business & Sustainable Development Commission (BSDC), has worked on creating an environment that blended finance can rapidly scale from “private sector” perspective. In its recent report, the Taskforce points out the critical role of MDBs and DFIs to scale up the blended finance market; current private capital mobilization ratio of the MDBs, which is less than 1:1, was suggested to be more than double over the next decade to get close to the trillion dollar financing target.¹²⁸ The Taskforce expects that increasing the mobilization ratio is likely to shift portfolios towards infrastructure investments and middle-income countries as well as to free up additional capital for low-income countries and high additionality projects.

The Taskforce also underscored the role of policy and institutional mechanisms to expedite blended finance. In developing countries, the constraints of rapid scaling up of blended finance is policy and institutional settings rather than capital. The Taskforce suggested that the countries prioritizing sound policies and institutional capacity will build stable project pipelines and attract long-term capital. Colombia shows a successful case to boost infrastructure investment through innovative linkage of policies and institutions. Financiera de Desarrollo Nacional (FDN), a new type of development bank, has led the Fourth Generation road program in Colombia by playing a catalytic role in developing financing from local banks, domestic institutional investors, foreign banks, and international institutional investors. Although the major shareholder of the FDN is Colombian government, the participation of International Finance Corporation (IFC) and the Development Bank of Latin America (CAF) made the FDN a private sector entity. This independent governance ensures independence and rigor in investment decisions and enables the FDN to develop innovative and flexible products. In addition, Colombian government supported private sector participation through a number of institutional and policy changes such as regulatory change to allow pension funds to invest in infrastructure through infrastructure debt funds.

¹²⁸ Blended Finance Taskforce. (2018). *Better Finance Better World: Consultation paper of the Blended Finance Taskforce*. London: Business and Sustainable Development Commission.

Box 4. Colombia's Fourth Generation (4G) Road Infrastructure Program

Colombia's 4G Road Infrastructure Program is one of the successful cases showing the role of partnership between governments and development banks to unlock infrastructure financing. Financiera de Desarrollo Nacional (FDN) is a new type of development bank, which was created by the partnership among Colombia's government, International Finance Corporation (IFC), and the Development Bank of Latin America (CAF) to catalyze investment in Colombian infrastructure. The Colombian government has 67.5% of the shares of the organization, and IFC, CAF, and Sumitomo Mitsui Banking Corporation (SMBC) have the rest of the shares. The strong and independent governance is one of the strengths of the FDN. Since IFC and CAF acquired equity stakes in 2014, the FDN became a private sector entity, which was not governed by the regulations and procedures for state firms. Majority of the board of directors are independent from the government, which includes a representative of IFC, one of CAF, one of Sumitomo Mitsui Banking Corporation, three independent members, as well as the Minister of Finance, the Director of Public Credit and the Deputy Minister of Infrastructure of the Ministry of Transportation.

FDN has led the Fourth Generation (4G) road program, which is the most ambitious road program in Latin America. The program aims to link main ports with major cities in Colombia, which covers 6,500km. As of 2017, 31 projects were approved and estimated financing reaches to \$19.5 billion in total. Financing was mobilized from multiple sources. For the 8 projects reaching financial close, local banks, institutional investors, international sources, and FDN invested 48.9%, 20.6%, 21.9%, and 8.6%, respectively. FDN played a catalyst role in developing the infrastructure financing for this program. It provided critical services and products to finance infrastructure including long-tenor loans, subordinated debt, and credit enhancements. The operation of FDN complements existing schemes rather than replaces them. These activities facilitated participation of diverse investors including local banks, domestic institutional investors, foreign banks, and international institutional investors. Pacifico 3, a 146 km initiative with 26 bridges and six tunnels, is one of the examples showing FDN's catalyst role in attracting investors. FDN has committed \$66 million in credit enhancement through its liquidity facility, and mobilized \$664 million. A 59% of the funds came from international capital markets, and a 28% of them came from local financing. The financial structuring of this project was led by Goldman Sachs. FDN also played an advisory role to establish market standards. It provided expertise in project structuring, financing, and other advisory services to domestic financial institutions. FDN partnered with IFC to create a public-private partnership advisory facility. It also promoted the creation of Infrastructure Debt Funds to mobilize institutional investors. The Funds allowed institutional investors to participate in infrastructure projects through credit operations.

The case of 4G Road Infrastructure Program conveys some lessons learned for similar partnerships in other developing countries. First, independent governance is key. The corporate governance of FDN ensures independence and rigor in investment decisions and enables to develop innovative and flexible products. Second, public sector support is important for successful infrastructure program. To promote private sector participation in infrastructure investment, the government of Colombia made a number of institutional and policy changes such as regulatory change to allow pension funds to invest in infrastructure through infrastructure debt funds. Third, close collaboration with multilaterals is very beneficial. IFC worked with institutional investors on risk management, project finance, and sustainability standards in infrastructure financing in Colombia. Through this effort, IFC contributed to creating a financing market for PPPs to deliver infrastructure.

Source: Clemente Del Valle, "The role of FDN as a specialized and innovative development bank"; International Finance Corporation, Infrastructure Finance—Colombia and FDN. April 2016.

To better tap the pools of capital, especially bond financing, infrastructure needs to be better developed as an asset class. Investment in infrastructure by institutional investors has been in equity vehicles, but the allocation of assets have been shifted towards debt, especially after the global financial crisis.¹²⁹ Therefore, developing opportunities for institutional investors using debt financing is especially important. This requires developing infrastructure as an asset class. Developing a strong pipeline of projects, standardizing project templates, and improving the flow of information on projects are needed to improve the profile of infrastructure as an asset class.¹³⁰

The G20/OECD Task Force on Institutional Investors and Long-term Financing has been working to foster the development of infrastructure as an asset class. Their work focuses on filling data and information gaps since the availability of reliable data and information is a key to encourage institutional investors' participation in infrastructure financing. Building on the existing work, the G20 initiated the "Roadmap to infrastructure as an asset class" recently. The roadmap consists of three pillars—improved project development, improved investment environment, and greater standardization. It overlaps with many ongoing work streams in other global fora, but it was built in a more holistic and forward looking way.

To address the barriers for institutional investors to infrastructure investments, new initiatives have emerged. In the debt market for infrastructure, an "originate-to-distribute" model has been developed, which banks cooperating with institutional investors in channeling debt funds.¹³¹ Croce and Gatti described recent development of three structures of this model—the partnership/co-investment model, the securitization model, and the debt fund model. In the equity market for infrastructure, governments or development institutions provided assistance to attract institutional investors. Initiatives regarding this effort include the Pan African Infrastructure Development Fund, the Philippine Investment Alliance for Infrastructure fund, and the Marguerite fund in Europe.

To unlock private sector financing, a more concerted action is required. The study of Mercer and Inter-American Development Bank found the barriers for institutional investors to invest in sustainable infrastructure through interviewing with institutional investors. The top

¹²⁹ Bielenberg, A., Kerlin, M., Roberts, M., & Oppenheim, J. (2016). "Financing Change: Mobilizing Private Sector Financing for Sustainable Infrastructure." McKinsey and Company.

¹³⁰ Bhattacharya, A., Meltzer, J., Oppenheim, J., Qureshi, Z., & Stern, N. (2016).

"Delivering Sustainable Infrastructure for Better Development and Better Climate." Brookings Institution. December 2016.

¹³¹ Croce, R.D. & Gatti, S. (2014). "Financing infrastructure – International trends." OECD Journal: Financial Market Trends. Vol. 2014/1.

barrier was a lack of coordinated policy signal and commitments.¹³² The lack of familiarity with sustainable infrastructure business case and limited standardization of tools and approaches were also pointed out as the barriers to the investors. This suggests a need to develop and standardize frameworks and tools. Mercer and IDB suggested to “convene the conveners” with five steps. The first step is to clarify the principles for sustainable infrastructure investments. Second, infrastructure initiatives need to include a consideration of sustainability perspective, and a harmonized framework needs to be reinforced in sustainable infrastructure-focused initiatives. Third, the key initiatives of sustainable infrastructure need to work toward a shared plan. Fourth, bringing the organizations related to sustainable infrastructure together is needed. Finally, a proactive communication is needed to help mainstream infrastructure investors better understand sustainable infrastructure topic. Coordination and collaboration among the global initiatives will be a key to align private investments with the goal of sustainable infrastructure.

Existing regulations on financing can be an impediment of sustainable infrastructure investments. Basel III is an internationally agreed set of measures in response to the financial crisis in 2007 to strengthen the risk management of banks. Basel III’s requirements on liquid asset holdings make it harder and more expensive for banks to issue long-term debt such as project finance loans. By 2019, when Basel III is completely phased in, banks should hold a stock of high quality liquid assets (HQLA), which fully covers their next month’s projected net cash outflows. This will discourage banks from investing in illiquid assets, which would slow down scaling up the investments in infrastructure. To reduce this negative impact, an additional measure needs be suggested. For instance, development guarantees could be structured for their SDG-related exposures to qualify as HQLA.¹³³

Under Basel III, most development guarantees would not qualify for HQLA since they are not sufficiently tradable or transferable. The Blended Finance Taskforce suggested three ways to improve the development guarantees.¹³⁴ First, improving the assignability of guarantees will help address business reality and regulatory needs because assignability is important for liquidity. Second, creating more universal guarantee agreements will enhance efficiency, syndication, and scale. Third, allowing banks to get HQLA treatment for SDG-aligned investments will be helpful. The Taskforce calls upon asset owners to work with regulators to balance between financial stability, which is the goal of Basel III, and the policy priorities.

¹³² Mercer, & IDB. (2017). “Crossing the Bridge to Sustainable Infrastructure Investing: Exploring ways to make it across”. Mercer and Inter-American Development Bank.

¹³³ Betru, A. & Lee, C. (2017). “Clearing a Path for Global Development Finance: Enabling Basel and Development Guarantees to Deliver on sustainable Development Goals.” Milken Institute.

¹³⁴ Blended Finance Taskforce. (2018). Better Finance Better World: Consultation paper of the Blended Finance Taskforce. London: Business and Sustainable Development Commission.

6.3. Scaling up and strengthening international public finance

International public finance plays an important role in boosting financing in sustainable infrastructure in EMDCs both through direct financing and by catalyzing private finance. MDBs have stepped up their financing for infrastructure and have made commitments within the frame of the G20 to further step up their role. made much efforts to catalyze private financing, Concessional capital can complement MDB financing especially through supporting high risk projects. Optimizing the use of concessional capital would help attract more private investors into infrastructure financing.

The MDBs role in the new global agenda is becoming increasingly crucial. They have the capacity to help countries strengthen policy and institutional foundations and to leverage finance. The financial structure of the MDBs enables them to leverage contributions from their shareholders and multiply them into financing. With this capacity, MDBs have expanded to cover broader areas of sustainable development including climate, infrastructure, procurement systems, and PPP frameworks in recent years.

MDBs has made much effort to provide better instruments and structures for managing risks of infrastructure investments. Blended finance was one of the areas in which MDBs have been interested. MDB Heads called for efforts to establish common principles for blended finance in private sector projects at their 2016 meeting. To respond to this call, a working group of Development Finance Institutions has worked to provide a common approach of blended finance. Compared to the work of the OECD DAC and the Blended Finance Taskforce, the DFI working group has narrowly focused on blending with concessional resources and only for private sector projects. The group developed five core principles for providing blended concessional finance with guidelines, and agreed to implement them.¹³⁵ The five principles include: 1) additionality/rational for using blended finance; crowding-in and minimum concessional; 3) commercial sustainability; 4) reinforcing markets; and 5) promoting high standards.

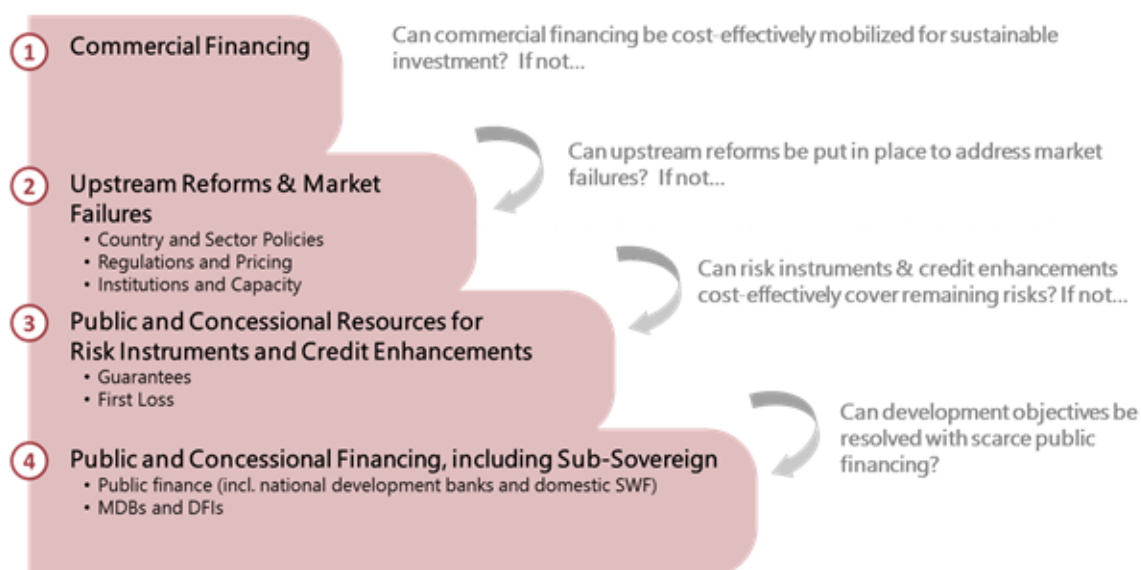
Another approach of the MDBs for the efficient use of finance from risk perspective is the Cascade Decision Framework.¹³⁶ The approach seeks to mobilize commercial finance for efficient use of public finance. Commercial financing is considered as a priority when it can be

¹³⁵ International Finance Corporation, African Development Bank, Asian Development Bank, Asia Infrastructure Investment Bank, European Bank for Reconstruction and Development, European Development Finance Institutions, European Investment Bank, Inter-American Development Bank Group, Islamic Corporation for the Development of the Private Sector. (2017). "DFI Working Group on Blended Concessional Finance for Private Sector Projects." Summary Report. October 2017.

¹³⁶ World Bank. (2017). "Forward Look – A Vision for the World Bank Group in 2030 – Progress and Challenges". DC2017-0002.

cost-effective. If not, supports will focus on addressing market failures and reforming policies and institutions. If upstream reforms to address market failures are not feasible, applying public and concessional resources for risk instruments such as guarantees is considered. If this cannot cover the risks, finally, public and concessional financing is applied (Figure 23).

Figure 23. Cascade Decision Framework



Source: World Bank (2017)

Other than blended finance and the Cascade Decision Framework, the MDBs has done much work to catalyze private financing. In 2015, the MDBs and the IMF developed the action plan called *From Billions to Trillions*, which include the areas to catalyze private financing. In addition to engaging in domestic policies, MDBs can be “innovators, intermediaries and co-investors” that are able to leverage and crowd in private finance.¹³⁷ In January 2016, the MDBs established the MDB Task Force on Measuring Private Investment Catalyzation. The Task Force published the reference guide on private investment mobilization, which includes how the MDBs calculate and report private investment mobilization, in April, 2017.¹³⁸ This can

¹³⁷ Development Committee. (2015). “From Billions to Trillions: Transforming Development Finance Post-2015 Financing for Development: Multilateral Development Finance.” DC2015-0002. April 2, 2015.

¹³⁸ World Bank. (2017). “Joint MDB reporting on private investment mobilization: methodology reference guide.” World Bank Group.

contribute to catalyze private financing more significantly by translating the measurements into operational targets throughout the organizations.¹³⁹

Although individual MDB has performed well in terms of sustainable development agenda, the MDB system as a whole is not delivering as effectively as it could and at sufficient scale. Against this backdrop, G-20 Finance ministers has established an Eminent Persons Group on Global Financial Governance to review the challenges and opportunities of the international financial and monetary system with a focus on the MDB system. The Group will release their recommendations in October 2018.

At the behest of the Eminent Persons Group, the Brookings Institution, the Center for Global Development, and the Overseas Development assessed the role of the MDBs and possible reforms of the MDB system recently.¹⁴⁰ First, they suggested a better collaboration between MDBs. MDBs can define a common program of research, knowledge generation and good practices. Possible areas for collaboration include: 1) joint efforts on diagnostic work and improving data; 2) platforms for project preparation and application of common standards and benchmarks including for sustainable infrastructure; 3) knowledge platforms and tools for strengthening policy and institutional foundations and provision of technical assistance; and 4) cooperation on establishment of financing structures that can unlock investments at scale. One of the examples of the collaboration is SOURCE, a joint initiative for advanced project preparation. Including this, there are growing examples of collaboration, but each MDB tends to work independently rather than part of an overall system.

Another suggestion is adjustment of the concept of “graduation” based on per-capita income. Bhattacharya and colleagues suggest the MDBs focus on three underserved client groups: 1) fragile states; 2) high-debt countries; and 3) upper middle-income countries. For fragile states, MDBs need to tailor the frameworks to local conditions and national capacities. High-debt countries should be supported by the MDB system because the countries would be difficult to be out of a vicious cycle of low-growth and high-debt without supports. MDBs still need to engage in upper middle-income countries given the different stages of policy, institutional and financial constraints facing different sectors within a given country. This is particularly relevant to the sustainable infrastructure agenda since the vast proportion of infrastructure financing requirements are in middle-income countries.

Enhancing the role of MDBs will require improved shareholder alignment. Shareholders need to set expectations for the contributions of the MDB system on the new global agenda. They need to start discussing scaling the system to deliver trillions in project and program

¹³⁹ Global Infrastructure Hub. (2016). “Report to G20 Deputy Finance Ministers and Deputy Central Bank Governors on MDB Internal Incentives for Crowding-in Private Investment in Infrastructure.”

¹⁴⁰ Bhattacharya, A., Kharas, H., Plant, M. & Prizzon, A. (2018). “The New Global Agenda and the Future of the Multilateral Development Bank System.” February 2018.

finance over the next decade or so. The effectiveness of the MDB system requires a shared vision across stakeholders. A governance framework that periodically takes stock of system-wide results would enable follow-up and course corrections in individual MDB. Strategy setting for the long-term for the MDB system as a whole has started in MDBs with the Joint Statement of Ambitions for Crowding in Private Finance, but this is required to be strengthened.

The other pillar for strengthening international public finance is optimizing the use of concessional capital. Since public finance is not sufficient to fund sustainable infrastructure needs, catalyzing private finance is key to fill the investment gap. The private sector has sufficient available capital, but the challenge is to channel private finance into financing sustainable infrastructure. The risks of investing in infrastructure lead private investors to seek high returns, and this increase the cost of capital for the investments in sustainable infrastructure. This emphasizes the key role of international public finance in catalyzing private finance.

MDBs have increased their investments, but they are limited in terms of the amount of funding and including high-risk projects. To complement the MDBs' work on climate financing, multilateral climate funds—Climate Investment Funds, the Global Environment Facility, and the Green Climate Fund—have introduced. These funds provide small amounts of high concessional finance supporting transformative projects. Since the amount of the funds is limited, blending funding is required. Meltzer suggested the following framework for blending finance in his recent work¹⁴¹:

- Private finance should be used for low-carbon, climate-resilient (LCR) infrastructure with attractive risk/return profiles
- MDB finance should be used where LCR projects risks create barrier to private sector finance
- Multilateral climate finance should be used for high risk projects that would not progress even with MDB support

The climate funds have already blended their resources with MDB and private finance. They deployed financial instruments such as hard and soft loans, grants and equity. For instance, the Clean Technology Fund (CTF) mobilized US\$ 5.8 of other public finance, and US\$ 2.8 of private sector finance by using US\$ 1 of CTF finance.¹⁴² As well as the CTF has directly financed LCR infrastructure projects, it has indirectly financed through investments in developing capacity of domestic financial institutions.

¹⁴¹ Meltzer, J. (2018). "Blending Climate Funds to Finance Low-carbon, Climate-resilient Infrastructure." June 2018. Brookings Institution.

¹⁴² Meltzer, J. (2018). "Blending Climate Funds to Finance Low-carbon, Climate-resilient Infrastructure." June 2018. Brookings Institution.

Given that poor policy and institutional environment has been a barrier for sustainable infrastructure investments, programmatic investments can work to tackle the barrier. A programmatic approach can include institutional building and policy reforms such as fossil fuel subsidies, pricing carbon, and greening financial systems. This is expected to encourage the private sector to invest in sustainable infrastructure by providing better policy and institutional foundations.

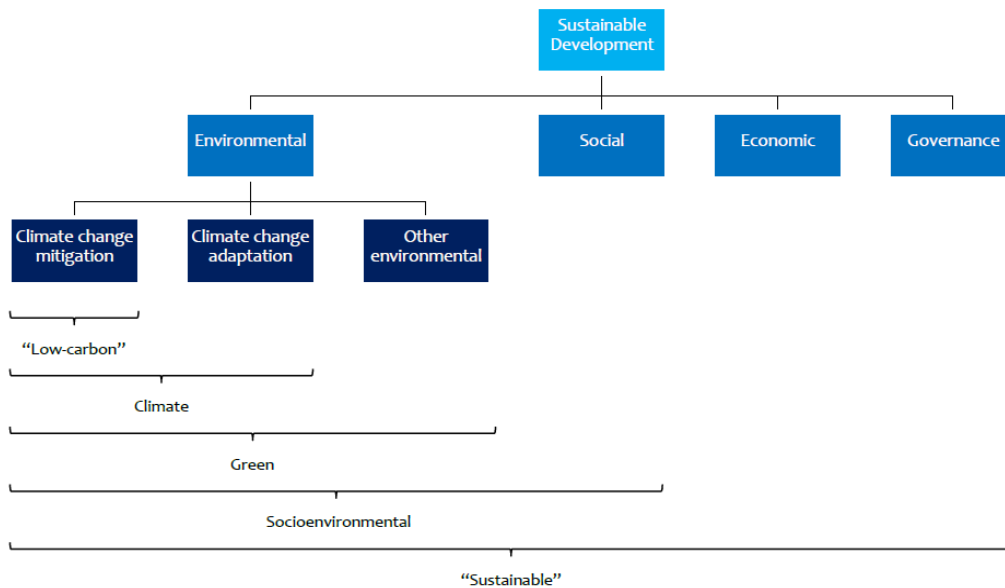
6.4. Aligning finance with sustainability principles

Reflecting sustainability into infrastructure investments is another challenge of sustainable infrastructure investment. To incorporate sustainability into the financial system, what sustainability means to finance needs to be understood. The UNEP Inquiry and EU High-Level Expert Group on Sustainable Finance contributed to a better understanding of sustainable finance. Information and knowledge gaps have been a key barrier to reflect sustainability into financial systems. The Task Force on Climate-related Financial Disclosures and the G20 Sustainable Finance Study Group has worked to fill these gaps. To build a better integrated and systematic approach for sustainable finance, the UN Environment and the World Bank have worked on the roadmap for a sustainable financial system encompassing market-based initiatives, national initiatives, and international initiatives.

Sustainable finance is a broad and flexible term. Compared to climate finance or green finance, sustainable finance is the broadest and most comprehensive approach, which covers social, economic, and governance dimensions as well as environmental dimension (Figure 24). It has different levels of definitions according to how integrate economic, environmental, and governance factors. According to the EU High-Level Expert Group on Sustainable Finance, initially, a financial system should integrate environmental, social, and governance factors into decision-making processes.¹⁴³ More broadly, the financial system can contribute to foster sustainable development. In the broadest perspective, the financial system contributes to tackle long-term economic, social, and environmental issues such as sustainable employment, retirement financing, technological innovation, infrastructure building, and climate change mitigation (Figure 25).

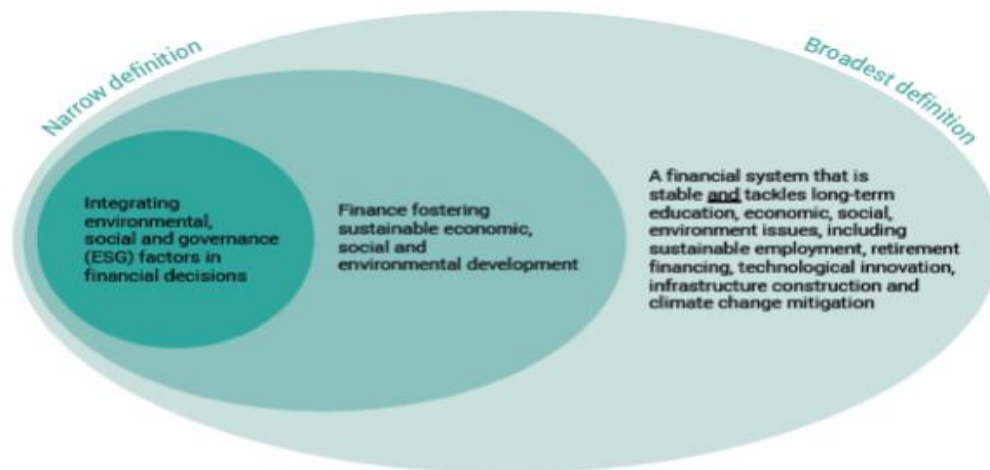
¹⁴³ EU High-Level Expert Group on Sustainable Finance. (2017). "Financing a Sustainable European Economy." Interim Report. July 2017.

Figure 24. Low-carbon, Climate, Green, and Sustainable Finance.



Source: UNEP Inquiry (2016)

Figure 25. Three Definitions of Sustainable Finance

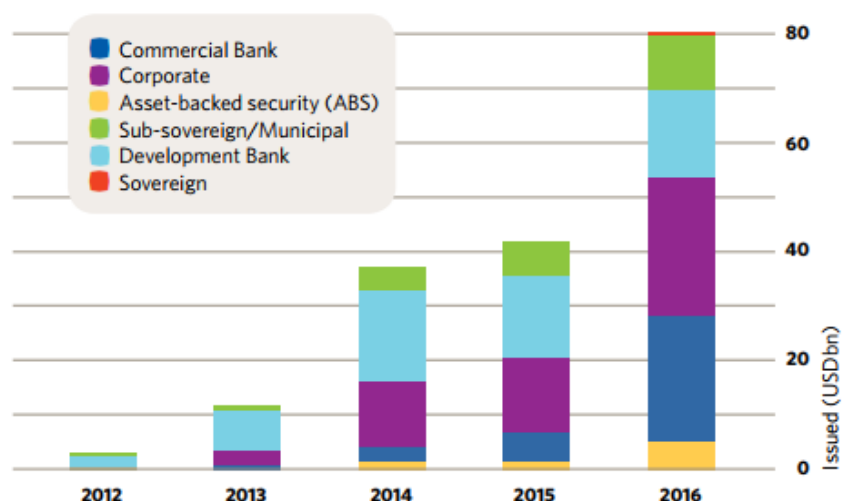


Source: EU High-Level Expert Group on Sustainable Finance. (2017).

New and innovative financial instruments can increase the flow of private capital into infrastructure investments. One of the successful financial instruments is green bonds. Green bonds have shown a dramatic growth in recent years. In 2016, the market has almost doubled

compared to the previous year (Figure 26). Especially, the participation of commercial banks have rapidly increased. In the same year, a number of innovations in the types of bonds were observed including green covered bonds, and the first green residential mortgage-backed security.¹⁴⁴

Figure 26. Green Bonds Market, 2012-2016



Source: Climate Bonds Initiative. (2017)

More specifically, the EU High-Level Expert Group of Sustainable Finance recommends organizing the definitions of a shared EU classification of sustainable assets, which are applicable for all sustainable finance products. This would help identify projects contributing to environmental policy goals. A standard and label for green bonds and other sustainable assets are also suggested to spur the growth of market. To boost the EU green bond market and to serve as a basis for other sustainable assets, the Group recommended setting official European green bonds standards.

Information and knowledge gaps have been pointed out as one of the key barrier to reflect sustainability into the financial system. Information is crucial to ensure effective risk management, alignment of incentives, result measurement proper valuation of assets, but current efforts for disclosure paradigm are uneven across asset classes and jurisdictions.¹⁴⁵ With the lack of sufficient information, the weak capacity of financial sector stakeholders to use

¹⁴⁴ Climate Bonds Initiative, "Green Bonds Highlights 2016."

<https://www.climatebonds.net/files/files/2016%20GB%20Market%20Roundup.pdf>

¹⁴⁵ UN Environment and World Bank. (2017). "Roadmap for a Sustainable Financial System." November 2017.

sustainability information is another challenge. Differences of understanding of practitioners for sustainability factors affect the capacity of organizations to act on risks and opportunities from sustainability factors.

One of the initiative to address the information gap on sustainability is the Task Force on Climate-related Financial Disclosures. To develop consistent climate-related financial risk disclosures for companies in providing information to investors, the Financial Stability Board established an industry-led taskforce: The Task Force on Climate-related Financial Disclosures (TCFD). The Task Force released its final recommendations around four thematic areas—governance, strategy, risk management, and metrics and targets—in June, 2017. Under these four overarching recommendations, there are more specific recommended disclosures that organizations should include in their financial filings. For instance, two recommended disclosures exist under the area of governance, which are board’s oversight of climate-related risks and opportunities, and management’s role in assessing and managing climate-related risks and opportunities.¹⁴⁶ The report also provides the guidance regarding context and suggestions for implementing the recommended disclosures for all organizations, and the guidance for the organizations in certain sectors including non financial sectors such as energy, transportation, materials and buildings and agriculture, food, and forest products.

Countries should now implement the TCFD’s requirements and define a pathway to move to appropriate mandatory disclosure. France has already required institutional investors and asset managers to disclose how their business strategies incorporate climate change consideration through its law on energy transition for green growth. Many other countries, however, do not have explicit requirements of climate-related disclosures. The study of Baker McKenzie and the Principles for Responsible Investment (PRI) found that the TCFD recommendations can assist companies to move towards best practice risk disclosures as well as assist investors to assess portfolio risk assessment through improving the consistency of corporate climate-related risk disclosure in six selected countries: Brazil, Canada, the EU, Japan, the U.S., and the UK.¹⁴⁷ None of these countries has explicit requirements of climate-related disclosures, but the TCFD recommendations are compatible with existing regulations.

Further urgent work includes requiring institutional investors and asset managers to integrate sustainability considerations in the investment decision-making process and integrating sustainability into national financial supervisory body mandates. Central banks and prudential regulators should use their newly-established Network for Greening the Financial System to develop and deploy clear methodologies to assess climate risks on their balance sheets and to govern the collateral they accept. They should also examine building a new risk

¹⁴⁶ Task Force on Climate-related Financial Disclosures. (2017). “Recommendations of the Task Force on Climate Related Financial Disclosures.” June 2017.

¹⁴⁷ Wilder AM, M. Kirkwood, L., Chatterjee, S., (2017). “Climate Disclosure Country Reviews.” Baker McKenzie and the Principles for Responsible Investment.

weighting for climate risks, a so-called “brown penalizing factor”, into banks’ capital requirements.

The G20 Sustainable Finance Study Group has also worked to fill information and knowledge gaps. Recently, the Group found a number of challenges of environmental risk analysis (ERA) in the financial industry including a lack of clear and consistent policy signals, limited methodologies and data, capacity limitations.¹⁴⁸ Based on them, the Group suggested the options to encourage the adoption of ERA. First, G20 countries can improve transparency on policy measures to align the financial system with environmental sustainability. Second, the countries can raise awareness of the importance of ERA by sending signals. Third, they can consider enhancing the quality and availability of environmental data. Fourth, the countries can consider encourage public institutions to assess environmental risks and their implications for the financial sector. Fifth, they can consider reviewing experiences and best practices related to ERA. Finally, the countries could encourage initiatives focusing on knowledge sharing for the development of tools and methodologies for ERA. The Group also suggested how to encourage the use of publicly available environmental data for ERA.

Enhancing sustainability in the financial system requires a more integrated approach including national and international initiatives. UN Environment and the World Bank proposed the roadmap for a sustainable financial system, which integrates three initiatives: market-based initiatives, national initiatives, and international initiatives.¹⁴⁹ Due to the multiplicity of market failures that build barriers to sustainable finance, governments have supported the development of sustainable finance through the use of public finance and through policies and regulations. Recently, some countries have launched national sustainable finance roadmaps, including Brazil, China, and India. The case study of the UN Environment and the World Bank found that the national initiatives lack a systematic approach to identify market failures and design viable policy interventions for the development of sustainable finance market.¹⁵⁰ To fill this gap, they suggested initiatives to incorporate sustainability considerations into national fiscal framework, including a review of policy interventions supporting green activities and expenditures in unsustainable activities.

Regulations on the sustainability of financial sector can also be impactful to reflect sustainability into finance. Weber and Oni found that sustainability reporting and sustainability performance of banks have increased in three countries that introduced financial sector sustainability regulations—China, Nigeria, and Bangladesh.¹⁵¹ China’s green credit policy requires banks to restrict loans to polluting industries and to adjust interest rates according to the environmental performance of the borrower’s sectors. Although the result of this policy is

¹⁴⁸ G20 Green Finance Study Group. (2017). “G20 Green Finance Synthesis Report.” July 2017.

¹⁴⁹ UN Environment and World Bank. (2017). “Roadmap for a Sustainable Financial System.” November 2017.

¹⁵⁰ UN Environment and World Bank. (2017). “Roadmap for a Sustainable Financial System.” November 2017.

¹⁵¹ Weber, O. & Oni, O. (2015). “The Impact of Financial Sector Sustainability Regulations on Banks.” CIGI Papers. No. 77, October 2015. Ontario: Center for International Governance Innovation.

controversial, the analysis of Weber and Oni suggests progress in the sustainability policies and practices of Chinese banks in recent years since the implementation of the green credit policy. The analysis showed significant progress of sustainability in financing in Nigeria and Bangladesh as well.

Global action is also required to guide a concerted progress toward a sustainable financial system. BSDC pointed out the importance of international efforts to incorporate SDGs into finance. It suggests that all international financial institutions and regulatory bodies should be required to incorporate SDG analysis into the rules-setting processes.¹⁵² Although the transition to sustainable financial system is driven by country-level initiatives, global guiding principles can contribute maintaining the momentum of the transformation of financial system. The principles can guide national roadmaps to sustainable finance. They are also able to facilitate coordination and integration of sustainable finance considerations into existing frameworks. In this sense, UN environment and the World Bank suggests launching a consultation process to converge a set of global principles for sustainable finance. In the medium-term, the inclusion of sustainability considerations into global financial sector and cooperation framework is needed.

¹⁵² BSDC. (2017). "Business Commission on Sustainable Development: Ideas for Action for a Long-term and Sustainable Financial System." Business and Sustainable Development Commission. January 2017.

7. Conclusion

There has been an enhanced focus on sustainable infrastructure since the milestone agreements of 2015 and 2016. As a result there is now a broad based recognition of the central role that sustainable infrastructure plays in achieving the goals of the new global agenda—through fostering sustainable growth, as a foundation for the achievement of the SDGs and as a critical element of the pathway to achieve the goals of the Paris climate agreement. Momentum has been building at both the country and global levels to unlock investments, enhance sustainability and mobilize and steer financing at the scale required.

As this report documents, a wide range of initiatives are underway to help tackle this complex agenda. The international community with broad based involvement of international organizations, the G7 and the G20, bilateral agencies, the private sector, high profile commissions, civil society and policy researchers have stepped up efforts to assess needs and develop better tools and approaches to tackle impediments and develop the necessary foundations to deliver sustainable infrastructure at the scale and the quality that is needed. It is clear that this is a challenging task everywhere but especially in emerging markets and developing countries because of the demanding policy and institutional frameworks, and the greater challenges in mobilizing finance.

The enhanced efforts and initiatives have improved our understanding of the necessary foundations to deliver on sustainable infrastructure and of the rapidly evolving practices spanning the full chain of the project cycle from planning to financing. This has highlighted the great scope for learning and accelerating change. It is also clear that sustainability needs to be hard-wired into the decision making process starting with growth and development strategies at the national level, to robust planning and project prioritization, to procurement and PPP frameworks, to the design and implementation of projects, to the provision of finance. This is still work in progress. One of the difficulties in taking an integrated approach is that the policy communities are fragmented at the national and global levels. Typically finance ministers are more focused the growth agenda and on finance, development ministers on the SDGs and environment ministers on the climate agenda.

Going forward concerted and more coordinated efforts are called for to develop more effective platforms at the national and global levels to scale up and enhance the quality of sustainable infrastructure. This enhanced partnership and collaboration needs to be focused on some key elements. First it is important to have a shared understanding of sustainable infrastructure that can foster strong and integrated actions rather than the fragmentary approach of the past. The collaborative work between Brookings, Harvard and the Inter-American Development Bank including through this report provides the basis for further discussions and a broader consensus.

Second, as the work of this report shows, the policy and institutional setting underpinning the sound selection of projects is complex requiring a favorable business environment to attract the private sector and robust institutional structures for decision making from upstream planning to procurement and implementation, which in turn calls for better governance and institutional capacity including to set and implement the necessary regulations and legislation. The capacity of the private sector including strong and contestable project development capacity is critical for cost effective development, implementation and operation of projects. A business case approach as has been proposed by the UK offers a promising approach to the right selection of projects. In addition, there is a need for a more explicit focus on sustainability through the whole project cycle. While there are relatively well-developed project level standards, there is as yet no detailed guidance on how to incorporate sustainability through the project cycle. Incorporating sustainability at the planning stage will be inherently more high level and systemic including examining overall sector or system strategies including for the key systems of energy, cities, transport and water. For instance, development must be anchored in sound land use planning and preservation of natural capital. Existing tools for project prioritization such as the IMF's PIMA framework and the OECD and World Bank tools give little emphasis to sustainability. At the other end much more detailed guidance is called for at the procurement stage. While some initial work has been launched including on sustainable procurement, further work is needed on how to best incorporate sustainability in the tools that have been developed to guide development strategies and the right selection of projects. An important lesson that emerges from the literature and experience is that the earlier the focus on sustainability, the more effective and less costly it will be (IDB 2018).

Third, there is scope for building on the recent initiatives on project level standards. The detailed assessment carried out by Bhattacharya, Contreras and Jeong (2018) highlight the tremendous amount work undertaken recently on the development of project level standards. All of the main standards provide detailed guidance on how to ensure overall sustainability and cover the four key dimensions—economic and financial, social, environmental and climate resilience, and institutional. Bhattacharya and colleagues show that there are both commonalities and differences amongst these standards. Discussions are underway on how to distill core principles from these standards. These efforts need to be coordinated with the work on the attributes of sustainable infrastructure mentioned earlier. These core principles and elements can help ensure a commonality of approach regardless of the standard used. A set of core principles and attributes in turn can help inform the templates of SOURCE which has the potential for becoming a global platform for project preparation. In addition, these core elements can be used by project preparation facilities and other financiers to ensure adherence to high quality standards. Work is also underway across the initiatives on how the standards can be extended to both the upstream phase and to the financing of projects. For example,

SURE Basel has developed specific modules to guide financing and financial instruments for sustainable infrastructure.

Fourth, concerted efforts are needed to develop the institutional architecture to mobilize finance at scale and align it strongly with sustainability. Robust multi-level public finance foundations are critical for infrastructure development especially as more investments are decentralized. This calls for strengthening capacity for revenue mobilization and more effective spending. New tools and approaches that take advantage of advances in technology and best practices can help accelerate reforms and institutional capacity. The biggest opportunity and challenge is to mobilize the large pools of private capital especially those held by institutional investors. This requires both better mechanisms to tackle early stage risks and crowd in long-term finance once revenue streams and underlying cost structures are clearer. The work now underway in the G20 to develop infrastructure as an asset class can give an important impetus to this agenda. More emphasis is needed though on ensuring that financing is aligned with sustainability. The G20 is focusing on the quality of infrastructure in line with the G7 Ise-Shima principles. While there is no inherent contradiction between the G7 principles and the key attributes of sustainable infrastructure these two strands need to be brought together to ensure coherence and commonality of approach. Beyond this, the work on sustainable finance needs continued development and support. The rapid growth of green finance shows the scope for extending its reach, for example to other forms of finance such as private equity, and expanding coverage to sustainability more broadly. The launch of SDG bonds and the initiative by the European Investment Bank to launch a new sustainability awareness bond offers promise. Concerted efforts are now needed to accelerate the implementation of climate-related financial disclosure to curb bad investments and promote greater awareness of sustainability and climate resilience. A greater push for transparency supported by regulatory and supervisory measures is called for in all jurisdictions including emerging markets. Finally, there is a need to build on the work of the UNEP Financial Inquiry and the EU High-Level Expert Group to develop more sustainable financial systems in all jurisdictions.

Fifth, the ambitions on scaling up and enhancing the quality of sustainable infrastructure is unlikely to be met without a commensurate scaling up and enhancement in the effectiveness of the MDB system working in concert with other IFIs, bilateral agencies and local institutions. MDBs have the capacity to support an acceleration of reforms, scale up project preparation, crowd in both public and private finance, and make a strong push for sustainability and climate resilience. The MDBs as noted have greatly stepped up their efforts on these fronts but there is scope to enhance the overall scale and effectiveness of the MDB system. This is the focus of the G20 Eminent Persons Group that will be reporting on their findings in October 2018. A well-articulated process will need to be put in place to take forward their recommendations.

While these actions to strengthen the global architecture can give impetus to the sustainable infrastructure agenda, they will only succeed with strong actions at the country and local levels and with strong involvement of the private sector. Several countries are now in the process of revamping their growth and development strategies with a sharper focus on sustainable infrastructure including China, India, Indonesia, Philippines, Argentina, Brazil, Colombia, Mexico, Ethiopia and Uganda. Platforms that can scale up and enhance quality of investments through engagement of key domestic and external stakeholders and by taking a programmatic rather than project-by-by-project approach offers great promise. There is great scope to accelerate learning from the experimentation that is underway. Concerted efforts are also needed to engage more systematically with the private sector both at the national and international levels. Consequently, the top down approaches described above need to be combined with bottom up approaches at the country level.

Finally, there is a need for more systematic focus on cross-border and regional connectivity infrastructure to generate sustainable growth and employment, create common markets and new value chains and to address spatial inequalities. However, without a strong focus on sustainability the advantages may not be realized. This is seen with the EC structural funds in Europe (see Ahmad, Bordignon and Brosio 2016)¹⁵³, and more recently with the BRI (Ahmad, Neuweg and Stern 2018)¹⁵⁴. Critical issues relate to the overall design of connectivity and spillovers, the development of individual corridors and the screening of individual projects such as several coal-fired power projects associated with BRI investments. A robust institutional architecture can help realize the tremendous potential of an initiative such as the BRI while avoiding costly lock-in of unsustainable investments.

¹⁵³ Ahmad, E., M. Bordignon and G. Brosio, 2016, *The Eurocrisis and Multilevel Finance*, Elgar.

¹⁵⁴ Ahmad, E., I. Neuweg and N. Stern, 2018, "China, the World and the Next Decade: Better Growth, Better Climate," *China Development Forum*.

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Appendix. Institutions and tasks on sustainable development/ sustainable infrastructure

| Institutions | | Tasks/outputs | Summary description |
|--------------|-----|--|--|
| UN | | Inter-agency Task Force on Financing for Development | <ul style="list-style-type: none"> • Convened to follow up on the Addis Ababa Action Agenda • Comprises of over 50 UN agencies, programmes and offices, regional economic commissions and other international institutional including the World Bank, IMF, and WTO • 2018 report will focus on financing for water, energy, and ecosystems |
| G20 | G20 | 2017 Summit Declaration | <ul style="list-style-type: none"> • Emphasized G20's supports for UN high-level political forum on sustainable development and other UN processes for sustainable development, building on the Action Plan on the 2030 Agenda. • Affirmed their strong commitment to the Paris Climate Agreement |
| | | Hamburg Climate and Energy Action Plan for Growth | <ul style="list-style-type: none"> • Declared measures to implement the Paris Agreement and to implement global energy transition in line with the goals of the 2030 Agenda for Sustainable Development |
| | | G20 Green Finance Study Group | <ul style="list-style-type: none"> • Launched under China's presidency to Supports G20's strategic goal of strong, sustainable, and balanced growth • 2016 report suggests a number of options for countries to enhance financial system to mobilize private capital for green investment • 2017 report focuses on environmental risk analysis in the financial industry and the use of publicly available environmental data |

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|--|---|---|---|
| | | Principles of MDBs' strategy for crowding-in Private Sector Finance for growth and sustainable development | <ul style="list-style-type: none"> • Reaffirmed the commitment of G20 member countries and the MDBs to foster effective approaches to maximize the mobilization and catalyzation of private sector resources to support the 2030 Agenda with announcing six principles |
| | | Infrastructure Working Group | <ul style="list-style-type: none"> • Will be established under Argentinian G20 presidency to facilitate investments in infrastructure • The work streams will include reduced impediments and transaction costs to financing infrastructure, better project preparation capabilities and facilities, improved data to address data gaps, and the promotion of quality infrastructure investment |
| | | G20/GI Hub Knowledge Sharing Report | <ul style="list-style-type: none"> • G20 Leaders asked the GI Hub to present its report on knowledge sharing to G20 Finance Ministers and Central Bank Governor in 2016 • The reports includes GI Hub's progress in knowledge delivering function |
| | T20-Climate Policy and Finance Task Force | Co-Chair Brief: Towards a comprehensive approach to climate policy, sustainable infrastructure, and finance | <ul style="list-style-type: none"> • Proposed a policy package of low-carbon growth stimulation through a steep increase in sustainable infrastructure, mobilizing sustainable finance, and adoption of carbon pricing to achieve the objectives of the Paris Agreement and the Sustainable Development Goals. |
| | | Climate Policy and Finance Task Force: Fostering sustainable global growth through green finance – what role for the G20? | <ul style="list-style-type: none"> • Proposed the roles of G20 to green finance: 1) promote the standardization of green finance practices, 2) enhance the transparency of information by promoting disclosure standards for carbon and environmental risks; 3) support market development for green investments at a global level; and 4) support developing countries in developing and implementing national sustainable finance roadmaps |

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| | B20 | Energy, Climate and Resource Efficiency Task Force | <ul style="list-style-type: none"> Recommended policy actions including carbon pricing, fostering global energy transition, and advancing resource and energy efficiency |
| | | Financing Growth & Infrastructure Task Force | <ul style="list-style-type: none"> Recommended policy actions including boosting infrastructure finance, designing growth-enhancing financial regulation, and establishing a stable and investment Friendly Environment |
| | | Responsible Business Conduct & Anti-Corruption Cross-thematic Group | <ul style="list-style-type: none"> Recommended policy actions including implementing beneficial ownership transparency, providing companies positive recognition of effective anti-corruption and compliance systems, and enhancing responsible business conduct in infrastructure projects |
| | Eminent Persons Group | | <ul style="list-style-type: none"> Established by G20 Finance Ministers and Central Bank Governors in April 2017 Work to be focused on current and future challenges facing the international financial and monetary system; the role of the international financial institutions; and reforms to improve functioning of the system; role and leadership of the G20 |
| IMF | World Economic Outlook October 2017 | | <ul style="list-style-type: none"> Included the chapter on the effects of climate change on economic activity |
| | Fiscal policies to mitigate climate change | | <ul style="list-style-type: none"> The Managing Director's Statement on the Role of the Fund in Addressing Climate Change (2015) Fiscal Policy to Mitigate Climate Change: A Guide for Policymakers Implementing a US Carbon Tax: Challenges and Debates (2012) Recommended carbon and coal taxes for China and India Evaluating emissions prices that countries might need to implement the mitigation pledges made in Paris |

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| | Climate adaptation | <ul style="list-style-type: none"> • Help small states and other countries enhance their macroeconomic disaster risk management frameworks • Climate Change Policy Assessment' pilot with the World Bank |
| | Climate finance | <ul style="list-style-type: none"> • Work on the crucial role of carbon pricing in effectively mobilizing private and public sources of finance • Provided input for the G20 Green Finance Study Group |
| | Energy tax system | <ul style="list-style-type: none"> • Core principles of green tax design (2012) • Work on fossil fuel subsidies, guidance for energy price reform, and regulatory policies |
| OECD | Investing in Climate, investing in Growth | <ul style="list-style-type: none"> • Suggested governments can generate growth that will reduce the risks of climate change and will provide near-term economic and health benefits, with the right policies and incentives. |
| | Aligning Policies for a Low-carbon Economy | <ul style="list-style-type: none"> • Provided a broad diagnosis of misalignments with climate goals in areas essential to the transition to a low-carbon economy |
| | Mapping of instruments and incentives for infrastructure financing: OECD report to G20 finance ministers and central bank governors | <ul style="list-style-type: none"> • Suggested that infrastructure can be financed using different capital channels and involve different financial structures and instruments including stocks and bonds |
| | G20/OECD Taskforce on Institutional Investors and Long Term Investment Financing | <ul style="list-style-type: none"> • Aims to facilitate long-term investment by institutional investors • Current and expected work areas include Diversifying finance for sustainable infrastructure, mobilizing institutional investors, the information gap and infrastructure as an asset class, financing connectivity infrastructure, low carbon infrastructure and clean tech innovation, and global dialogue |

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| | Data Initiative on Infrastructure Finance | <ul style="list-style-type: none"> • Aims to improve the efficiency of the use of resources and partner with the private sector to meet infrastructure investment needs • Current and expected work areas include mapping the financing of infrastructure, investment characteristics of infrastructure as an asset class and role of institutional investors, mobilizing private sector financing |
| BIS/FSB | Taskforce on Climate related financial disclosure | <ul style="list-style-type: none"> • Aims to develop voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders • Released final recommendations in June, 2017 |
| MDBs | MDB Statement of Ambitions for Crowding in Private Finance | <ul style="list-style-type: none"> • Builds on the approved Principles for MDBs' Strategy Crowding in Private Sector Finance for Growth and Sustainable Development, and the 2016 Joint Declaration of Aspirations on Actions to Support Infrastructure Investment • Announced the actions for the operationalization of the Principle |
| | MDB Response to the G20 MDB Balance Sheet Optimization Action Plan | <ul style="list-style-type: none"> • Responded to G20 Action Plan MDB for MDBs Balance Sheet Optimisation that MDBs are already highly engaged around all five of the Action Plan recommendations • Suggested the areas that G20 could assist to continue MDBs' efforts |
| | Global Infrastructure Forum | <ul style="list-style-type: none"> • Aims to enhance coordination among MDBs and their development partners to better develop sustainable, accessible, resilient, and quality infrastructure for developing countries, and focuses on how governments and their working partners can attract more resources for infrastructure |

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| | Joint Action Plan on Climate and on Infrastructure | <ul style="list-style-type: none"> • MDBs will collectively finance US\$40-45 billion of climate investments by 2020 • Supporting for NDC Implementation, energy transition, greening of financial system, collaboration on investments in cities |
| | IADB NDC Invest Initiative | <ul style="list-style-type: none"> • IDB created NDC Invest, a platform to help countries access resources needed to translate national climate commitments into investment plans and bankable projects in 2016 • NDC Invest is comprised of four elements: NDC Programmer, NDC Pipeline Accelerator, NDC Market Booster and NDC Finance Mobilizer |
| | AIIB and New Development Bank Strategies based on sustainable infrastructure | <ul style="list-style-type: none"> • AIIB aims to work with public and private sector partners to channel its own resources into sustainable infrastructure investment • Sustainable infrastructure development is at the core of NDB's operational strategy in 2017-2021, and the Bank will dedicate about two-thirds of financing commitments in its first five years to this area. |
| | Global Infrastructure Facility | <ul style="list-style-type: none"> • A partnership among governments, MDBs, private sector investors, and financiers to provide a way to collaborate on preparing, structuring, and implementing complex projects that no single institution could handle on its own |
| | World Bank Invest4Climate Platform | <ul style="list-style-type: none"> • A platform providing an opportunity to mobilize, coordinate and deliver the finance needed to help countries make the transition to a low-carbon resilient future • Brings together development and climate finance institutions and other actors in the development and climate finance space |

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| | IADB-Mercer Initiative on Convening the Conveners | <ul style="list-style-type: none"> • Calls for the actions in coordination and collaboration among the global initiatives to address the funding gap for sustainable infrastructure |
| World Economic Forum | Sustainable Development Investment Partnership | <ul style="list-style-type: none"> • A collaborative initiative with support from the OECD, comprised of public, private and philanthropic institutions • The members are committed to mobilizing blended finance for \$100 billion of projects supporting sustainable and climate-resilient infrastructure |
| New Climate Economy | Coalition for Urban Transition | <ul style="list-style-type: none"> • Supports national decision-makers in rapidly urbanizing countries to enhance the development and implementation of national urban policies and infrastructure investment strategies |
| | Food and Land Use Initiative | <ul style="list-style-type: none"> • Aims to achieve sustainable land use and feed the world with healthy and nutritious diets, in a way that supports net zero greenhouse gas emissions through halting deforestation by 2030 and massively increasing forest restoration |
| | Country Program Initiative | <ul style="list-style-type: none"> • Catalyzes and accelerates action in specific countries, by translating the growth, development, and climate agenda into practical implementation. |
| | Finance Initiative | <ul style="list-style-type: none"> • Aims to give impetus to the pace, scale and urgency of action on the sustainable infrastructure financing agenda focusing on strengthening implementation of the global agenda, co-working with Blended Finance Breakthrough Taskforce, and catalyzing transformative change in key countries |

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| Energy Transition Commission | <ul style="list-style-type: none"> • Aims to accelerate change towards low-carbon energy systems • Commissioners include incumbent energy companies, industry disruptors, investors, equipment suppliers, non-profit organizations, advisors, and academics |
| Blended Finance Taskforce | <ul style="list-style-type: none"> • Organized by the Business & Sustainable Development Commission to unlock the challenges of blended finance from private sector perspective |
| NDC Partnership | <ul style="list-style-type: none"> • A coalition of countries and institutions to mobilize support and to achieve ambitious climate goals while enhancing sustainable development, launched at COP22. • Partners as of October 2017 include 62 countries and eleven international institutions, including UNDP and a number of MDBs |
| Carbon Pricing Leadership Coalition | <ul style="list-style-type: none"> • Brings together leaders from across government, private sector, academia, and civil society to expand the use of carbon pricing policies • Organized High-Level Commission on Carbon Prices to identify indicative corridors of carbon prices that can be used to guide the design of relevant policies |