

Infrastructure Investment and Financing

T20 Recommendations Report

Work in Progress¹

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About this Report

This Recommendations Report contains Policy Briefs addressing the policy priorities of the G20. These policy priorities were reflected in the research agenda of the T20, the official think tank network advising the G20, which has produced research-based Policy Briefs containing recommendations for decision-makers.

This report provides a repository and categorization of the T20 Policy Briefs and additional relevant literature. It also provides information about the relevant G20 commitments. The report can be used by future T20 Task Forces to set up a research agenda, which builds upon the past efforts of the T20 network.

Clicking on the paper titles will open the paper.

¹ This is a living document. Comments, suggestions and additions are very welcome. Please send them to juliane.stein-zalai@ifw-kiel.de

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1. Introduction

work in progress

Infrastructure is important for economic growth and social prosperity and must, hence, be considered a priority for international economic fora such as the G20, so that they can create an effective institutional framework. Infrastructure projects have large environmental, social, and economic impacts, which give rise to complicated conflicts of interest that need to be resolved. Moreover, mobilizing infrastructure financing is a difficult matter as infrastructure investments are long-term, risky and complex as usually many parties with diverse interests are involved.

In order to overcome these difficulties and promote sustainable infrastructure development on a global scale, the G20 plays a crucial role. Large infrastructure projects around the world largely depend on the G20 countries to make the necessary investments as well as to make inclusive and environmental sustainable infrastructure investments financially attractive. While there are many valuable G20 initiatives on infrastructure, they remain disconnected from each other. It is thus time for a “one G20 approach on infrastructures” aligning all existing initiatives.

As research and policy advice network, the T20 is well-positioned to provide the G20 with scientifically sound and solution-oriented recommendations on quality infrastructure development. This T20 Recommendations Report displays the recent work of the T20 on infrastructure and outlines the G20’s commitments and activities in the field of infrastructure..

The Report is composed of three principal parts. In the first part, the policy recommendations on infrastructure development that have been put forward by the T20 since 2017 as well as further relevant literature can be found. This report categorizes the Policy Briefs in three sub-themes: A. Promoting Sound Frameworks for Quality Infrastructure Development, B. Towards An Ecologically and Socially Sustainable Infrastructure, and C. Financing Quality Infrastructure. Part 2 collects and links a) the commitments the G20 have made regarding infrastructure in the latest Leaders’ Communiqués, b) other references as well as c) relevant G20 initiatives. Finally, the third part lists the T20 task forces that have addressed various issues of infrastructure in recent years.

2. Suggested Issues for Research

The following topics have been suggested by members of the [Council for Global Problem-Solving \(CGP\)](#):

Elcano Royale Institute

- Guarantees of transparency
- Financial transparency

G20 Research Group

- How can infrastructure be dedicated to climate mitigation, adaptation and resilience, especially for the countries and cities most vulnerable to seas level rise and extreme weather events?

Economic Policy Research Foundation of Turkey (TEPAV)

- High quality infrastructure – increasing the role of multilateral development banks (MDB)
- Green financing – incentives to finance socially inclusive and environmentally sustainable infrastructural investments
- Infrastructure investment and accountability – increasing transparency in investment bids

Hertie School of Governance

- the role of infrastructure agencies
- digital infrastructure
- how to future-proof current infrastructure investments?

OECD, Policy Studies Branch

- The links between infrastructure and economic performance need to be explored further. For example, does better governance of infrastructure affect productivity at the level of firms?
- How to measure value for money in infrastructure projects, including the use of Cost-Benefit Analysis of infrastructure investment projects.
- Stakeholders' consultation to inform infrastructure investment decisions.
- Using the benefits of technology for infrastructure.
- Building a better understanding of QI from the developing countries context

3. Policy Briefs

A. Promoting Sound Frameworks for Quality Infrastructure Development

“... sound upstream policy and institutional frameworks and platforms for project preparation are essential. A robust policy and institutional framework enables increased infrastructure investment as well as ensures high quality projects. Platforms for project preparation contribute to scaling up the delivery of sustainable infrastructure through providing bankable and sustainable projects. Despite this importance, they have received less attention compared to financing.”

(Source: T20 Policy Brief “Policy and Institutional Framework for Delivering on Sustainable Infrastructure” by Beatriz Nofal, Amar Bhattacharya, Minji Jeong and Linda Krueger, 2019, online available at https://www.g20-insights.org/policy_briefs/policy-and-institutional-framework-for-delivering-on-sustainable-infrastructure/)

Policy and Institutional Framework for Delivering on Sustainable Infrastructure

PB G20 Insights: G20 Japan

- Amar Bhattacharya (Brookings Institution)
- Beatriz Nofal (Eco-Axis Research)
- Linda Krueger (The Nature Conservancy)
- Minji Jeong (Brookings Institution)
- Kevin Gallagher (Global Development Policy Center, Boston University)

Abstract: We propose that G20 countries build a robust upstream policy and institutional framework for delivering on sustainable infrastructure. Specifically, such a framework should include coherent growth strategies and well-articulated investment plans, comprehensive infrastructure plans, a sound project prioritization framework, and procurement policies that integrate sustainability criteria. Additionally, G20 countries should work with Development Finance Institutions (DFIs) to build sound platforms to bring together all relevant stakeholders to help attract and evaluate investments in sustainable infrastructure.

The Infrastructure Nexus: From the Future of Infrastructures to the Infrastructures of the Future

PB G20 Insights: G20 Japan

- Nicolas J.A. BUCHOUD (The Grand Paris Alliance for Metropolitan Development)
- Ross DOUGLAS (Autonomy)
- Dr Pascal Gastineau (IFSTTAR)
- Dr Martin Koning (IFSTTAR)
- Prof. arch. David MANGIN (EAVT Paris Marne-la-Vallée)
- Dr Philippe Poinot (LVMT)
- Jean François SILVAIN (The Foundation for Biodiversity Research (FRB))
- Dr H el ene SOUBELET (The Foundation for Biodiversity Research (FRB))

Abstract: The Infrastructure Nexus policy-brief is a response to the call to re-couple economic growth and social progress, at the dawn of a global infrastructure tsunami. It highlights the lack of a definitive model of urban/metropolitan sustainability and researches on its impacts for global

infrastructure and multilevel governance needs. It emphasizes that while infrastructures are forming a growingly boundless system, piecemeal approaches to developing urban sustainable agendas and projects are still prevailing, overlooking the systemic impacts of urbanisation on biodiversity and ecosystem services, which are also boundless. The first paper of a series that is to be continued, it complements the TF4 policy brief Building Resilient Infrastructure Systems, it advocates for a new generation of science-to-society and knowledge-to-policy connectivity to reposition infrastructure investments and value chains. In an era of rising resources limitations and urban growth, the paper outlines the underestimated role of research infrastructures in infrastructure for development policies and it proposes new priorities for a more comprehensive urban agenda within the G20, including biodiversity, with a specific focus on critical regions such as the Amazon and the Arctic.

Building Resilient Infrastructure Systems

PB G20 Insights: G20 Japan

- Caroline EVANS (ARCADIS, Australia)
- Bruno GODART (IFSTTAR, France)
- Jürgen KRIEGER (BASt, Germany)
- Jean-Bernard KOVARIK (IFSTTAR, France)
- Marc MIMRAM (EAVT, France)
- Fabien PALHOL (CEREMA, France)

Abstract: The need to provide resilient transport infrastructure systems is fundamental to enhancing the economic, social and environmental viability of our cities. In addition to population growth, rapid urbanization and aging infrastructure, cities increasingly face complex challenges due to the heightened frequency and intensity of natural and man-made hazards. Addressing vulnerabilities requires that citizens, cities and regions, the business sector, and governments avoid exacerbating threats to infrastructure systems. In order to ensure availability, quality, safety, and security of transport infrastructure and networks, a long-term development strategy is needed along with the ability to build on adverse events. Transport system owners and operators are compelled to integrate growingly complex challenges within decision-making processes. This includes the impacts of climate change and extreme weather, natural and man-made disasters as well as cyber threats and the structural aging of infrastructure facilities. Highlighting the issues outlined in the TF4 policy brief Infrastructure Nexus, we recommend: a) to develop systematic resilience strategies for infrastructure and transport systems at G20 level; b) to establish policies and mechanisms for exchanging knowledge and experiences among G20 countries; c) to promote a sociopolitical-based approach to resilience in order to facilitate the acceptability of infrastructure projects at local and global scales; and d) to set up common methodology for measuring resilience success.

The economics of infrastructure in a globalized world: Issues, lessons and future challenges

In: *Journal of Infrastructure and Policy Development*, (2017) Volume 1 Issue 2, pp.254-271.

- Timo Henckel (Australian National University)
- Warwick J. McKibbin (Australian National University & The Brookings Institution)

Abstract: Although infrastructure is widely recognized as a key ingredient in a country's economic success, many issues surrounding infrastructure spending are not well understood. This paper explores six themes: the returns to infrastructure; the role of the private sector; the evaluation and delivery of infrastructure in practice; the nature of network industries, pricing and regulation;

political economy considerations of infrastructure provision; and infrastructure in developing countries. This paper aims to provide insights into many of these questions, drawing on the existing literature.

[Fostering the cross-border infrastructure for sustainable development and regional cooperation](#)

PB G20 Insights: G20 Argentina, 2018

- [Dimitris Psarrakis](#)
- [Li Xin \(Shanghai Institute for International Studies\)](#)
- [Maxim Vilisov \(DOC Research Institute\)](#)
- [Vladimir Yakunin \(DOC Research Institute\)](#)

Abstract: Development of infrastructure is an important factor that allows achieving sustainable economic growth, and giving efficient impetus to provide steady ascension of social well-being indicators in long run. Globalization processes, supported by digital transformations, provide unique opportunities for further development of high-end solutions. The countries with emerging economies are interested in sustainable infrastructure development but due to their economic backlashes, do not have the resources needed to boost and support vital infrastructure projects. In these circumstances emergence of new kind of cross-institutional and cross-border regional entities (international network) aimed at development of territorial cohesion and fostering better level of cooperation within and across borders are highly anticipated.

B. Towards An Ecologically and Socially Sustainable Infrastructure

“In addition to locking in greenhouse gas emission patterns for decades, infrastructure can degrade natural lands, drive deforestation (thus accentuating climate change), place greater demands on water resources, and contribute to the deterioration of ecosystem services. Managing these impacts while scaling up investments is the central challenge of infrastructure investments.”

(Source: T20 Policy Brief “Policy and Institutional Framework for Delivering on Sustainable Infrastructure” by Beatriz Nofal, Amar Bhattacharya, Minji Jeong and Linda Krueger, 2019, online available at https://www.g20-insights.org/policy_briefs/policy-and-institutional-framework-for-delivering-on-sustainable-infrastructure/)

“The social impacts of poorly planned infrastructure projects also threaten sustainable development. Some infrastructure projects have an adverse impact people by not providing access and benefit sharing of infrastructure projects, and can entail re-locating large populations of people from their homelands. Indirectly, losses in ecosystem services can threaten their livelihoods and trigger social conflict.”

(Source: T20 Policy Brief “Policy and Institutional Framework for Delivering on Sustainable Infrastructure” by Beatriz Nofal, Amar Bhattacharya, Minji Jeong and Linda Krueger, 2019, online available at https://www.g20-insights.org/policy_briefs/policy-and-institutional-framework-for-delivering-on-sustainable-infrastructure/)

Sustainable Infrastructure to Secure the Natural Capital of the Amazon

PB G20 Insights: G20 Japan

- [Ana Cristina Barros \(Eco-Axis Research\)](#)
- [Bruce McKenney \(The Nature Conservancy\)](#)
- [Amar Bhattacharya \(Brookings Institution\)](#)
- [Beatriz Nofal \(Eco-Axis Research\)](#)
- [Carlos Nobre \(Institute for Advanced Studies\)](#)
- [Kevin Gallagher \(Global Development Policy Center, Boston University\)](#)
- [Linda Krueger \(The Nature Conservancy\)](#)
- [Thomas Lovejoy \(UN Foundation\)](#)

Abstract: Sustainable infrastructure for the Amazon requires a recognition of the region’s vast natural capital and unique importance for the world. The Amazon stores 120 billion tons of carbon, supports rainfall systems that are critical for regional economies, and provides habitat for one-third of the world’s species. Investments to secure the Amazon’s natural capital are an essential step to supporting sustainable infrastructure. We propose that the G20, and the Development Finance Institutions, promote conditions for quality and sustainable infrastructure investment by: (1) Supporting international public and private commitments and funding mechanisms to bolster Amazon countries’ progress in conserving forests, securing natural capital, and promoting sustainable development; (2) Supporting sustainable infrastructure policies and guidelines that fully incorporate social and environmental costs for project selection and preparation; (3) Establishing lending principles that infrastructure investment must be compatible with land, water, and forest conservation and healthy ecosystems, necessary to maintain the Amazon’s natural capital; and (4)

Developing portfolios of small-scale, nature-based infrastructure projects in the Amazon that support local development, poverty reduction, and conservation.

[Growth and Jobs by Investing in Sustainable Special Economic Zones](#)

Global Solutions Journal 1(1), 2018, pp. 32-37.

Dennis Görlich

Achieving environmentally and socially sustainable economic growth is a major challenge faced by the G20 countries. One avenue to achieve growth (but potentially disregarding environmental and social sustainability) is written down in the Antalya Action Plan that was ratified by the G20 Heads of State in 2015: “Boosting quality investment, especially in infrastructure, is a top priority for the G20, in an environment of investment and infrastructure shortfalls.” The text says further that infrastructure investment should help lift medium-term growth, reduce inequalities and improve productivity. Yet, it remains open what types of infrastructure investment are meant to be done. What should be considered quality investment? How can it reduce inequalities? Can we make sure that the investments are sustainable in the sense of environmental and social sustainability? And how can environmental and social sustainability be ensured in a world where value chains are globalized?

[Towards a comprehensive approach to climate policy, sustainable infrastructure, and finance](#)

PB G20 Insights: G20 Germany, 2017

- [Céline Bak \(Centre for International Governance Innovation \(CIGI\)\)](#)
- [Amar Bhattacharya \(The Brookings Institution\)](#)
- [Ottmar Edenhofer \(Mercator Research Institute on Global Commons and Climate Change \(MCC\)\)](#)
- [Brigitte Knopf \(Mercator Research Institute on Global Commons and Climate Change \(MCC\)\)](#)

Abstract: We propose a policy package of low-carbon growth stimulation through a steep increase in sustainable infrastructure, mobilizing sustainable finance, and adoption of carbon pricing to simultaneously achieve the objectives of the Paris Agreement and the Sustainable Development Goals.

C. Financing Quality Infrastructure

“Getting infrastructure investments right is challenging because of their inherent characteristics. Infrastructure investments are long-term and 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. This makes infrastructure investments vulnerable to policy and political risks and requires appropriate regulation, since they are often natural monopolies such as in transport, water, and power distribution. Spillover effects and positive externalities and social benefits of the investment may be large but difficult to measure, and negative externalities also.”

(Source: T20 Policy Brief “Policy and Institutional Framework for Delivering on Sustainable Infrastructure” by Beatriz Nofal, Amar Bhattacharya, Minji Jeong and Linda Krueger, 2019, online available at https://www.g20-insights.org/policy_briefs/policy-and-institutional-framework-for-delivering-on-sustainable-infrastructure/)

Infrastructure Investment Needs and Sources of Financing

PB G20 Insights: G20 Japan

- Yasuyuki Sawada (Asian Development Bank)

Abstract: Developing Asia must mobilize \$1.7 trillion annually to meet its infrastructure needs. Governments can increase public investment in infrastructure by raising more revenues, reorienting spending, and borrowing prudently, as well as adopting innovative approaches such as “land value capture.” Also, expanded private financing of infrastructure investments is indispensable. Particularly, public–private partnership can help fill the financing gap by allocating risk to the party best able to manage it. The success of the approach depends on governments identifying projects suitable for it, engaging qualified private partners, and instituting the right process.

Pursuing Quality of Infrastructure for Sustainable Growth

PB G20 Insights: G20 Japan

- Daniel F. Runde (Center for Strategic and International Studies, Washington, DC)

Abstract: The developing world is facing an annual deficit of US\$ 3.7 trillion in infrastructure investments, critical for its economic growth and sustainable development. Radical changes to the global infrastructure landscape are required to overcome this gap. In the absence of enhanced infrastructure support, emerging market economies will find their ability to grow severely undermined. This brief recognizes the opportunity possessed by the G20 countries at the 2019 Osaka summit in leading the international community on this topic. Moreover, it presents for their consideration eight key policy recommendations that will help accelerate quality infrastructure development.

Quality Infrastructure Investment: Ways to Increase the Rate of Return for Infrastructure investments

PB G20 Insights: G20 Japan

- Naoyuki Yoshino (Asian Development Bank Institute)
- Nella Hendriyetty (Asian Development Bank Institute)
- Saloni Lakhia (Asian Development Bank Institute)

Abstract: Infrastructure is crucially important to foster a countries' economic development and prosperity. The demand for infrastructure development is quite high. However, the financing side still cannot fulfill this demand. To address this gap, this paper points out the importance of high-quality infrastructure investment where quality is measured by how much economic and social value can be created by infrastructure projects in a region. Simultaneously, the values created by the infrastructure could be utilized to address the financing gap of infrastructure investment. High-quality infrastructure will create high spill-over effects which will be reflected in the increase of the growth rate and tax revenue in the affected areas. Traditionally, the increase of tax revenue has been retained by governments. This study reveals that if part of the tax revenue can be directly distributed to infrastructure shareholders, including investors and landowners, the financing gap problem would diminish, and the construction time could be shortened. Building quality infrastructure does not refer to simply physical infrastructure, but also reforms, setting up the correct legal and institutional framework for infrastructure development. New models are being proposed for these reforms such as city infrastructure, hometown trust funds, and promotion of SMEs and start-up businesses, along with changing the face of educational and land trust for land acquisition.

Economic Effects of Infrastructure Investment from the Land-based Financing

PB G20 Insights: G20 Japan

- Vladimir Yakunin (DOC Research Institute)
- Daisuke Kotegawa (Canon Institute for Global Studies)
- Pablo Ava (Argentine Council for International Relations)
- Teresita Cruz-del Rosario (DOC Research Institute)
- Dimitris Psarrakis (European Parliament)
- Anna-Maria Chkoniya (Eurasian Development Bank)
- Maxim Vilisov (CENTERO)
- Li Xin (Shanghai Institute for International Studies)
- Jose Barbero (National University of San Martin)

Abstract: The challenges of the modern world, such as urbanization, the urgent need to increase access to infrastructure are forcing many countries to look for new solutions to support economic growth and a sustainable development agenda. Meanwhile, there is the problem of the infrastructure investment gap, when state development institutions are in dire need of money to implement the long-term infrastructure projects. According to The Global Infrastructure Outlook, the demand across 50 countries and seven sectors to 2040 for investment resources may reach \$97 trillion US dollars (Oxford Economics, 2017). To solve this problem, the active participation of private companies is proposed through the framework of public-private partnership. In July 2016, G20/OECD Task Force on Institutional Investors and Long-term Financing provided the supporting note to the Guidance

Note on Diversified Financial Instruments, Infrastructure to the G20 Finance Ministers and Central Banks Governors and the G20 leaders. Landbased financing was indicated among innovative financial approaches; its mechanism uses land jointly with financial/tax instruments (such as tax increment financing), so that infrastructure investment spurs growth in the economic sector as a whole. At the same time, there are a number of challenges when applying this tool that should be resolved for practical successful implementation.

[The potential macroeconomic benefits from increasing infrastructure investment](#)

Report (July 2017) from the Economic Policy Institute (EPI)

- [Josh Bivens \(Economic Policy Institute \(EPI\)\)](#)

Summary: United States economy has suffered from two glaring macroeconomic problems over the past decade. The first is a severe and chronic shortfall of spending by households, businesses, and governments relative to the economy's productive potential (or, a shortfall of aggregate demand). (...) The second problem is a rapid deceleration in the pace of productivity growth. (...) This brief assesses the effectiveness of an increase in the nation's investment effort in infrastructure as a means to close the aggregate demand shortfall as well as a means to boost productivity growth. Its key findings are:

- Infrastructure investment could be an extraordinarily useful tool for macroeconomic stabilization. (...)
- (...) Growing fears of "secular stagnation"—a chronic shortfall of aggregate demand relative to the economy's productive capacity—seem justified by several data points. Key among them is the unusually slow growth in nominal wages this late into an economic recovery.
- Productivity growth has decelerated sharply in recent years. (...) Since infrastructure investment can lead to these tighter labor markets, it could have an immediate effect in restoring productivity growth.
 - Further, and more importantly, a greater public investment effort can also provide a significant boost to productivity in the long run by boosting the public capital stock. (...)

[Infrastructure and urbanization in the People's Republic of China](#)

ADB Working Paper Series, WORKING PAPER NO: 632, 2017

- [Zhigang Li \(Asian Development Bank Institute \(ADBI\)\)](#)

The recent experience of infrastructure investment in the People's Republic of China (PRC) suggests an intertwined relationship between investment, urbanization, and economic growth. In one mechanism, urbanization generates demand for infrastructure investment, which then drives economic growth via various channels including reducing transaction costs and raising productivity. Another mechanism emphasized in this paper is that infrastructure investment can promote urbanization through facilitating economic agglomeration toward hub cities. This agglomeration process also raises productivity in the economy. The lessons from the PRC have implications for infrastructure financing. On the one hand, recent reforms have allowed the market to play an increasingly important role in funding infrastructure investment, helping improve the efficiency of infrastructure investment and the productivity of the economy. On the other hand, evidence in the PRC suggests a cross-province spillover effect of road infrastructure, supporting the central

government's role in infrastructure financing. Although the current infrastructure investment system is still distorted by local governments' incentives and decisions, there is no evidence of over-investment in infrastructure at the aggregate level. Nevertheless, there is strong evidence that the marginal return to infrastructure investment in the PRC has been rapidly declining. Hence, it is urgent for policy makers to reform the existing system to base their investment decisions on the economic returns to infrastructure.

The interregional flow of goods and production factors (labor and capital) is a fundamental force that drives urbanization, but the market may not be efficient in financing and infrastructure construction. This paper analyzes infrastructure-related institutions and the interrelation between infrastructure and urbanization. It addresses the following issues: What is the relationship between infrastructure, growth, and urbanization? How efficient have investment and financing been for infrastructure construction? How can we evaluate the performance of infrastructure development? How and to what extent should the government be involved in infrastructure construction?

[Regulating local government financing vehicles and public-private partnerships in China](#)

In: *Journal of Infrastructure, Policy and Development* (2017) Volume 1 Issue 2, pp.190-215.

- Hui Jin (International Monetary Fund)
- Isabel Rial (International Monetary Fund)

Abstract: In this paper, we argue that there is much room for China to strengthen its regulatory framework for public-private partnerships (PPPs). We show that infrastructure projects carried out through local government financing vehicles (LGFVs) are largely unregulated PPPs, and significant fiscal risks have already manifested themselves. While PPPs can potentially provide efficiency gains, they can also be used by governments to circumvent budgetary borrowing constraints. Therefore, effective PPP regulation is key to delivering PPPs' benefits while containing their potential fiscal risks. The authorities have taken concrete steps in order to establish a sound regulatory framework and foster a new generation of PPPs. However, to make the framework effective, we highlight a few issues to be resolved. Based on international best practice, we propose a four-pillar regulatory framework for China, which could be implemented gradually in three stages.

[Alternatives to bank finance: role of carbon tax and hometown investment trust funds in developing green energy projects in Asia](#)

ADB Working Paper Series, Working Paper no.:761, 2017

- [Naoyuki Yoshino \(ADB\)](#)
- [Farhad Taghizadeh-Hesary \(ADB\)](#)

Abstract: The main obstacle to developing green energy projects is lack of access to finance. For larger energy projects (e.g., large hydropower projects), insurance and pensions are sustainable financing alternatives. Large energy projects are long-term investment projects; banks are not able to provide long-term loans because their resources (deposits) are short- to medium-term. Pension funds and insurance companies hold long-term savings, so these institutions could be a proper alternative for financing mega-size energy projects. On the other hand, because electricity tariffs are often regulated by the government, to increase the investment incentives the spillover effects originally created by energy supplies need to be used, and tax revenues refunded to the investors in energy projects. For smaller-size green projects, the paper provides a theoretical model for combining

utilisation of carbon tax and a new way of financing risky capital, i.e., Hometown Investment Trust Funds (HITs). Because of the Basel capital requirement, and because most green energy projects from the point of view of financiers are considered to be risky projects, many financiers are reluctant to lend to them or they lend at high interest rates. The paper theoretically shows that by taxing carbon dioxide (CO₂), sulphur dioxide (SO₂), and nitrogen oxides (NO_x) and allocating those tax revenues to HITs, green projects will become more feasible and more interesting for hometown investors; hence the supply of investment money to these funds will increase.

4. Commitments and Initiatives of the G20

a) Relevant Commitments² Made in Recent G20 Leaders' Communiqués^{3 4}

Osaka, Japan, June 2019: G20 Osaka Leaders' Declaration ([G20 2019](#))

- "We endorse the **G20 Principles for Quality Infrastructure Investment as our common strategic direction and high aspiration.**" ([G20 2019](#): paragraph 24, emphases added)
- "We support **developing countries in their efforts to advance progress towards** the timely implementation of **the SDGs in such areas as** poverty eradication, **quality infrastructure investment**, gender equality, health, education, agriculture, environment, energy, and industrialization, using all means of implementation, such as the mobilization of private sector resources and capacity building assistance." ([G20 2019](#): paragraph 27, emphases added)

Buenos Aires, Argentina, December 2018: Building consensus for fair and sustainable development ([G20 2018](#))

- "To maximize the benefits of digitalization and emerging technologies for innovative growth and productivity, we will promote measures to boost micro, small and medium enterprises and entrepreneurs, bridge the digital gender divide and further digital inclusion, support consumer protection, and **improve** digital government, **digital infrastructure** and measurement of the digital economy." ([G20 2018](#): paragraph 9, emphases added)
- "To address the persistent infrastructure financing gap, we reaffirm our commitment to **attract more private capital to infrastructure investment**. To achieve this, we endorse the **Roadmap to Infrastructure as an Asset Class** and the **G20 Principles for the Infrastructure Project Preparation Phase**. We are taking actions to **achieve greater contractual standardization, address data gaps and improve risk mitigation instruments.**" ([G20 2018](#): paragraph 10, emphases added)
- "We will work towards enhancing debt transparency and sustainability, **and improving sustainable financing practices** by borrowers and creditors, both official and private, **including infrastructure financing.**" ([G20 2018](#): paragraph 24, emphases added)

Hamburg, Germany, July 2017 - G20 Leaders' Declaration: Shaping an interconnected world ([G20 2017](#))

None, but see [Hamburg Update: Taking Forward the G20 Action Plan on the 2030 Agenda for Sustainable Development](#) for six commitments on infrastructure, p. 6 (Comprehensive and Concrete Actions toward Implementation according to the Sustainable Development Sectors of the G20 Action Plan for Sustainable Development)

² Following Kirton et al. (2016), we define commitments as "discrete, specific, politically binding publicly expressed, collectively agreed to statements of intent; a "promise" or "undertaking" by summit members that they will undertake future action to move toward, meet or adjust to meet an identified welfare target" (p. 4).

³ Please note that not only the Leaders' Communiqués but also other G20 documents issued at the summits such as Action Plans or Ministerial Declarations may contain commitments by the G20. Due to their central role and high profile, this account is confined to the commitments made in the Leaders' Communiqués.

⁴ For ease of reading, key words of the commitments are printed in bold type while words signaling a commitment are underlined.

- “We are resolved to tackle common challenges to the global community, including terrorism, **displacement, poverty**, hunger and health threats, **job creation**, climate change, energy security, and **inequality including gender inequality**, as a basis for sustainable development and stability. We will continue to work together with others, including developing countries, to address these challenges, building on the rulesbased international order.” ([G20 2017](#): p. 2, emphases added)

b) General References to Issues Related to Social Cohesion in Recent G20 Leaders’ Communiqués

Osaka, Japan, June 2019: G20 Osaka Leaders' Declaration ([G20 2019](#))

- “Infrastructure is a driver of economic growth and prosperity. We endorse the G20 Principles for Quality Infrastructure Investment as our common strategic direction and high aspiration. These emphasize that quality infrastructure is an essential part of the G20's ongoing efforts to close the infrastructure gap, in accordance with the Roadmap to Infrastructure as an Asset Class. We stress the importance of maximizing the positive impact of infrastructure to achieve sustainable growth and development while preserving the sustainability of public finances, raising economic efficiency in view of life-cycle cost, integrating environmental and social considerations, including women's economic empowerment, building resilience against natural disasters and other risks, and strengthening infrastructure governance. We look forward to continuing advancing the elements to develop infrastructure as an asset class, including by exploring possible indicators on quality infrastructure investment.” ([G20 2019](#): paragraph 13)
- “Recognizing that countering corruption is an important requisite for ensuring quality and reliability of infrastructure, we welcome the Compendium of Good Practices for Promoting Integrity and Transparency in Infrastructure Development as part of our further work.” ([G20 2019](#): paragraph 13)
- “Climate actions at all levels with broad participation, including by non- state actors, will be the key to realizing such a paradigm shift. In further enhancing this effort, as appropriate to each country's circumstances, we will look into a wide range of clean technologies and approaches, including smart cities, ecosystem and community based approaches, nature based solutions and traditional and indigenous knowledge. We need to enhance efforts to support actions and cooperation in adaptation and disaster risk reduction, in particular, for the most vulnerable communities, and to elaborate further and foster coherence between mitigation action, adaptation measures, environmental protection, and resilient infrastructure.” ([G20 2019](#): paragraph 35)
- “We acknowledge the G20 Japanese Presidency's initiative called Research and Development 20 for clean energy technologies (“RD20”). In light of recent events highlighting concern about safe flow of energy, we acknowledge the importance of global energy security as one of the guiding principles for the transformation of energy systems, including resilience, safety and development of infrastructure and uninterrupted flow of energy from various sources, suppliers, and routes.” ([G20 2019](#): paragraph 37)

Buenos Aires, Argentina, December 2018: Building consensus for fair and sustainable development [\(G20 2018\)](#)

- “This year we have focused on the following pillars: the future of work, infrastructure for development, a sustainable food future and a gender mainstreaming strategy across the G20 agenda.” ([G20 2018](#): paragraph 2)
- “Infrastructure is a key driver of economic prosperity, sustainable development and inclusive growth. (...) In line with the Roadmap [Roadmap to Infrastructure as an Asset Class, *authors’ note*], we look forward to progress in 2019 on quality infrastructure.” ([G20 2018](#): paragraph 10)
- “A strong economy and a healthy planet are mutually reinforcing. We note the latest IPCC Special Report on the Impacts of Global Warming of 1.5 degrees centigrade. We recognize the importance of comprehensive adaptation strategies, including investment in infrastructure that is resilient to extreme weather events and disasters.” ([G20 2018](#): paragraph 19)
- “We recognize the opportunities for innovation, growth, and job creation through increased investment into cleaner and sustainable energy sources — including renewables, technologies and infrastructure.” ([G20 2018](#): paragraph 22)

Hamburg, Germany, July 2017 - G20 Leaders’ Declaration: Shaping an interconnected world [\(G20 2017\)](#)

- “We will strive to ensure that all our citizens are digitally connected by 2025 and especially welcome infrastructure development in low-income countries in that regard.” ([G20 2017](#): p. 5)
- “We endorse the MDBs’ Joint Principles and Ambitions on Crowding-In Private Finance (“Hamburg Principles and Ambitions”) and welcome their work on optimising balance sheets and boosting investment in infrastructure and connectivity.” ([G20 2017](#): p. 7)
- “A strong economy and a healthy planet are mutually reinforcing. We recognise the opportunities for innovation, sustainable growth, competitiveness, and job creation of increased investment into sustainable energy sources and clean energy technologies and infrastructure.” ([G20 2017](#): p. 9)
- “We welcome the outcomes of the G20 Africa Partnership Conference in Berlin, which highlighted the need for joint measures to enhance sustainable infrastructure, improve investment frameworks as well as support education and capacity building. Individual priorities for “Investment Compacts” were put forward by Côte d’Ivoire, Ethiopia, Ghana, Morocco, Rwanda, Senegal and Tunisia. Led by the respective African countries, the African Development Bank, IMF and WBG as well as the G20 and other partners, these Compacts aim to mobilise private investment as well as promote efficient use of public funding.” ([G20 2017](#): p. 13)
- “Based on equal partnership, we strongly welcome African ownership and commit to align our joint measures with regional strategies and priorities, in particular the African Union’s Agenda 2063 and its Programme for Infrastructure Development in Africa (PIDA). The African Union and its specialised agency, the New Partnership for Africa’s Development (NEPAD), are important partners in its implementation and monitoring.” ([G20 2017](#): p. 13)

c) Recent Relevant G20 Documents and Initiatives

- [G20 Principles for Quality Infrastructure Investment](#), G20 Japan 2019
- [Key Elements of Quality Infrastructure for Connectivity Enhancement towards Sustainable Development](#), G20 Japan 2019, G20 Development Working Group (DWG)
- [G20 Compendium of Good Practices for Promoting Integrity and Transparency in Infrastructure Development](#), G20 Japan 2019
- [G20 Action Agenda on Adaption and Resilient Infrastructure](#), G20 Japan 2019, adopted by the G20 Environment Ministers
- [Note by the Japanese Presidency on Infrastructure](#), Japanese G20 Presidency, 2019
- [Roadmap to Infrastructure as an Asset Class](#), G20 Argentina 2018, prepared by the G20 Infrastructure Working Group (IWG)
- [G20 Principles for the Infrastructure Project Preparation Phase](#), G20 Argentina 2018, prepared by the G20 Infrastructure Working Group (IWG)
- [Hamburg Update: Taking Forward the G20 Action Plan on the 2030 Agenda for Sustainable Development](#), G20 Germany 2017
- [Global Infrastructure Connectivity Alliance](#), G20 initiative launched in 2016 under China's G20 Presidency; the GICA Secretariat is hosted by the World Bank Hub for Infrastructure and Urban Development in Singapore
- [G20/OECD Guidance Note on Diversification of Financial Instrument for Infrastructure and SMEs](#), July 2016
- [Global Infrastructure Hub](#), organization created by the G20 in 2014 to provide dedicated resources to help implement the agenda under the [Global Infrastructure Initiative](#) and deliver on the G20's objectives based in Sydney; for more information see the [GIH's website](#)
- [Allocating Risks in Public-Private Partnership \(PPP\) Contracts](#), Global Infrastructure Hub, 2016
- [G20 Global Infrastructure Initiative](#), G20 multi-year programme to support public and private investment in quality infrastructure, G20 Australia 2014

d) Documents and Initiatives of Other Relevant Actors

- [MDB Infrastructure Cooperation Platform: project preparation workstream](#)
- [Multilateral Development Banks' Reference Note Translating Quality Infrastructure Investment \(QII\) Principles into Procurement Practice](#)
- [OECD Reference Note on Environmental and Social Considerations in Quality Infrastructure](#)
[OECD](#)

- [OECD/IMF Reference Note on the Governance of Quality Infrastructure Investment OECD and IMF](#)
- [GI Hub/OECD/World Bank Database of Resources and Facilities for Quality Infrastructure Investment GI Hub](#)
- [U20](#), initiative developed in 2017 under the leadership of the mayors Buenos Aires and Paris to enrich the discussions of national leaders at the 2018 G20 Summit
- [MDBs' Joint Principles and Ambitions on Crowding-In Private Finance](#)
- [Programme for Infrastructure Development in Africa \(PIDA\)](#)

5. The T20 Task Forces on Infrastructure Over Time

T20 Germany 2017: Climate Policy and Finance

At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal global climate agreement. G20 leaders welcomed the agreement and stressed the importance of addressing climate change in the Hangzhou Communique. While the goal of limiting global warming to well below 2°C is clear, the implementation of the Paris Agreements and political action should now be the focus.

The Task Force reflects this by giving priority to three issues: carbon pricing and/or regulation of carbon and the removal of pervasive fossil fuel subsidies; sustainable infrastructure as an essential foundation for achieving inclusive low carbon growth; and green finance as a catalyst to reorient investments strategies including toward innovative firms as foundations for sustainable growth in the low carbon economy.

Co-Chairs

- Céline Bak, CIGI Centre for International Governance Innovation
- Amar Bhattacharya, Brookings Institution
- Ottmar Edenhofer, MCC Mercator Research Institute on Global Commons and Climate Change

T20 Argentina 2018: Climate Action and Infrastructure for Development

This task force will discuss potential policy options to stimulate public and private investment in infrastructure. It will also design policy proposals to promote the green economy, and evaluate the transparency and effectiveness of PPP to attract more private capital into green finance.

Co-Chairs

- Amar Bhattacharya, Brookings Institution
- Ottmar Edenhofer, Mercator Research Institute on Global Commons and Climate Change (MCC)
- Mariano Gendra, Argentine Council for International Relations (CARI)
- Gabriel Lanfranchi, Center for the Implementation of Public Policies Promoting Equity and Growth (CIPPEC)
- Naoyuki Yoshino, Asian Development Bank Institute (ADBI)

T20 Japan 2019: Economic Effects of Infrastructure Investment and its Financing

Task Force Description

Infrastructure is crucially important to foster countries' economic development and prosperity. Investments in infrastructure contribute to higher productivity and growth, facilitates trade and connectivity, and promotes economic inclusion.

Global infrastructure demand is high. McKinsey has reported that from 2016 to 2030, there will be a need to invest on average USD3.3 trillion annually to keep pace with projected growth. Of which, 60% is accounted for by developing countries. Furthermore, Asian Development Bank has estimated that USD1.7 trillion is required every year to maintain rates of growth sufficient to alleviate poverty in the Asian region including investment needs for climate change mitigation and adaptation.

As the population of developing countries keep growing, it is imperative we need high-quality infrastructure that is sustainable, increases business activities, creates new employment, narrows income disparities and empowers gender participation. Quality Infrastructure is at the heart of the Sustainable Development Goals as it supports inclusive growth and enhances access to all. One cannot ignore the Paris Climate Agreement and the inter-relation between infrastructure, sustainability and climate.

This task force aims to propose ways of developing quality infrastructure investments which consider financial, climate, and urban planning challenges. By addressing the challenges of the inherent complexity of quality infrastructure investments, mobilization of long-term finance at reasonable costs, and reformation of existing urban management systems amongst other, the task force will create a corpus of knowledge including best practices followed in various G20 member countries to encourage quality infrastructure investments.

Lead Co-Chairs

- Amar Bhattacharya, Brookings Institution
- Naoyuki Yoshino, Asian Development Bank Institute (ADBI)

Co-Chairs

- Akiko Yamanaka, International Tsunami Disaster Prevention Society
- Beatriz Nofal, Eco-Axis
- Daniel F. Runde, Center for Strategic and International Studies
- Dennis Snower, Global Solutions Initiative (GSI)
- H  l  ne Jacquot-Guimbal, IFSTTAR - Institut fran  ais des sciences et technologies des transports, de l'am  nagement et des reseaux
- Jean-Bernard Kovarik, IFSTTAR - Institut fran  ais des sciences et technologies des transports, de l'am  nagement et des reseaux
- Nicolas J.A. Buchoud, Grand Paris Alliance for Metropolitan Development
- Shamshad Akhtar, Karandaaz Pakistan
- Yasuyuki Sawada, Asian Development Bank

[Source: <https://t20japan.org/task-forces/economic-effects-of-infrastructure-investment-and-its-financing/>]

T20 Saudi Arabia 2020: Infrastructure Investment and Financing

Task Force Description

Public and private investment in infrastructure is needed to meet the increasing demand for infrastructure globally and to reduce the infrastructure gap between advanced and emerging economies. Many countries need better access to basic services and global connectivity needs to be improved. Financing such large-scale projects and promoting climate-resilient and sustainable infrastructure investment remain key challenges.

This task force aims to promote a discussion of the key barriers to and opportunities for improving public and private infrastructure investment. It will identify which public policy changes are necessary to boost infrastructure investment. The task force will also examine the essential role of the private sector in providing long-term finance and consider innovative frameworks that help bridge the infrastructure investment gap within and among countries. It will also identify and evaluate infrastructure needs and opportunities for investment based on their efficiency, sustainability, and economic development.

Task Force Priorities

- Innovative frameworks to bridge the infrastructure investment gap
- Promoting infrastructure investments that are resilient, sustainable and can adjust to climate effects
- Technology innovation for smart cities
- Challenges of rapid urbanization
- Private sector engagement in financing long-term infrastructure projects
- Governance of infrastructure investments
- Global standards for sustainable projects
- Addressing infrastructure bottlenecks in least developed countries

Lead Co-Chair

- Raja Almarzoqi, Institute of Diplomatic Studies

References

- G20 (2017): “G20 Leaders' Declaration: Shaping an Interconnected World”, available online at <http://www.g20.utoronto.ca/2017/2017-G20-leaders-declaration.html>, checked on March 5, 2019.
- G20 (2018): “G20 Leaders’ declaration: Building consensus for fair and sustainable development”, available online at <http://www.g20.utoronto.ca/2018/2018-leaders-declaration.html>, checked on March 5, 2019.
- G20 (2019): “G20 Osaka Leaders' Declaration”, available online at <http://www.g20.utoronto.ca/2019/2019-g20-osaka-leaders-declaration.html>, checked on September 3, 2019.
- Kirton, John and Ella Kokotsis, Jenilee Guebert, Caroline Bracht (2016): “Compliance Coding Manual for International Institutional Commitments”, University of Toronto, May 2, 2016. Available online at www.g7.utoronto.ca/compliance/compliance-coding-manual-2016.pdf, checked on February 25, 2019.