



Financing Climate Futures

RETHINKING INFRASTRUCTURE

Shifting the Lens

Interim Briefing



September 2018



Financing Climate Futures

RETHINKING INFRASTRUCTURE

Governments recognise that scaling up and shifting financial flows to low-emission and resilient infrastructure investments is critical to deliver on climate and sustainable development goals. Efforts to align financial flows with climate objectives remain incremental and fail to deliver the radical transformation needed. The OECD, UN Environment and the World Bank Group, with the support of the German Ministry of Environment, Nature Conservation and Nuclear Safety, have joined

forces under a new initiative – *Financing Climate Futures: Rethinking Infrastructure* – that provides a roadmap to help countries make the transformations in their infrastructure, investment and finance systems that are needed to make financial flows consistent with a pathway towards a low-emission, resilient future.

For more information on *Financing Climate Futures: Rethinking Infrastructure* visit: oe.cd/climate-futures

The UN Environment Inquiry

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme (UN Environment) to advance policy options to improve the financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development. Established in January 2014, it published the first edition of 'The Financial System We Need' in October 2015, with the second edition launched in October 2016. Its final global report, 'Making Waves – Aligning the Financial System with Sustainable Development' was released in April 2018. All of the reports published through the Inquiry, can be freely downloaded at www.unepinquiry.org.

More information on the Inquiry is at: www.unepinquiry.org or from: Ms. Mahenau Agha, Director of Outreach mahenau.gha@un.org.

Shifting the Lens

Shifting the Lens is one part of the broader Financing Climate Futures initiative focusing on the identification of critical uncertainties posing constraints to aligning financial flows with climate objectives and in particular infrastructure investment. Adopting a foresight and scenarios approach, this part of the overall initiative seeks to offer insights into ways to overcome barriers and secure the realignment needed.

This briefing has been developed by UN Environment, with key contributions from the OECD, the World Bank Group, and Germany's Federal Ministry of the Environment, Nature Conservation and Nuclear Safety. The final report will be launched during 2018. It is released as part of the dialogue, and so in the spirit of an invitation to comment. Comments on this briefing can be made to simon.zadek@un.org.

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DISCLAIMER

This paper was prepared as a part of *Financing Climate Futures: Rethinking Infrastructure*, a joint initiative of the OECD, UN Environment and the World Bank Group, to help countries deliver on the objective of making financial flows consistent with a pathway towards low emissions and climate-resilient development. It was authored by UN Environment and does not necessarily reflect the views of the OECD or the World Bank Group.

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1. Summary

Investment in climate-compatible infrastructure remains wholly inadequate – despite the urgent need and the increasing evidence of long-term economic benefits. Major shifts in the way investment decisions are made will be essential for ensuring “finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”¹


Decisions to invest in climate-compatible infrastructure do not adequately account for critical uncertainties. Competency gaps, perverse incentives, political, business and broader institutional interests and other sources of behavioural bias, for example, can create market and policy failures. These can also distort perceptions – all along the investment value chains – of the economic and broader benefits of financing climate-compatible infrastructure.

Shifting the Lens examines the critical uncertainties that influence the selection, design, procurement, deployment and related financing decisions for climate-compatible infrastructure. Seven areas of critical uncertainties have been identified, focused on the impacts of: (a) climate change itself; (b) shifts in the economic and geopolitical features of globalization; (c) the technological intensification and digitization of infrastructure; (d) new economic, business and financing models such as the shared and circular economy and rentalization; (e) new forms of citizen engagement; (f) changes to the financial system; and (g) economic downturns and external shocks.

Scenarios are used to cluster the critical uncertainties into possible futures, which can help determine how best to achieve key goals, such as climate objectives. These scenarios were developed using a foresight-based approach, in contrast to the science-based scenarios prepared in the context of the Intergovernmental Panel on Climate Change (IPCC). Rather than determining the probabilities of specific outcomes in the future, they cluster the critical uncertainties into possible futures with distinct, decision-relevant characteristics. Four foresight-based scenarios have been developed, each with a core, framing feature:

- **Open Internationalism:** emphasizes deregulated markets, individual rights and international cooperation.
- **Assertive States:** emphasizes policy-guided markets, longer-term strategies focused on collective outcomes, and strong international cooperation.
- **Patchworks:** emphasizes a more fragmented international order, weakened norms, state-led unilateralism, and more restricted cross-border activities.
- **Shocked Collaboration:** emphasizes a world beset by major shock(s) with global implications, thereby driving ambitious international cooperation.

These scenarios offer broad, framing insights that can support effective policymaking, market practice and citizens action. Principally, such scenarios can help actors make better decisions under uncertain conditions. By challenging the assumptions made along the investment value chain, the scenarios can improve decision-making by amplifying the weaker signals about emerging trends, both individually and in combination. Financing decisions about climate-compatible infrastructure are impacted by many factors: the impact of increased systemic shocks, the significance of greater policy influence over financing decisions, and reduced economic interdependence resulting from shifts in technology, policy and business models. The scenarios developed here provide additional insights that should also factor into such financing decisions.



The scenarios can highlight where today's decisions can be improved through the development of capabilities and institutional arrangements. They also demonstrate how financing climate-compatible infrastructure requires decision-making under conditions of growing complexity and uncertainty. This points to the need for new and improved capabilities right along with the investment value chain – from design and procurement through to the owners of capital. The institutional conditions under which these capabilities are deployed may also need considerable attention, such as incentives, networks of collaborators, values and norms.

INVITATION

Shifting the Lens is one part of the broader Financing Climate Futures initiative. This interim briefing has been developed by UN Environment, with thanks for contributions to the OECD, the World Bank Group, and Germany's Federal Ministry of the Environment, Nature Conservation and Nuclear Safety. The final report will be launched during 2018. Comments on this interim briefing can be made to simon.zadek@un.org.

2. This Briefing

Shifting the Lens aims to support the increased flow of investment in climate-compatible infrastructure by shaping scenarios that can more effectively account for critical uncertainties in financing decisions.

It has been developed by UN Environment as part of the **Financing Climate Futures** initiative with the OECD and the World Bank Group, with the support of the German Ministry of the Environment, Nature Conservation and Nuclear Safety.

This briefing has been issued along with the summary of the initiative's main report. In outlining progress, it offers an opportunity for additional stakeholder contributions. The final report will be launched in late 2018.

3. Aligning Financial Flows with Climate Goals

The transition to a low-carbon, climate-resilient pathway – compatible with a pathway well below 2°C or 1.5°C – is dependent on the timely build-out of adequate climate-compatible infrastructure.^{2,3}

Success in securing such infrastructure is therefore critical for realizing the G20's goal of an inclusive, balanced, sustainable economic growth pathway, which is in turn essential for achieving the UN Sustainable Development Goals in the 2030 Agenda.

Progress has been made in increasing flows of (private) capital towards low-carbon, climate-resilient investments.⁴ Supportive developments include new metrics, definitions, standards, financial products and, through work undertaken by Argentina's G20 Presidency, new asset classes. Further developments include improved awareness, risk analysis and reporting, notably through the contribution of the Financial Stability Board's Task Force on Climate-related Financial Disclosures.⁵ Enhanced public financing to support in private financing, including through the work of the G20 Eminent Persons Group on Global Financial Governance, are also helping increase the flow.⁶

Such progress remains, however, wholly inadequate given the need.^{7,8} Green infrastructure investment remains less than 1% of the overall portfolios of institutional investors.⁹ Current green bonds have been estimated to exceed US\$1 trillion, yet this new asset class makes up less than 1% of the global US\$100 trillion bond market. Worse yet, investment in upstream and downstream fossil fuel exploitation reached US\$825 billion in 2016 – far exceeding the global investment in renewables at US\$287.5 billion.¹⁰

Accelerated action is needed. Based on today's trends, more of the same is unlikely to deliver "finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."^{11,12}

G20 leaders have recognized both the progress made and the urgent need for accelerated action in inviting the OECD, UN Environment and the World Bank as part of the Hamburg Action Plan "...to compile ongoing public and private activities within the G20 for making financial flows consistent with the Paris goals

and, building on this, to analyse potential opportunities for strengthening these efforts and present this analysis in 2018.” Reinforcing the importance of this topic, infrastructure has been chosen by the Argentine G20 Presidency in 2018 as “one of the three G20 priorities for 2018”.¹³

4. Shifting the Lens

Major shifts in the way investment decisions are made will be needed to align financing flows with a low-carbon, climate resilient future. Although standards and compliance are important, timely success will require accelerated investment in new generations of technology-intensive infrastructure and associated economic, business and financing models. Here, the focus is on whether this acceleration can be achieved by more effectively accounting for critical uncertainties that are often misunderstood or ignored.

Uncertainty pervades investment decisions, not just measurable risk.¹⁴ Investment risks are priced into financing costs, from counterparty risk through to the broader political and economic contexts that are all-important for long-term, large-scale infrastructure investments. Yet, uncertainty cannot always be meaningfully reduced to simple quantitative measures, given the high levels of complexity. Trying to reduce complex uncertainties to singular, additive numbers can be misleading and result in poor decision-making.

Scenarios offer one complementary approach to handling complex forms of uncertainty.¹⁵ Scenarios are ways of envisaging the future. In some instances, they are science-based, quantitative, probabilistic assessments of trends, including climate-related scenarios undertaken by the IPCC.¹⁶ Foresight-based scenarios – the approach adopted here – do not seek to converge on one ‘most-likely’ outcome.¹⁷ Rather, they seek to systematize uncertainty in ways that allow for decisions to be made in the context of multiple possible outcomes.^{18,19} Scenarios are, therefore, neither good nor bad, but describe different features of an uncertain future within which goals need to be achieved.

Scenarios are therefore intended to improve current decisions by examining them against an ‘organized’ set of uncertain, plausible futures. Foresight-based scenarios have been used in many contexts, most famously perhaps by the African National Congress on the eve of the end of apartheid,²⁰ but also by many corporations and governments.^{21,22} Through such a lens, distortions in decision-making can be revealed and adjustments made. Such distortions may arise from biases embedded in habit and norms, prevalent incentives, incumbent interests, or a lack of competencies. More often than not, a combination of these factors exists simultaneously.

FIGURE 1: THE STRATEGIC FORESIGHT PROCESS

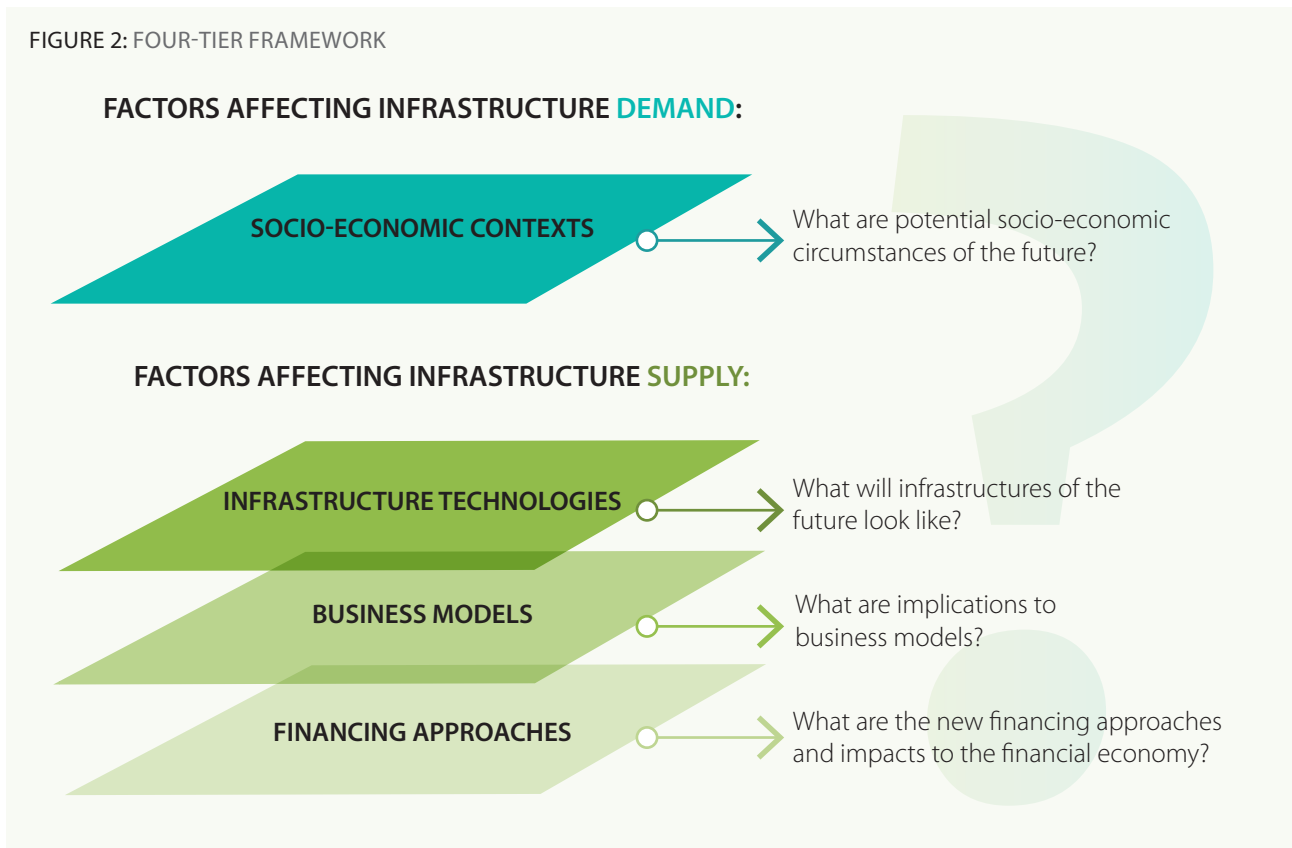


5. Critical Uncertainties

Critical uncertainties are selected for their impact on today's decisions. There are many uncertainties about the future; some more likely, some with greater impacts, and some that can be associated with a fairly stable probability, such as population growth and the associated distribution of age, gender and geography. Other expectations are subject to greater contestation, particularly when their probability is a function of other, also uncertain, factors. The pace of automation, for example, is dependent on many factors, including supply-side factors such as technology cost curves, but also demand-side influences such as the global structure of trade, the impact of economic downturns, and the impact of climate change itself.

Shifting the Lens has used a simple, four-tier analytic framework to identify a number of critical uncertainties that have an impact on investments in climate-compatible infrastructure, which encourage taking account of:

- Broad factors affecting *future infrastructure demand*.
- *Different contexts*, including variations by countries and development stage.
- Factors affecting *future infrastructure supply*, including infrastructure technology, business models and financing approaches.



Critical uncertainties in this project have been selected through a series of dialogues with key experts. Working with the foresight approach requires the systematization of distributed knowledge in dealing with uncertainty.²³ Tapping into the collective wisdom of diverse actors can help to reduce well-documented biases resulting from concentrated beliefs and conventional wisdoms often present in homogenous expert groups.^{24,25} In selecting critical uncertainties, this initiative benefited

from inputs from a wide number of stakeholders, including the diverse views of the core partners, who participated in a two-day workshop in April 2018 in Washington, D.C., and a review of literature. That said, there is wide scope for diversity of views in the selection of critical uncertainties and their underlying drivers.

Critical uncertainties have been organized into seven themes. While not exhaustive, each of the seven themes represents critical uncertainties (Figure 3) that have a number of possible drivers. These can individually, or in combination, create a range of possible impacts that affect financing decisions on climate-compatible infrastructure. What is uncertain are these impacts, which in turn are informed by uncertainties in the underlying causal factors and their role as drivers of these impacts.

FIGURE 3: CRITICAL UNCERTAINTIES

Climate	Impacts of the growing number and severity of weather events, including potentially one or more 'mega-events', and associated climate-related policy shifts, especially as they impact major infrastructure investment programmes such as the Belt and Road Initiative.
Globalization	Impacts of the evolution of globalization, notably the possible growth in autarky, which could involve reshoring, protectionism, financial de-globalization, population displacement, and a change in the influence of corporations.
Technology	Impacts of the technological intensification of infrastructure and the associated business models that drive a more circular and shared economic and rentalization; these could be impacted by technological breakthroughs and cost curves, trade and investment policies, and climate change itself.
Governance	Impacts of a more diverse set of governance models, at the state, sub-state and enterprise levels. These could be driven by greater policy diversity in balancing rights-based, short-term demands with longer-term imperatives, and higher incidence of collaborative governance involving public and private actors.
Citizens	Impacts of an increasing diversity in both the forms and goals of citizen action and their effects, empowered through digitalization as consumers, shareholders and communities, and with critical variations between states and regions and changing opportunities for international action.
Finance	Impacts of changes to the architecture and functioning of the global financial and monetary system, <i>i.e.</i> resulting from the digitalization that impacts business models, citizen engagement, more data-driven risk pricing and related decisions, and the effects of blockchain and cryptocurrencies on trust and cross-border transactions.
Shocks and Business Cycles	Impacts of exogenous and policy-directed shocks to the global economy, notably the likelihood of an economic downturn over the relevant period to 2030, which would impact investment decisions; for example, constrained fiscal space and high levels of indebtedness.

6. Scenarios

Scenarios have been developed to portray clusters of the selected critical uncertainties that bear on the topic of investment in climate-compatible infrastructure. Each has a core characterization (Figure 4), and draws on each, and a combination of critical uncertainties (Figure 5). In short:

- *Open Internationalism*: emphasizes largely open markets, a powerful global corporate community, strong citizen action, and ongoing international cooperation.
- *Assertive States*: emphasizes strong state influence over domestic and global economies, corporate interests that are more responsive to policy imperatives, and long-term policy objectives that take priority over shorter-term and more immediate citizen interests.
- *Patchwork*: emphasizes a global economy made up of more autonomous entities, whether states, regions and/or sub-state actors, shifting demand for infrastructure, and strengthening investment in local, more closed economies.
- *Shocked Collaboration*: emphasizes the effects of major shocks to the global system, whether recessions, weather events, or security-related disruptions, resulting in more ambitious collaboration involving public and private actors.

FIGURE 4: SCENARIOS – SHIFTING THE LENS

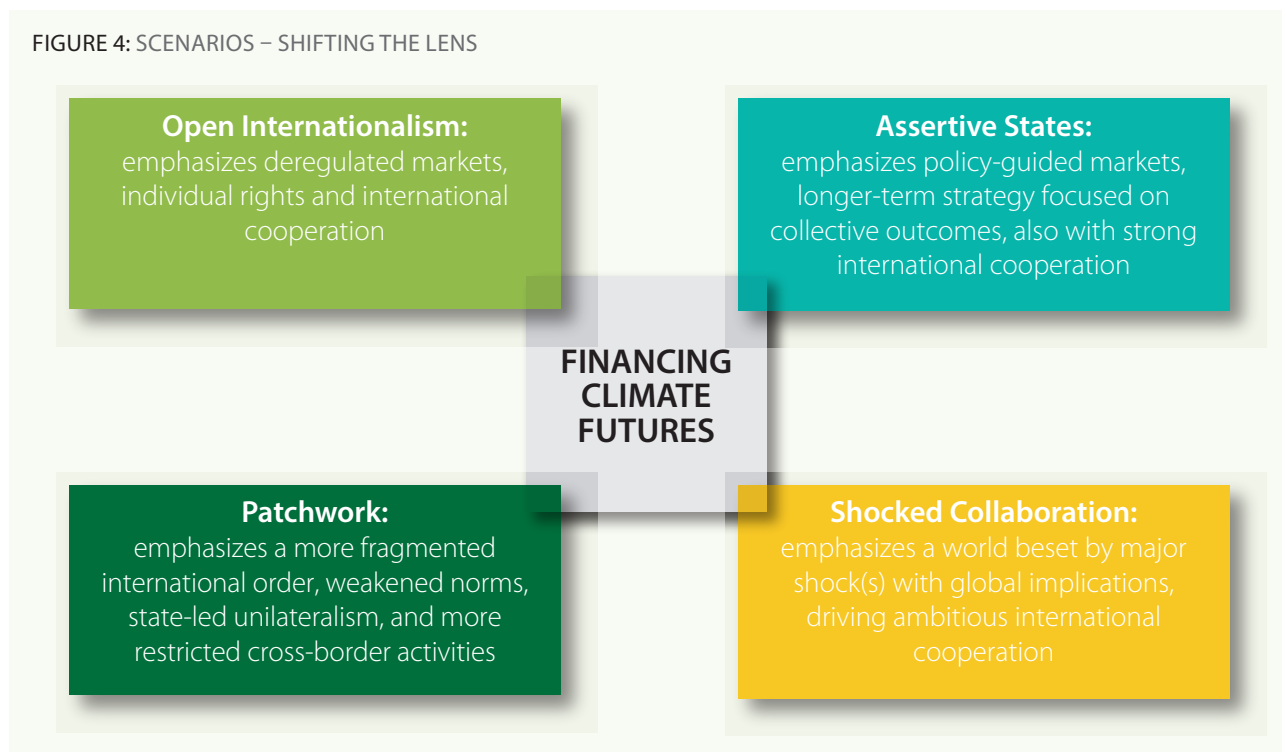


FIGURE 5: SCENARIOS – ILLUSTRATIVE IMPLICATIONS

Implications	Scenario 1. <i>Open Internationalism</i>	Scenario 2. <i>Assertive States</i>	Scenario 3. <i>Patchwork</i>	Scenario 4. <i>Shocked Collaboration</i>
Overall	Open markets, a powerful global corporate community, strong citizen action, and on-going international cooperation.	Governments strongly influence the global economy, corporate interests tied to policy imperatives, and prioritization of long-term policy objectives.	Greater autonomy across states, regions and sub-state actors, shifting the demand for infrastructure, and strengthening investment in local, less open economies.	Global impacts of major shocks resulting in more ambitious international cooperation involving public and private actors.
Climate	Support for international cooperation, but diluted by short-termism and a matrix of interests of citizens, corporate community and national priorities.	Support for international cooperation driven by national policy priorities of stronger states, resulting in emphatic but uneven prioritization of climate action.	Weak support for international cooperation on climate, with more 'free riding' and assertion of narrow policy and corporate interests.	Emergence of strengthened forms of international cooperation, pragmatically built and led by strong states, focused on humanitarian, reconstruction and resilience.
Globalization	Sustained, largely market-driven cross-border flows of finance, data and technology with localization of production of goods and services.	Policy-driven, sustained economic integration, with greater likelihood of policy-informed fragmentation of global standards in the face of localization trends.	More rapid shift towards economic autarky with weaker states struggling to maintain share of global value added.	Reduced pace of shift towards economic autarky as collaborative initiatives drive investment in resilience.
Technology	High levels of innovation, with very uneven, market-driven deployment with government light touch, relatively short-term time horizons.	High levels of innovation with strong government involvement, such as through procurement and negotiated cross-border deployment.	Fragmented standards constrain international norms, possibly reducing pace of diffusion to smaller, low-innovation states.	Event-based weakening of global economy, but could enable accelerated diffusion of technologies based on agreed norms and standards.
Citizens	Greater engagement, both domestic and international, including through the use of legal instruments, rights-based advocacy and resistance to major infrastructure investment.	Aggregated actions by individuals linked to prevailing policy and market-based signals, low advocacy or resistance to climate-related aspects of infrastructure investment.	Fragmented and fragile citizen action, lowered engagement and effectiveness in advancing international action, focus on domestic and regional as possible.	Surge in collective citizen action, locally and internationally.
Finance	Uneven and inadequate deployment because of greater dependence on private capital flows with scarce public subsidy.	Increased policy-guided finance, accelerating infrastructure investment and raising government-to-government indebtedness.	Reduced cross-border financial flows, increasing dependence on domestic savings and raising cost of international capital.	Event-based 'drying up' of financial system reducing flows, followed by state directed/ guaranteed, high-cost, large-scale financing.
Shocks and Business Cycles	Resulting economic downturn dramatically reduces long-term public and private financing flows.	Increased infrastructure investment response to threat of economic downturn.	Weaker and market-dependent states suffer investment collapse, while fiscally strong and policy guided states increase infrastructure investment.	Initial collapse of long-term financing flows as short-term humanitarian needs are addressed, followed by long-term, multilateral investment programme.

7. Implications

Adequate investment in climate-compatible infrastructure is required under all scenarios.

Today's policies, financing decisions, and civil actions can be stress-tested in light of the different scenarios and underlying critical uncertainties. Most economists consider it likely that there will be a significant economic downturn by 2030.²⁶ Yet, there is no plan in place to avoid a repeat of the collapse in infrastructure investment that happened in many countries during the last downturn, except in countries with a strong, policy-directed infrastructure investment programme. Similarly, the Caribbean's catastrophic hurricanes in 2017 highlighted both the need and opportunity to build climate-compatible infrastructure at scale, and the unpreparedness and inability of the international and investment communities to make significant and immediate progress.

These scenarios offer broader, framing insights about policy, market practice, and citizen action,

such as the importance of strong policy guidance and citizen action, the need to counter-balance the negative effects of external shocks and economic downturns, and the need to crystallize risk in underpinning ambitious international cooperation. Key insights include:

- **Long-term time horizon:** there is no substitute for explicit, long-term planning; governments and their agents, and less so market actors, are likely to be at the core of such long-termism.
- **Policy-guided finance:** significant policy guidance and support to ensure that private financial markets can fulfil their key role in investing in climate-compatible infrastructure.
- **Citizen action:** citizens can impact the financing of climate-compatible infrastructure but, going forward, are as likely to constrain as to enable progress, given their varied priorities and time horizons.
- **Resilient investment:** strong government- and policy-directed finance will be required in the face of economic downturns and external shocks, which are inevitable over the period in question.
- **Shifting globalization:** the combined effects of automation, climate, business model innovation and reinforcing policy may drive us towards higher fragmentation of the global economy, reshaping the demand for infrastructure, and increasing the importance of local financing solutions.
- **International cooperation:** international cooperation is key, but may become more effective when faced with significant shocks to the global economy.

Scenarios reinforce the importance of examining political will and the institutional and behavioural norms that inform investment decisions in climate-compatible infrastructure by governments, market actors and civil society. Overcoming distortions in decision-making will likely make a significant difference to the pace and form of investment in climate-compatible infrastructure:

- **Risk pricing:** needs to be more sensitized to complex and critical uncertainties, including through the use of scenario planning rather than exclusively singular, probability analysis.
- **Capabilities:** need to be enhanced to better handle decision-making under uncertainty all along the investment value chain, including investors through to procurement.
- **Incentives:** need to be shifted, together with institutional norms, to increase the rate of adoption of a new generation of technologically intensive infrastructure and associated business and financing approaches.

Shifting the Lens, in conclusion, points to the potential to unlock investment opportunities in climate-compatible infrastructure by taking critical uncertainties more fully into account.

Endnotes

- ¹ UNFCCC (n.d.). The Paris Agreement Portal. http://unfccc.int/paris_agreement/items/9485.php
- ² OECD (2017). Investing in Climate, Investing in Growth. <http://dx.doi.org/10.1787/9789264273528-en>
- ³ The Global Commission for Economy and Climate (2016). The Sustainable Infrastructure Imperative: Financing for better growth and development. <https://www.un.org/pga/71/wp-content/uploads/sites/40/2017/02/New-Climate-Economy-Report-2016-Executive-Summary.pdf>
- ⁴ World Bank (2017). Barriers to Climate-Resilient Infrastructure Financing. https://unfccc.int/sites/default/files/climate_resilient_infrastructure_08312017_session4_jc_version_final.pdf
- ⁵ <https://www.fsb-tcfd.org/>
- ⁶ G20 Eminent Persons Group (EPG) on Global Financial Governance (2018). Update for the G20 Meeting of Finance Ministers and Central Bank Governors. https://g20.org/sites/default/files/media/epg_chairs_update_for_the_g20_fmcbgs_meeting_in_buenos_aires_march_2018.pdf
- ⁷ UN Environment (2017). Emissions Gap Report 2017. https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf
- ⁸ E3G (2018). Banking on reform: Aligning the development banks with the Paris Climate Agreement. <https://www.e3g.org/library/banking-on-reform-aligning-development-banks-with-paris-climate-agreement>
- ⁹ G20 Green Finance Study Group (2016). G20 Green Finance Synthesis Report. <http://www.g20.utoronto.ca/2016/green-finance-synthesis.pdf>
- ¹⁰ CPI (2017). Global Landscape of Climate Finance 2017. <https://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2017/>
- ¹¹ UNFCCC (n.d.). The Paris Agreement Portal. http://unfccc.int/paris_agreement/items/9485.php
- ¹² UN Environment Inquiry (2018) Making Waves: Aligning the Financial System with Sustainable Development. http://unepinquiry.org/wp-content/uploads/2018/04/Making_Waves_lowres.pdf
- ¹³ G20 (2018). G20 and B20 agree on the need to finance infrastructure projects. <https://www.g20.org/en/news/g20-and-b20-agree-need-finance-infrastructure-projects>
- ¹⁴ IPCC (2007). Uncertainty and risk: decision-making under uncertainty. https://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch3s3-6-5.html
- ¹⁵ Stockholm Resilience Center (n.d.). From hindsight to foresight. <http://www.stockholmresilience.org/research/research-news/2018-05-21-from-hindsight-to-foresight.html>
- ¹⁶ Mearns, L.O., Hulme, M. et al. (2016). Climate Scenario Development. <https://www.ipcc.ch/ipccreports/tar/wg1/pdf/TAR-13.PDF>
- ¹⁷ Iden, J. et al. (2017). The Nature of Strategic Foresight Research: A Systematic Literature Review. <https://www.sciencedirect.com/science/article/pii/S0040162516306035>
- ¹⁸ Kuosa, T. (2011). Practicing strategic foresight in government. <https://www.files.ethz.ch/isn/145831/Monograph19.pdf>
- ¹⁹ American Institute of Biological Science (2016). The Climate Change Challenge and Barriers to the Exercise of Foresight Intelligence. <https://academic.oup.com/bioscience/article/66/5/363/2468623>
- ²⁰ Reos (2016) Mont Fleur Scenarios. <https://reospartners.com/wp-content/uploads/old/Mont%20Fleur.pdf>
- ²¹ UN Environment Inquiry (2016). Designing for Disruption: The UNEP Inquiry Scenarios. http://unepinquiry.org/wp-content/uploads/2016/05/Designing_for_Disruption.pdf
- ²² Wilkinson, A. (2017). Strategic Foresight Primer. https://ec.europa.eu/epsc/publications/other-publications/strategic-foresight-primer_en
- ²³ Kuosa, T. (2011). Practicing strategic foresight in government. <https://www.files.ethz.ch/isn/145831/Monograph19.pdf>
- ²⁴ Surowiecki, J. (2004). The wisdom of crowds. <https://www.diplomacy.edu/resources/books/reviews/wisdom-crowds-why-many-are-smarter-few>
- ²⁵ UNDP (2014). Foresight Manual. http://www.undp.org/content/dam/undp/library/capacity-development/English/Singapore%20Centre/GCPSE_ForesightManual_online.pdf
- ²⁶ Durden, T. (2018). KKR Sees A 100% Probability Of Recession In 24 Months. <https://www.zerohedge.com/news/2018-01-31/kkr-sees-100-probability-recession-24-months>

Notes





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