

Phase 2 of Transformative Infrastructure for COVID-19 Recovery

Final report for the G20 Infrastructure Working Group (IWG)



Revision Control

Revision	Date	Author	Reviewed	Approved
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2	06/10/21	Hala Hubraq	Henri Blas	Henri Blas

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1 Introduction

Since January 2021, the G20 member and guest economies (G20 members) have announced USD16 trillion of fiscal measures in response to the COVID crisis.¹ In advanced G20 economies, employment protection and household income support accounted for half of stimulus. In emerging G20 economies, infrastructure investment and employment protection received the most support.

Now, a year and a half after the start of the COVID-19 pandemic, economies are showing signs of recovery. However, the longer-term impact remains uncertain, particularly as the pandemic has resulted in the highest ever government debts.

Inequalities in access to the basic public services provided and enabled by infrastructure increased the impact of the pandemic. Countries where access to public health, waste and social services are inadequate have had greater difficulties addressing the health, social and economic consequences of the pandemic.² Improvements in infrastructure investment can recover and advance a nation's trajectory decades into the future. The Global Infrastructure Hub has been tracking and analysing announcements of infrastructure as a stimulus, and we consider that infrastructure investments are expected to continue into 2022.

As this spending continues – and given that nearly half of the infrastructure for 2050 is already built³, under construction, or being planned – there is an urgent need to ensure infrastructure investment addresses inequalities and transforms economies toward an environmentally sustainable, inclusive, resilient, and digitally-enabled future. Achieving these two aims will provide a foundation for solid economic recovery that addresses government debt and ensures economic resilience against future threats.

The GI Hub was asked by the Saudi Arabian and Italian G20 Presidencies and the Infrastructure Working Group (IWG) to examine the role of infrastructure in facilitating transformative recovery from COVID. This initiative comprised a Phase 1 report (circulated in July 2020) that made the case for infrastructure as stimulus and a Phase 2 initiative which aimed to address the following problem statement:

How can the experience from current and previous stimulus packages support G20 governments in making more informed decisions on how to include infrastructure as stimulus post-COVID to achieve long-term transformative outcomes?

The Phase 2 workstream included three project elements:

1. Creating the InfraTracker tool, with analysis and visualisation of G20 infrastructure stimulus spending post-COVID-19
2. Preparing a *Compendium of Emerging Funding and Financing Case Studies* (EF&F Compendium)
3. Preparing a *Compendium of Transformative Infrastructure Approaches*.

This report is the final report for Phase 2. It responds to the above problem statement, drawing out knowledge, insights, and trends from the data and supporting compendia that will help improve infrastructure decision-making in the future.

¹ IMF Fiscal Monitor, April 2021, <https://www.imf.org/en/Publications/FM/Issues/2021/03/29/fiscal-monitor-april-2021>

² OECD, Addressing inequality in times of COVID-19, April 2020, <https://reliefweb.int/sites/reliefweb.int/files/resources/CA8843EN.pdf>

³ GI Hub, What is the path to net zero infrastructure?, July 2021, <https://www.gihub.org/articles/net-zero-infrastructure/>



2 InfraTracker data and analysis

The InfraTracker is a digital data tool that depicts the GI Hub's analyses of the G20 infrastructure stimulus announcements made in response to COVID-19. It identifies trends that represent opportunities and challenges for governments and the infrastructure sector. Its purpose is to help G20 governments make more informed decisions on using infrastructure to achieve a transformative recovery post-COVID-19.

The InfraTracker initiative started in October 2020 and has comprised two rounds of data-gathering and desktop research to obtain and classify infrastructure stimulus announcements from publicly available announcements of stimulus (where this related to national government infrastructure investments). This process was followed by a G20 member-led review and verification of the resulting datasets where and if possible. The data intends to capture key trends across the G20 and as a result the list of packages included in the database may not be exhaustive or validated. The first draft of the InfraTracker was circulated to the IWG in March 2021 and cited in the G20 Communiqué in April 2021.

The full InfraTracker data tool (which is exclusively made available to G20 members), including its methodology, is available here: <https://analytics-internal.gihub.org/infratracker/>. The insights and trends derived from this data are summarised in this report.

When viewing the data and considering the trends, it should be remembered that each G20 country has unique priorities for stimulus, which are based on the local economic and social landscape. The trends that emerge in the data reflect countries' unique priorities and other local factors like:

- The presence of a national vision or sectoral strategy that drove the acceleration of programs / projects post-COVID-19
- The implementation of a strategic pipeline of projects that coincided with the pandemic (or in some cases, major programs completed just before the pandemic, which would therefore not feature in stimulus packages)
- Whether stimulus was focused on financial support for infrastructure operations rather than investment (financial support for operation is not included in the InfraTracker).

Although this report is the final report for Phase 2, the InfraTracker data tool will remain a 'living resource' and may be improved and updated periodically.

2.1 Summary of InfraTracker results

From February 2020⁴ until August 2021, approximately USD3.2 trillion of infrastructure as a stimulus (equivalent to around 3.2% of G20 members' GDP⁵) has been announced.

Figure 1 provides a timeline of all the infrastructure stimulus announcements since the beginning of the pandemic. G20 economies are starting to show signs of recovery from COVID, but stimulus announcements are expected to continue into 2022, particularly in countries where health-based restrictions on economic activity continue to be in place.

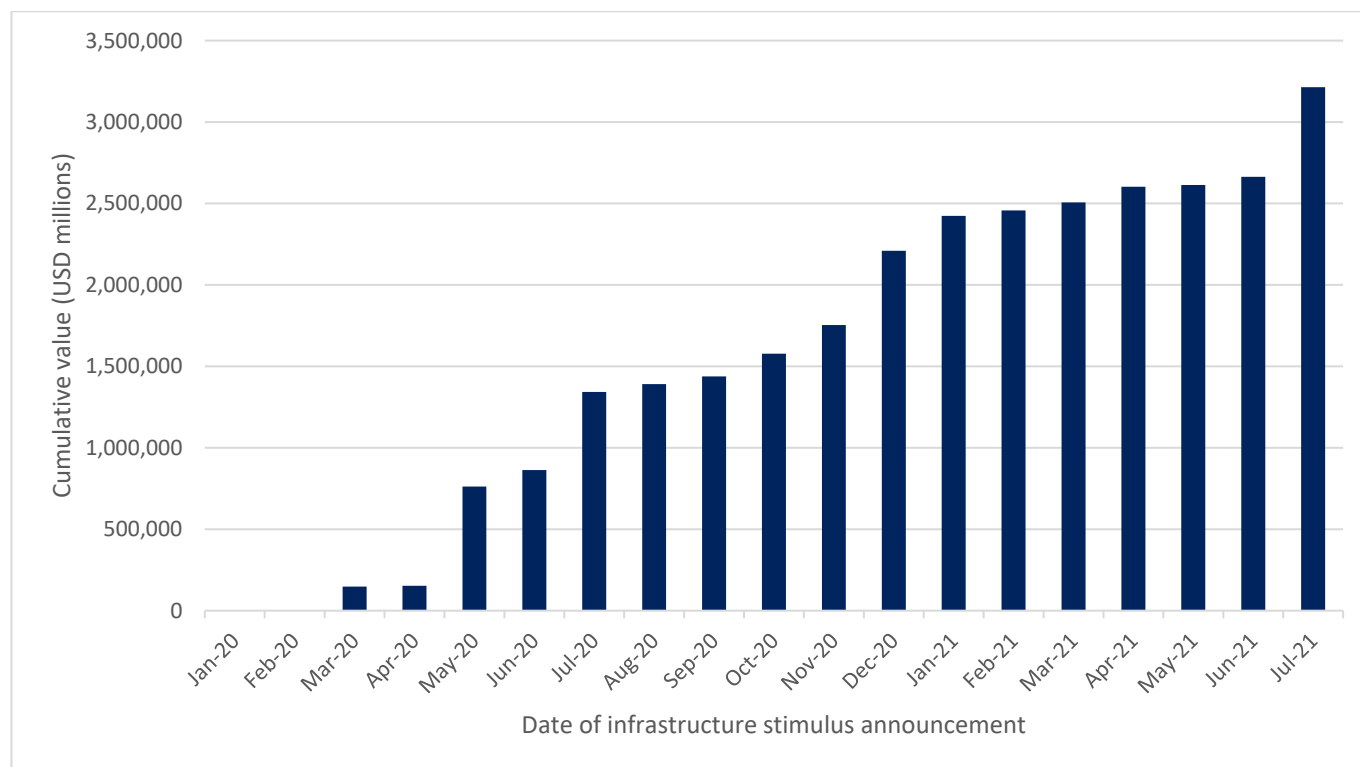
⁴ The World Health Organisation declared COVID-19 a 'Public Health Emergency of International Concern' on 30 January 2020.

⁵ Based on IMF GDP figures for 2020,

https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD/AFG



Figure 1: Cumulative value of infrastructure as a stimulus since February 2020 (in USD millions)



It is important to distinguish between stimulus announcements (which are the focus of the InfraTracker) and actual annual expenditure (which is not currently being captured). Stimulus announcements cover multi-year programs; currently, there is limited information on the yearly implementation of stimulus. Due to the long lead times of infrastructure projects, the actual annual expenditure profile of stimulus is not likely to be available for another few years.

However, using the IMF's analysis of the time horizon for COVID-19–related fiscal measures,⁶ it can be assumed in the absence of data on implementation that around 90% of this stimulus will be spent within two years of its announcement. To put this into context, draft figures from the GI Hub's forthcoming *Infrastructure Monitor 2021* indicate that the actual annual infrastructure investment in 2019 for the G20 was around USD3.5 trillion. Taking this into account, the additional spending (as announced) across the G20 could represent a 45% increase in yearly infrastructure investment in 2021 and 2022.⁷

⁶ IMF Fiscal Monitor, April 2021, Figure 1.7, <https://www.imf.org/en/Publications/FM/Issues/2021/03/29/fiscal-monitor-april-2021>

⁷ This assumes the USD3.2 trillion in infrastructure stimulus is split evenly into USD1.6 trillion yearly additional spend in 2021 and 2022.



2.2 Analysis of stimulus by infrastructure sector

Transport infrastructure received the highest portion of stimulus (26% of total stimulus, USD836 billion) overall, followed by the social infrastructure sector (19%). The infrastructure sector breakdown of the G20 infrastructure as a stimulus is depicted in Figure 2 on the following page. Below, Table 1 shows the 10 infrastructure sub-sectors that received the most stimulus. The presence in this list of healthcare, education, and environment and nature-based infrastructure suggests that G20 governments are prioritising opportunities for transformative outcomes like improved inclusivity and environmental sustainability. The full data set and methodology behind this analysis can be found online [here](#).

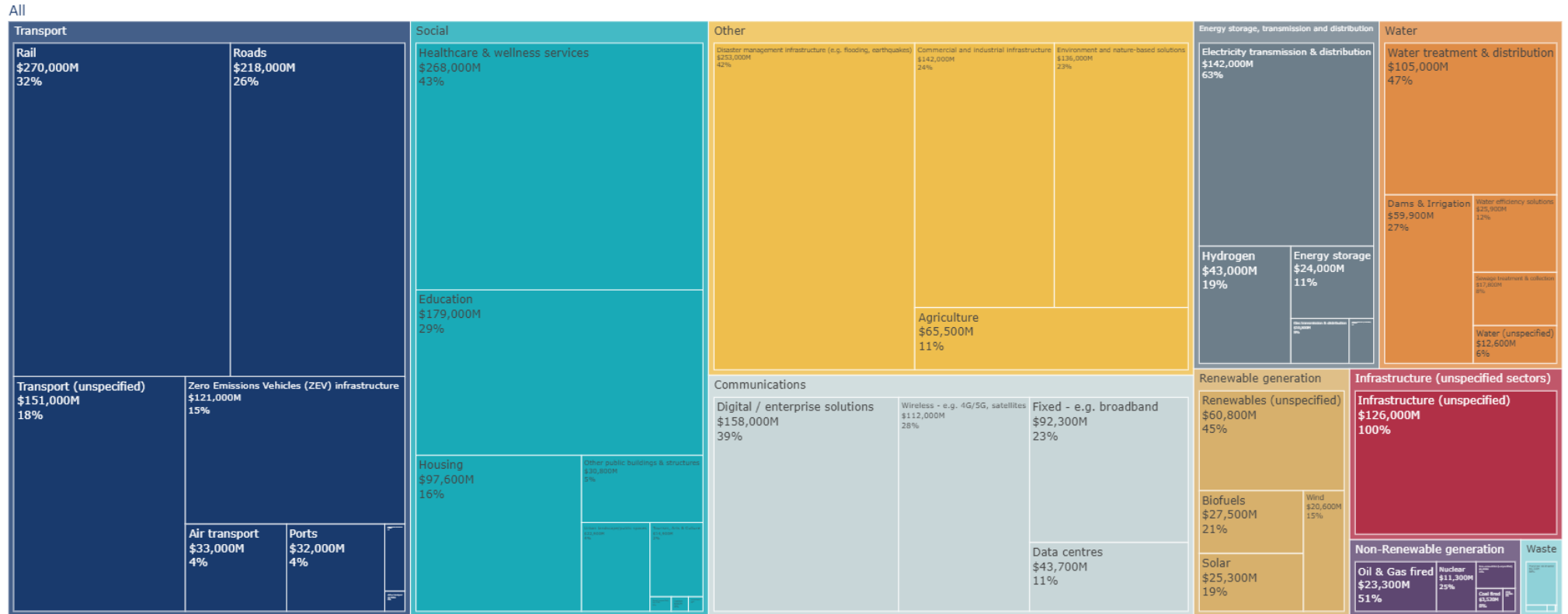
Table 1: The 10 sub-sectors that have received the most infrastructure as a stimulus across G20 countries

SUB-SECTOR	SECTOR	VALUE (USD MILLIONS)	VALUE (% STIMULUS)
Rail	Transport	270,000	8.4%
Healthcare and wellness services	Social	268,000	8.3%
Disaster management (e.g. flooding, earthquakes)⁸	Other	253,000	7.9%
Roads	Transport	218,000	6.8%
Education	Social	179,000	5.6%
Digital / enterprise solutions	Communications	158,000	4.9%
Transport (unspecified)	Transport	150,000	4.7%
Commercial and industrial infrastructure	Other	142,000	4.4%
Electricity transmission and distribution	Energy storage, transmission, and distribution	142,000	4.4%
Environment and nature-based solutions	Other	136,000	4.2%

⁸ Stimulus going into this sector is the result of a very large package from Japan, and is not considered reflective of the G20 response as a whole.



Figure 2: Stimulus by sector and sub-sector across G20 countries (USD millions)





2.3 Analysis of stimulus by transformative outcome

The InfraTracker data has been analysed to understand how infrastructure as a stimulus can tackle other key challenges being compounded by COVID-19, such as climate change, population growth, and social inequalities.

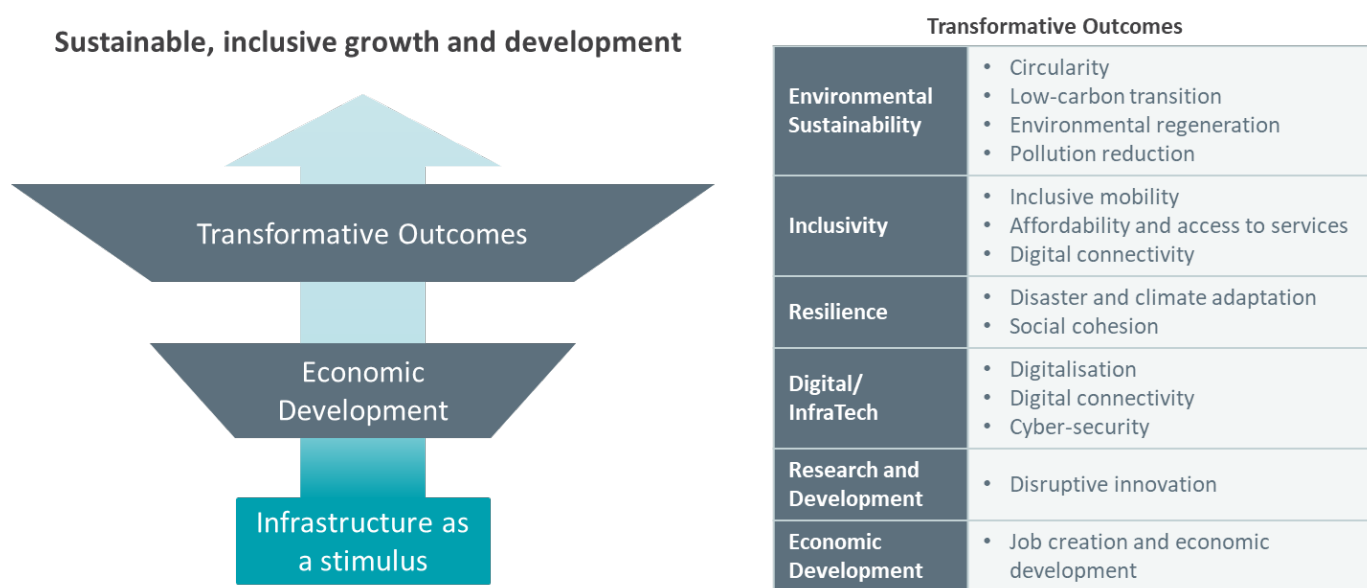
The GI Hub compiled a list of 13 transformative outcomes that were or could be targets of the G20 stimulus announcements. These outcomes were categorised into five broad categories, and infrastructure stimulus packages were mapped to these categories to identify trends in the likely transformative outcomes resulting from the stimulus packages to date. The 13 transformative outcomes and five categories are shown in Figure 3 below and detailed in Appendix A.

The analysis of potential transformative outcomes aims to uncover:

- Trends in long-term policy objectives that are seeking a transformative recovery
- How governments are aiming to achieve these objectives through infrastructure (for example, which sectors and sub-sectors are being used to achieve these outcomes)
- Innovative or alternative options for infrastructure development, in the form of examples of projects or initiatives completed in the last 18 months to achieve transformative outcomes.

All infrastructure investments can achieve economic development outcomes such as job creation and economic growth. It is when these economic development outcomes are combined with long-term policies in areas such as environmental sustainability, inclusivity, resilience, digital, and research and development that a government progresses toward achieving **transformative outcomes** (see Figure 3 below).

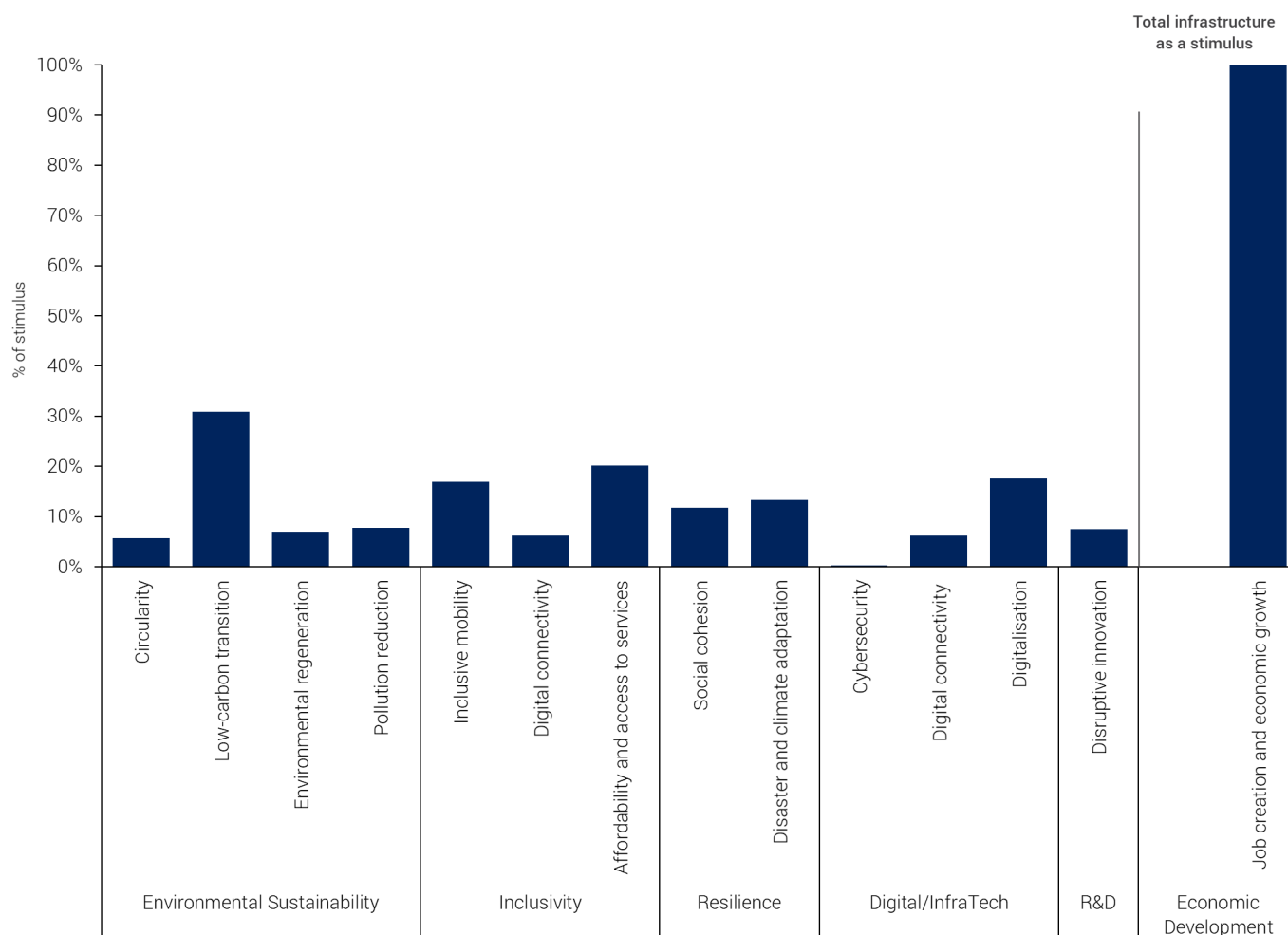
Figure 3: Transformative outcomes through infrastructure as a stimulus



The analysis of transformative outcomes sought through infrastructure across the G20 as a % of total stimulus are shown in Figure 4. As mentioned previously, all infrastructure investments can achieve economic development outcomes, and therefore the chart below shows that this outcome corresponds to the total stimulus value of USD3.2 trillion (i.e. 100% of stimulus).



Figure 4: Stimulus by transformative outcome across the G20 (as % of total stimulus)⁹



After job creation and economic growth, low-carbon transition (32%) is the most-targeted transformative outcome of stimulus across the G20, followed by affordability and access to services (20%), and digitalisation and inclusive mobility (both 17%). As can be seen in Figure 5, a large proportion of the stimulus related to low-carbon transition is being directed toward transport investment, such as rail and zero-emissions infrastructure. Low-carbon transition is also being achieved through renewable generation and associated electricity transmission infrastructure, including the production of green hydrogen.

⁹ Each stimulus announcement can be mapped to more than one transformative outcome, therefore the figures in the chart may not add up to 100%.

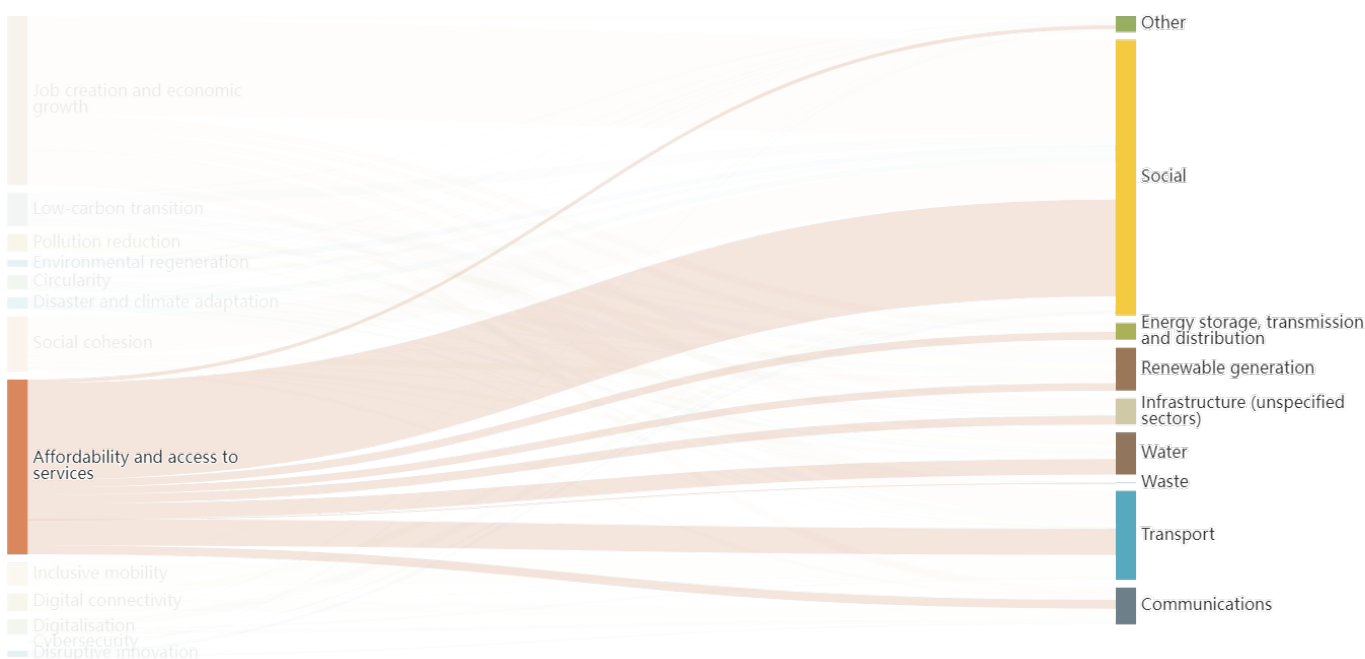


Figure 5: Infrastructure sectors (e.g. transport, social) associated with low-carbon transition



After low-carbon transition, affordability and access to services is the next most-targeted transformative outcome of stimulus across the G20. As can be seen in Figure 6, a large proportion of stimulus related to social infrastructure – such as education, healthcare, and housing infrastructure – targets affordability and access to services.

Figure 6: Infrastructure sectors (e.g. transport, social) associated with affordability and access to services



These are just two examples of the trends in how the G20 is looking to achieve more through infrastructure as a stimulus, examining just two areas that are highly targeted transformative outcomes. It is possible to explore the full data set and other trends with the InfraTracker tool [here](#).



2.4 Infrastructure can achieve multiple transformative outcomes

In the context of the multiple challenges posed by COVID-19 (e.g. limited fiscal space, social inequalities, climate change, and population growth), our analysis shows that many governments are also targeting multiple transformative outcomes through infrastructure as a stimulus. There is potential for exponential cost-benefit efficiency with stimulus that targets a broad range of outcomes for any given, single infrastructure project or program. For example, the analysis showed:

- Low-carbon transition in transport was often combined with inclusive mobility.
- Disruptive innovation outcomes were observed in stimulus related to hydrogen technology and support for zero-emissions vehicles.
- Access and affordability to services was often combined with social cohesion and low-carbon transition in education and healthcare projects that were minimising carbon emissions and ensuring access for underserved communities.

3 The *Compendium of Transformative Infrastructure Approaches*

To complement the work on InfraTracker, a *Compendium of Transformative Infrastructure Approaches* was developed to collate guidance documents that demonstrate effective approaches to achieving transformative outcomes through infrastructure. This compendium can be used by governments as a reference of approaches that could be adopted, subject to national circumstances.

A draft of this compendium was submitted to the IWG in June 2021. The final compendium submitted with this document has been updated to reflect feedback from G20 members and additional approaches related to the top transformative outcomes for infrastructure as a stimulus. The full compendium is contained in Appendix B.

3.1 Approach

The approach to developing the *Compendium of Transformative Infrastructure Approaches* is provided in Appendix A.

The GI Hub undertook a market scan of publicly available guidance documents that address or relate to transformation within infrastructure. The preliminary scan uncovered diverse approaches to transformative outcomes, including visions, strategies, plans, frameworks, and market performance reports. However, to address the ‘how’ component of this initiative’s problem statement, the compendium was limited to guidance documents. The documents uncovered during this research were then shortlisted (based on criteria detailed in Appendix A) and categorised according to:

1. Approach type:
 - a. Approach to support strategic goal setting
 - b. Approach to support process design
 - c. Approach to support resource and portfolio optimisation
 - d. Approach to support developing people and capabilities
2. Transformative outcomes (as per the InfraTracker transformative outcomes) addressed (see Figure 3).
3. GI Hub InfraCompass infrastructure drivers addressed, as a means of identifying specific capabilities or capacity challenges that are addressed by the guidance documents.



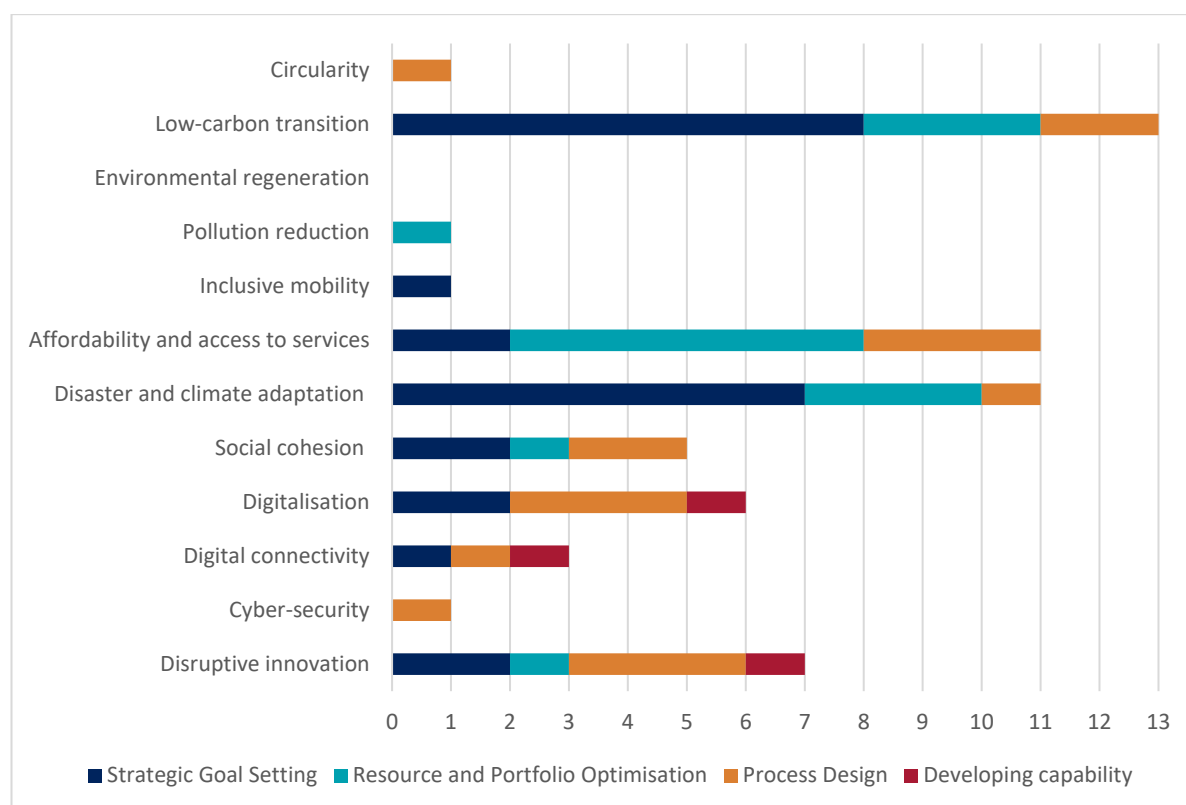
3.2 Key findings

To identify approaches that support achieving transformative outcomes through infrastructure as a stimulus, we began with a systematic review of available literature from governments and leading bodies worldwide. We compiled these documents into the *Compendium of Transformative Infrastructure Approaches*. We reviewed and analysed the 23 documents contained in the compendium to identify recurrent key themes in recommendations related to the top two transformative outcomes beyond job creation and economic growth: low-carbon transition and affordability and access to services (see Figure 4). This is detailed in the sections below.

One overarching theme from across the approaches is the efficacy of a coherent growth agenda developed through long-term infrastructure and spatial plans that consider a broad set of long-term outcomes beyond immediate job creation.¹⁰ As the OECD states, “Economic recovery packages should be designed to “build back better”. This means doing more than getting economies and livelihoods quickly back on their feet.”¹¹

The types of guidance documents available for each transformative outcome varied significantly (Figure 7). For low-carbon transition, disaster and climate adaptation and social cohesion, the majority of the approaches relate to strategic goal setting. This could indicate that the maturity in thinking around achieving those outcomes could be less developed than that of other outcomes (e.g. affordability and access to services).

Figure 7: Number of types of guidance documents in the *Compendium of Transformative Infrastructure Approaches*



¹⁰ *Enabling better infrastructure: 12 guiding principles for prioritising and planning infrastructure*, Institution of Civil Engineers, 2020.

¹¹ [Building back better: A sustainable, resilient recovery after COVID-19, OECD, 2020](#)



3.2.1 Approaches for low-carbon transition

Key findings from across the compendium of transformative infrastructure approaches that support low-carbon transition outcomes through infrastructure are outlined in Table 2. All transformative infrastructure approaches are outlined in Appendix B.

Table 2: Summary of findings from transformative approaches to support low-carbon transition

Themes	Summary of findings	Relevant guidance document(s)	Approach type
Develop a clear national or sector-based strategy with clear investment criteria to fast-track the low-carbon transition through infrastructure	In a recent analysis, GI Hub estimated that infrastructure's greenhouse gas (GHG) emissions account for about 50% of global GHG emissions. ¹² Infrastructure can therefore play a big role in achieving global climate targets. However systemic change is needed across the infrastructure lifecycle to accelerate the pace of change. Furthermore, the sector would benefit from clear and verifiable investment criteria to define objectives and to better understand whether commitments are on track to meet Paris Agreement targets.	<p><i>"Getting investment and climate policy right is a necessary condition of success in meeting the climate challenge, but it is not enough."</i></p> <ul style="list-style-type: none"> – Climate, infrastructure and finance: An agenda for transformation, OECD, The World Bank, UN Environment, 2018 <p><i>"The sector strategy also lacks both a sector-wide emission target and a climate finance target."</i></p> <ul style="list-style-type: none"> – Aligning the Asian Infrastructure Investment Bank (AIIB) with the Paris Agreement and the SDGs: Challenges and Opportunities, AIIB, 2019 	Strategic goal setting
A common definition for sustainable infrastructure projects could send the right signals to the market and mobilise private capital.	A common definition for sustainable infrastructure projects can help identify and prioritise the most effective projects for low-carbon transition, especially where this definition is linked to overarching strategies for infrastructure. This could provide greater certainty for private investors and leverage	<p><i>"A consistent, globally applicable labelling system for sustainable infrastructure assets...could allow the market to easily signal the sustainability of the asset."</i></p> <ul style="list-style-type: none"> – FAST-Infra Sustainable Infrastructure Label, Climate Policy Initiative, HSBC, the International Finance Corporation, OECD and the Global Infrastructure Facility, 2021 (Note: still in consultation) 	Strategic goal setting

¹² Global Infrastructure Hub, 2021. *Roadmap: Infrastructure's Transition to a Circular Economy*



	investor interest in low-carbon transition to drive sustainable infrastructure investments.	<p><i>"Given the urgent need to scale up sustainable infrastructure, a shared definition and understanding as well as a common framework can ensure that these efforts are well aligned and can enhance its delivery."</i></p> <ul style="list-style-type: none"> – Attributes and Framework for Sustainable Infrastructure, Inter-American Development Bank, 2019 	
Capturing the costs and benefits of low-carbon transition will bring better transparency in planning and investment decision-making	The lifecycle costs and benefits associated with low-carbon transition is not well-understood or applied to project appraisal. Better data, capabilities and transparency in quantifying the costs and benefits can go a long way to attracting investment into infrastructure for low-carbon transition, particularly in the transport sector which accounts for around 17% of global GHG emissions ¹² . This could help better identify the most effective projects, and better account for long-term benefits of low-carbon transition.	<p><i>"Appraisal of alternative policy options is an inseparable part of detailed policy development and design."</i></p> <ul style="list-style-type: none"> – Quantifying and valuing energy and GHG emissions, UK Government, 2021 <p><i>"Policymakers, project proponents, and project teams can use the tool to create an initial evidence base for allocating resources, articulating potential societal impacts, and helping inform planning and design to align with intended impacts."</i></p> <ul style="list-style-type: none"> – Shorthand Cost Benefit Analysis Tool for Bus Transportation Projects, GI Hub, 2021 	Resource and portfolio optimisation



3.2.2 Approaches for affordability and access to services

Key findings from across the compendium of transformative infrastructure approaches that support affordability and access to services outcomes through infrastructure are outlined in Table 3. All transformative infrastructure approaches are outlined in Appendix B.

Table 3 Summary of findings from transformative approaches to support affordability and access to services

Themes identified	Summary of findings	Relevant guidance document(s)	Approach type
Involve citizens in infrastructure planning to better target and achieve transformative outcomes	Involving citizens in planning can be key to identifying, incorporating and achieving a broad and holistic range of transformative outcomes in infrastructure planning.	<i>"The best consultation processes do much more than try and secure public consent for a strategy or a specific project. They provide vital data and insight that allow changes to be made at an early stage."</i> – Enabling better infrastructure: 12 guiding principles for prioritising and planning infrastructure, Institution of Civil Engineers, 2020	Resource and portfolio optimisation
		<i>"Stakeholder engagement is about more than providing information to stakeholders. Done well, it is a dynamic and ongoing process that can transform stakeholders' experiences and situations. Targeted at low-income and other groups at risk of being excluded... it can help break cycles of disadvantage and achieve long-term gains for projects and communities."</i> – Inclusive Infrastructure Tool, Global Infrastructure Hub, 2018	Process design
Focus on citizen outcomes (and not built solutions) during the planning stage	Focusing on citizen outcomes (and not built solutions) in planning and procurement can help with achieving maximum benefits. Defining projects in terms of social outcomes also allows for new and innovative ways to deliver those outcomes.	<i>"It is tempting to define future infrastructure requirements in terms of specific assets: "this city needs light rail" or "we must expand our motorway" are some examples. Defining projects in terms of social outcomes, such as delivering affordable public mobility between specific points, leaves an opening for technological innovation to deliver those outcomes."</i>	Strategic goal setting



		– Transforming infrastructure: Frameworks for Bringing the Fourth Industrial Revolution to Infrastructure, World Economic Forum, 2019	
Improve analysis of long-term social impacts of projects	It may be difficult to gather enough information to understand project benefits and to use this information to factor into project funding decisions. This can mean that the most socially beneficial projects are not identified or prioritised.	<p><i>“[An] unstructured path to project approval leaves room for ... particularist infrastructure policy that is unlikely to effectively serve development needs.”</i></p> <p>– Prioritizing Infrastructure Investment: A Framework for Government Decision Making, World Bank Group, 2016</p>	Resource and portfolio optimisation
	Where data is not available, simple frameworks such as multi-criteria analysis could be applied to better account for social benefits. Where data is available, further effort could be taken to value long-term social benefits over short-term costs in decision-making. This can include expressly including inclusivity targets for business cases.	<p><i>“One of the challenges is that social parameters and benefits are, frequently, not easily measurable (in terms of valuations in monetary units), and lend themselves more readily to qualitative evaluation. Nevertheless, there is scope to better integrate social parameters in the project development process.”</i></p> <p>– Inclusive Infrastructure Tool, Global Infrastructure Hub, 2018</p>	Process design



4 The *Compendium of Emerging Funding and Financing Case Studies*

To complement InfraTracker and align with experience outlined above of the way infrastructure needs to be managed differently to achieve a transformative recovery, a *Compendium of Emerging Funding and Financing Case Studies* (EF&F Compendium) was developed (Appendix C). This compendium demonstrates how governments have effectively funded and financed infrastructure stimulus programs during ‘exceptional times’ in the past. Included are case studies on emerging approaches adopted during exceptional times by central and – in some instances – regional and local governments, to:

- Fund infrastructure
- Minimise the cost of financing infrastructure
- Accelerate time to market
- Leverage private capital, including foreign investment.

Activating private capital is key to closing the global infrastructure investment gap. The industry currently has an opportunity to explore investment options and create stronger partnerships between the public and private sectors, helping drive economic recovery in the short term while also driving longer-term economic and social outcomes.

4.1 Approach

The EF&F Compendium addresses two common challenges faced by governments in financing large-scale infrastructure programs during exceptional times. These include:

- The fiscal constraints being faced by governments as a result of COVID-19
- The need to attract more private investment into infrastructure to finance infrastructure needs.

To address these challenges, there is a need to activate policy levers that achieve outcomes that are scalable and replicable, and that incentivise greater private sector and foreign investment. To support governments in designing these levers, the EF&F Compendium includes a range of examples implemented by G20 members, including, where possible, linkages with the InfraTracker trends highlighted above. The case studies exemplify:

- Strategies implemented after the Global Financial Crisis (GFC) to finance infrastructure stimulus, excluding conventional methods of raising finance such as the issuance of treasury securities and quantitative easing
- Programs covering greenfield and upgrade initiatives as well as transformative infrastructure categories, to link with the InfraTracker trends
- Above- and below-the-line financing solutions
- Innovative government guarantees and credit enhancement mechanisms.

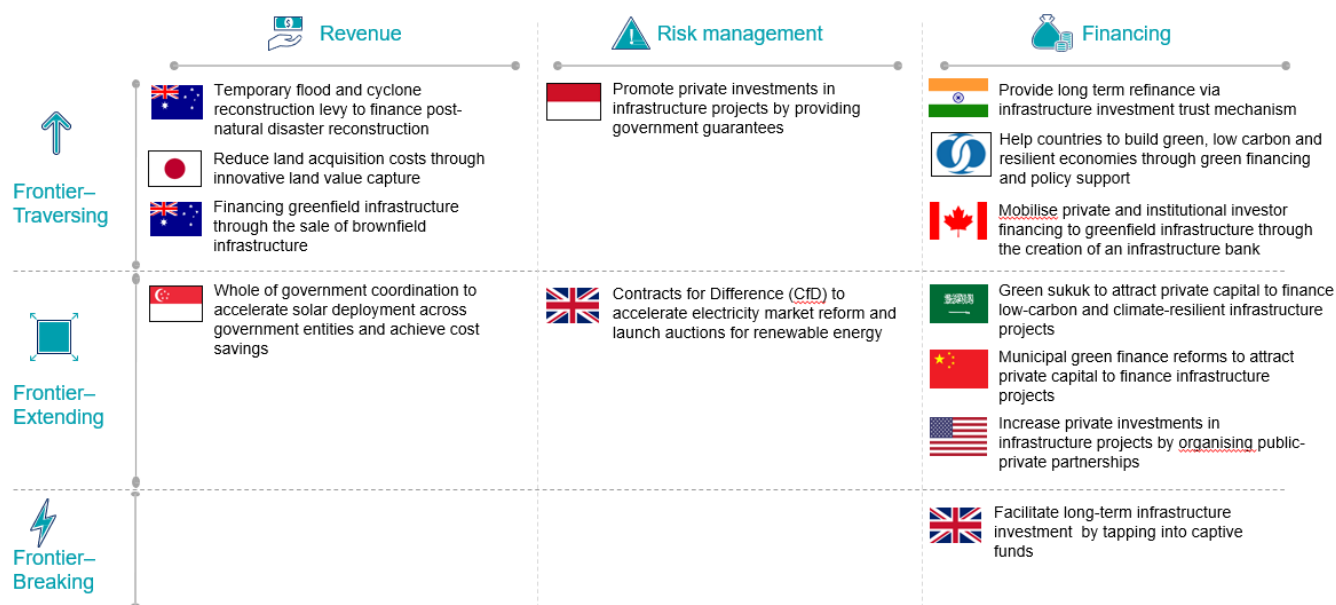
As such, the EF&F Compendium examples represent a ‘best fit’ with the socioeconomic conditions faced by many economies after COVID-19. Further details about the methodology for this compendium are provided in Appendix C.



4.2 Key findings

The GI Hub's research uncovered 13 leading emerging funding and financing case studies for infrastructure. An overview of these case studies is shown in Figure 8, which also maps each case study in accordance with whether it applied a revenue, risk management, or financing lever and the level of innovation it demonstrates. Innovation was considered on a scale from best practice (most innovative, referred to as frontier-traversing) through to disruptive (least innovative, but still innovative, referred to as frontier-breaking). Further detail on the case studies is provided in Table 4.

Figure 8: Overview of case studies in EF&F Compendium



The case studies reveal several themes that shape infrastructure project funding and financing practice and innovation during these exceptional times, and in other exceptional times of the past:

There is growing interest in sustainability and resilience among capital markets: To deliver on commitments related to sustainable development goals and address climate change, there has been an increase in renewable and green infrastructure projects. Some success was seen in attracting financing using definitions and standardisation through instruments such as green bonds and green sukuk, which have had a high level of interest from capital markets. However, although the concept of standardisation has a good track record of attracting private investment, there are challenges to wider adoption. In the interim, it is recommended to consider the feasibility of applying these concepts on a case-by-case basis.

Funding and financing mechanisms are extended: The funding and financing mechanisms deployed during exceptional times and captured in these case studies are not necessarily innovative in themselves, but demonstrate innovation in being applied in a new market or refined with a view to achieving a better outcome in a local context. For example, Indonesia established a statutory body to appraise infrastructure PPPs and provide guarantees that could increase the certainty of private sector participation in PPPs. The body focuses on consistency, clarity, standardised procedures, and better management of fiscal risk vis-à-vis normal government guarantees.

There are efforts to promote private investment and involvement: The GFC resulted in a weak macroeconomic and inflationary environment, which raised funding challenges and limited the relief available from governments. Given long capital cycles for infrastructure, governments are eager to create fiscal space to ramp up other priority spending by relieving capital constraints. As such, the private sector is integral for the development of infrastructure – as vendors, lenders, investors, and partners to government or as outright owners of significant categories of infrastructure like energy and toll roads. Private investment usually takes the form of financing, and such opportunities have increased in recent years. As the COVID-19 crisis



has not constrained liquidity and lending in the same way the GFC did, infrastructure has become more attractive for investors searching for yield with appropriate risk returns, such as renewables and other infrastructure with reliable revenue profiles. Programs and contracts can be better designed by both governments and multilateral development banks (MDBs) to align the incentives of all parties. In projects and sectors where the investment risks remain relatively high, the risk-absorbing capacity of public finance plays an important role to mitigate risk for private sector-led projects.

Good governance is a key success factor for program roll-out: Well-structured programs should create incentives and lead to results that match the goals that inspired them in the short and long term. Lack of clarity about government policy, poor management of programs, and concern about regulatory stability are key blockers to the acceleration of private sector investment. The confidence to continue investing can be undermined if initial projects are poorly planned, delivered, or operated.



Table 4 Details of emerging funding and financing case studies

Case study	Country	Key challenge	Innovation	Lever	Source of stimulus
Temporary flood and cyclone reconstruction levy to finance post-natural disaster reconstruction	Australia	Post-natural disaster recovery	Special levy	Revenue	Central government
Promote private investments in infrastructure projects by providing government guarantees	Indonesia	Mobilise foreign funding towards infrastructure investment amidst fiscal constraints	Guarantee Fund in collaboration with multilateral development banks.	Risk Management	Central government
Contracts for Difference (CfD) to accelerate electricity market reform and auctions for renewable energy	United Kingdom of Great Britain and Northern Ireland	Sustainability and resilience	Contracts for Difference (CfD)	Risk Management	Central government
Reduce land acquisition costs through innovative land value capture	Japan	Fiscal constraints leading to financing challenges	New law allowing for land readjustment and acquisition along future railway lines	Revenue	N/A
Green Sukuk	Saudi Arabia	Attracting foreign financing for green investments	Established a Green Sukuk Framework for USD-denominated green sukuk issuance	Financing	Central government
Green finance reforms to attract private capital at the municipal level	China	Attracting financing for municipal-level green investments	Established pilot zones for green finance reform and innovation	Financing	Local government
Provide long term refinance via infrastructure investment trust mechanism	India	Infrastructure sector needed substantial foreign investments post-GFC to fulfill the demands of the growing economy	Introduced Infrastructure Investment Trusts (InvITs) for infrastructure developers to divest operational projects and reduce their leverage	Financing	N/A



Increase private investments in infrastructure projects by organizing public-private partnerships	India	State and federal infrastructure funding had become inconsistent and unpredictable	Creating an infrastructure trust to facilitate private sector investment from institutional investors	Financing	Local government
Help countries to build green, low carbon and resilient economies through green financing and policy support	United States of America	Non-traditional private investors not investing in infrastructure due to inadequate project risk return profiles	Facilitate a wide range of the financial instruments to address green economy opportunities	Financing	N/A
Whole of government coordination to accelerate solar deployment across government entities and achieve cost savings	Singapore	Lack of interest from commercial and industrial sector players to take on the risk of investing in solar energy systems	The government coordinated efforts to aggregate rooftop PV demand from various government agencies to achieve economies of scale	Revenue	Central government
Mobilise private and institutional investor financing to greenfield infrastructure through the creation on infrastructure banks	Canada	Attract low-cost investment from private sector investors and institutional investors to infrastructure projects that will generate revenue and that will be in the public interest	Set up an infrastructure bank to pursue its public policy objectives whilst balancing commercial and financial pressures	Financing	Central government
Facilitate long-term infrastructure investment by tapping into captive funds	Canada	Needed to access captive funds to invest in national infrastructure development	PIF allowed pension schemes of all sizes to invest in national infrastructure projects by pooling resources into a single investment fund	Financing	Central government
Financing greenfield infrastructure through the sale of brownfield infrastructure	United Kingdom of Great Britain and Northern Ireland	State government faced a politically complex challenge with asset privatisations given public concern over job losses	Asset recycling requiring private sector investors to make capital improvements or expand the capacity of the leased facilities	Revenue	Central government



5 Conclusions and next steps

The findings from Phase 2 of Transformative Infrastructure for COVID Recovery provide data and insights into what could be included in infrastructure stimulus packages, as well as how these packages can be implemented to achieve transformative outcomes. The amount of infrastructure as a stimulus announced since the beginning of the pandemic will mean that the scale of infrastructure investment over the coming years will be significantly higher than normal. And, the bulk of these infrastructure stimulus announcements address the most pressing challenges of our times, targeting transformative outcomes like low-carbon transition and improved affordability and access to services. This phase of the GI Hub initiative has provided approaches to both achieve transformation through infrastructure, and fund such transformation.

A digital InfraTracker data tool was developed exclusively for G20 members and is available [here](#). The data tool provides access to all of the data at an aggregated G20 level and also breaks it down into country-specific trends. This tool will be a 'living resource' and may be updated from time to time.

In October 2021 a curated version of the data tool will be launched to the public on the GI Hub public website at www.gihub.org. It will share highlights of the data and insights at the G20 level and by country. It will also provide access to key findings and recommendations related to transformative infrastructure approaches, and the EF&F case studies.

A detailed concept note for this project for 2022 will be produced for the IWG, which may include trends related to the evolution and implementation of stimulus. There are also plans to work with private sector partners to further enhance guidance focused on operationalising transformative infrastructure approaches.



Appendix A - Methodology for compendium of transformative infrastructure approaches

The GI Hub's methodology for identifying and shortlisting transformative infrastructure guidance documents in the production of this compendium is summarised below.

Step 1: Preliminary scan

The GI Hub first undertook a preliminary, high-level scan of publicly available resources covering transformation in the broadest sense. This preliminary scan uncovered resources focused on achieving transformative outcomes through infrastructure across a spectrum of geographies, sectors and organisational types. The intent of the scan was to understand the current landscape with a view to narrowing the selection to a more relevant and targeted shortlist of approaches.

Step 2: Narrowing the list to a shortlist of approaches

The approaches found during the preliminary scan was reduced to a shortlist of 23 based on the following criteria:

- **Guidance documents:** The preliminary scan uncovered diverse approaches to transformative outcomes, including visions, strategies, plans, frameworks, and market performance reports. However, to address the 'how' component of this initiative's problem statement, the compendium was limited to guidance documents that include guidance on *how* to set and achieve strategic goals. The different types of guidance documents are outlined in the typology described in Step 3.
- **Transformative infrastructure outcomes:** The guidance documents state clear objectives under one or more of the transformative infrastructure outcomes specified in Table A.1.
- **Publishing entities:** Only frameworks published by G20 national and sub-national government agencies,¹³ international organisations, multilateral development banks, and peak industry bodies were included.
- **Publishing date:** Only frameworks published in the last five years were included in the shortlist.
- **Diversity across the typology:** The shortlist maintains diversity in typology, as outlined in Step 3.

Step 3: Creating a typology and mapping the shortlisted approaches

A literature review was undertaken of the shortlisted frameworks to map each framework to the typology outline below. Frameworks were mapped to the appropriate typology based on information in the published document. If the framework did not explicitly provide the information required to map the framework to the typology, the GI Hub assessed and mapped the framework based on experience.

- Transformative infrastructure categories and outcomes addressed by the approach, linking with InfraTracker (see Table A.1).
- InfraCompass drivers of infrastructure enabling environments addressed by the approach (see Table A.2)
- Approach type
 - Approach to support strategic goal setting
 - Approach to support process design
 - Approach to support resource and portfolio optimisation
 - Approach to support developing people and capabilities
- Infrastructure sector(s) being targeted by the approach:

◦ Infrastructure (all sectors)	◦ Energy	◦ Water
◦ Communications	◦ Social	◦ Waste
	◦ Transport	◦ Other

¹³ For any frameworks submitted following a request at the February IWG meeting.



Table A.1 Transformative infrastructure categories and outcomes

Category	Transformative outcome	Types of infrastructure announcements
Environmental Sustainability	Circularity	Infrastructure that supports the circular economy either in the way the infrastructure itself is built (circular infrastructure) or by enabling circularity in the economy (infrastructure for circularity) * Global Infrastructure Hub (2021) The Role of Infrastructure in the Circular Economy)
	Environmental regeneration	Infrastructure that supports rehabilitation or restoration of environmental assets or biodiversity
	Low-carbon transition	Infrastructure that supports the transition to net zero emissions of carbon dioxide (CO ₂) * Adapted from World Bank (2015) Decarbonising Development
	Pollution reduction	Infrastructure that supports reduction of air, water, noise and land pollution (other than that covered under 'low-carbon transition').
Inclusivity	Inclusive mobility	Infrastructure that increases access and safety to transport modes for underserved communities.
	Digital Connectivity	Digital infrastructure as a channel to improve skills, to enhance quality of life, to drive education and to promote economic wellbeing across all elements of society. * Adapted from the Australian Digital Inclusion Index (2016)
	Affordability and access to services	Infrastructure that improves affordability of tariffs and infrastructure services for low-income groups thereby enabling universal access to basic services. * Global Infrastructure Hub (2019) Inclusive Infrastructure
Resilience	Disaster and climate adaptation	Infrastructure that increases resilience, or the ability of individuals, institutions, businesses, and systems within the community to survive, adapt, and grow despite the chronic stresses or acute shocks they experience. 'Stresses' and 'shocks' include impacts of climate change, natural disasters and pandemics. * Adapted from Resilient Cities Network
	Social cohesion	Infrastructure supports community well-being, fights exclusion and marginalisation, creates a sense of belonging, promotes trust, and offers its members the opportunity of upward mobility, enhancing the capacity of communities to respond to shocks and stresses. * Adapted from OECD (2012) Perspectives on Global Development: Social Cohesion in a Shifting World
Digital/InfraTech	Digitalisation	Infrastructure that integrates material, machine, and digital and data technologies across its lifecycle to improve services (other than that included under 'digital connectivity'). * Adapted from G20 Infrastructure Working Group Riyadh InfraTech Agenda, OECD Going Digital: Shaping Policies, Improving Lives)



Category	Transformative outcome	Types of infrastructure announcements
	Cyber-security	Infrastructure that increases the security of digital infrastructure (including hardware, networks and data) to unauthorised access or malicious attacks ensuring confidentiality, integrity, and availability of information. * Adapted from US Cybersecurity and Infrastructure Security Agency (2009) Security Tip (ST04-001)
	Digital Connectivity	As defined above.
Research and Development	Disruptive innovation	Disruptive innovation involves new products or services that challenge established or incumbent products and services by addressing new market needs and by making the offerings more widely accessible and affordable. * Adapted from Harvard Business Review (2015) What is Disruptive Innovation?
Economic Development	Job creation and economic growth.	Infrastructure can support sustained and inclusive economic growth that can drive progress, create decent jobs for all and improve living standards. * Adapted from Sustainable Development Goal 8: Decent work and economic growth

Table A.2: InfraCompass drivers of infrastructure enabling environments – fundamental variables that affect infrastructure outcomes

Category	Description
Governance	Governance and institutional settings
Regulatory framework	Investment policy and economic regulation
Permits	Clarity and consistency of the permits and land acquisition process
Planning	Planning and infrastructure appraisal processes
Procurement	Efficiency of government contracting and procurement
Activity	The extent and nature of recent infrastructure investment activity and extent of private sector involvement over the last five years, relative to the size of the economy
Funding capacity	The capacity of governments to invest in infrastructure over time
Financial markets	The availability and cost of funding for infrastructure

Appendix B: Compendium of transformative infrastructure approaches

This compendium contains approaches and guidance documents that support the achievement of transformative outcomes.

Category	Transformative Outcome	Approaches for strategic goal setting	Approaches for resource and portfolio optimisation	Approaches for process design	Approaches for developing capability
Environmental Sustainability	Circularity			19	
	Low-carbon transition	1, 3, 4, 5, 6, 7, 8, 9	10, 14, 15	17, 19	
	Pollution reduction		13		
Inclusivity	Inclusive mobility	1			
	Affordability and access to services	5, 6	11, 10, 12, 13, 14, 15	16, 17, 22	
Resilience	Disaster and climate adaptation	3, 4, 5, 6, 7, 8, 9	13, 14, 15	17	
	Social cohesion	1, 8	10	16, 22	
Digital/Infra-tech	Digitalisation	2, 3		18, 20, 21	23
	Digital connectivity	2		20	23
	Cyber-security			21	
Research and Development	Disruptive innovation	2, 3			23

Approaches for strategic goal setting

Strategic goal setting

1

The Future of Asian and Pacific Cities: Transformative pathways towards sustainable urban development

Key transformative outcomes

Low-carbon transition

Inclusive mobility

Social cohesion

Link to view full guidance:
[The Future of Asian and Pacific Cities: Transformative pathways towards sustainable urban development](#)

Reference: United Nations, 2019

Short summary:
The report is a resource to explore critical and emerging policy opportunities to realise urban sustainability for the Asia-Pacific region. The report informs policies and actions from a sustainable development perspective, putting cities at the center of development policy debates. The report identifies future policy pathways for urban decisionmakers and stakeholders to reimagine the built and natural environments in Asian and Pacific cities. It offers policy solutions across different types of cities to achieve global development agendas.

This approach enables **strategic goal setting** to help accelerate structural change to move the region’s cities towards sustainability. This approach can be applied to **all infrastructure sectors** and is targeted towards the **Asia-Pacific** region.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance** and **planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments

Governance

Regulatory frameworks

Permits

Planning

Procurement

Activity

Funding capacity

Financial markets

✓

✓

Strategic goal setting

2

Transforming infrastructure: Frameworks for Bringing the Fourth Industrial Revolution to Infrastructure

Key transformative outcomes

Disruptive innovation

Digitalisation

Digital connectivity

Link to view full guidance:
[Transforming infrastructure: Frameworks for Bringing the Fourth Industrial Revolution to Infrastructure](#)

Reference: World Economic Forum, 2019

Short summary:
This transformative infrastructure approach is a guidebook on the different frameworks available to create the right enabling environment to integrate existing technologies into infrastructure and spur new innovation.

This approach enables **strategic goal setting** in the context of existing and new technologies for infrastructure. This approach is not sector-specific and can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, planning, and procurement** of infrastructure.

InfraCompass drivers of infrastructure enabling environments

Governance

Regulatory frameworks

Permits

Planning

Procurement

Activity

Funding capacity

Financial markets

✓

✓

✓

Strategic goal setting

3

Aligning the Asian Infrastructure Investment Bank (AIIB) with the Paris Agreement and the SDGs

Key transformative outcomes		
Low-carbon transition	Disaster and climate adaptation	Digitalisation

Link to view full guidance:
[Aligning the Asian Infrastructure Investment Bank \(AIIB\) with the Paris Agreement and the SDGs: Challenges and Opportunities](#)

Reference: Asia Infrastructure Investment Bank, 2019

Short summary:
This transformative infrastructure approach is a guidebook on the different frameworks available to create the right enabling environment to integrate existing technologies into infrastructure and spur new innovation.

This approach enables **strategic goal setting** to support the Paris agreement and ensure a shift towards sustainable low-carbon and climate resilient infrastructure development occurs. This approach applies best to the **energy and transport sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, planning** and **financial markets** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓			✓				✓

Strategic goal setting

4

Pan-Canadian Framework on Clean Growth and Climate Change

Key transformative outcomes		
Low-carbon transition	Disaster and climate adaptation	Disruptive innovation

Link to view full guidance:
[Pan-Canadian Framework on Clean Growth and Climate Change](#)

Reference: Government of Canada, 2018

Short summary:
The Pan-Canadian Framework identifies how to create a plan to address climate change across four main pillars: 1) pricing carbon pollution; 2) reducing emissions across the economy; 3) adapting to climate change and building resilience; and 4) accelerating innovation and supporting clean technology.

This approach enables **strategic goal setting** to develop a plan that addresses climate change and further reduces emissions across the economy. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance** and **planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓			✓				



Sustainability Principles: Infrastructure Australia’s approach to sustainability

Key transformative outcomes		
Low-carbon transition	Affordability and access to services	Disaster and climate adaptation

Link to view full guidance:
[Sustainability Principles: Infrastructure Australia’s approach to sustainability](#)

Reference: Infrastructure Australia, 2021

Short summary:
The Sustainability Principles outline the role of infrastructure in promoting sustainability and provide a framework for how sustainability will be included in the planning and assessment of future infrastructure projects. It proposes the inclusion of sustainability in the Assessment Framework as well as the Australian Infrastructure Audit to prioritise sustainability when looking at the country’s future infrastructure needs.

This approach enables **strategic goal setting** to help accelerate structural change to move the country towards more sustainable infrastructure. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, planning, and procurement** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets



Attributes and Framework for Sustainable Infrastructure

Key transformative outcomes		
Low-carbon transition	Affordability and access to services	Disaster and climate adaptation

Link to view full guidance:
[Attributes and Framework for Sustainable Infrastructure](#)

Reference: Inter-American Development Bank, 2019

Short summary:
The document refers to sustainable infrastructure as: "Infrastructure projects that are planned, designed, constructed, operated and decommissioned in a manner that ensures economic and financial, social, environmental (including climate resilience), and institutional sustainability over the entire life cycle of the project." This document compiles the attributes for sustainable infrastructure across four dimensions and provides a framework for assessing the sustainability of infrastructure investments.

This approach enables **strategic goal setting** to assess the sustainability of an infrastructure investment. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance and planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets

7

Climate, infrastructure and finance: An agenda for transformation

Key transformative outcomes	
Low-carbon transition	Disaster and climate adaptation

Link to view full guidance:
[Climate, infrastructure and finance: An agenda for transformation](#)
(Chapter 1 in Financing Climate Futures)

Reference: OECD, The World Bank, UN Environment, 2018

Short summary:
This is Chapter 1 in the *Financing Climate Futures* publication. It provides a framework for how governments can shift away from incremental progress on climate change and deliver transformation. It highlights actions across six transformative areas: planning, innovation, public budgeting, financial systems, development finance, and cities.

This approach enables **strategic goal setting** to develop an agenda to move towards transformative impact. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance** and **planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓			✓				

8

Building back better: A sustainable, resilient recovery after COVID-19

Key transformative outcomes		
Low-carbon transition	Disaster and climate adaptation	Social cohesion

Link to view full guidance:
[Building back better: A sustainable, resilient recovery after COVID-19](#)

Reference: OECD 2019

Short summary:
This plan sets out the considerations to include in recovery policies to ensure that the response 'trigger[s] investment and behavioural changes that will reduce the likelihood of future shocks and increase society's resilience to them when they do occur'. The approach focuses on wellbeing and inclusiveness.

This approach enables **strategic goal setting** to build back better after COVID-19. It can be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance**, **regulatory frameworks**, and **planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓	✓		✓				



FAST-Infra Sustainable Infrastructure Label

Key transformative outcomes

Low-carbon transition

Disaster and climate adaptation

Link to view full guidance:
[FAST-Infra Sustainable Infrastructure Label](#)
(Note: still in consultation)

Reference: Climate Policy Initiative, HSBC, the International Finance Corporation, OECD, and the Global Infrastructure Facility, 2021

Short summary:
FAST-Infra – the ‘Finance to Accelerate the Sustainable Transition-Infrastructure’ initiative – aims to close the sustainable infrastructure investment gap, with urgency, by transforming sustainable infrastructure into a mainstream, liquid asset class. FAST-Infra proposes to establish a consistent, globally applicable labelling system for sustainable infrastructure assets.

This approach enables **strategic goal setting** to send the right market signals and mobilise private capital for sustainable projects. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, planning, funding capacity, and financial markets** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets

Approaches for resource and portfolio optimisation



The Equator Principles



Link to view full guidance:

[The Equator Principles](#)

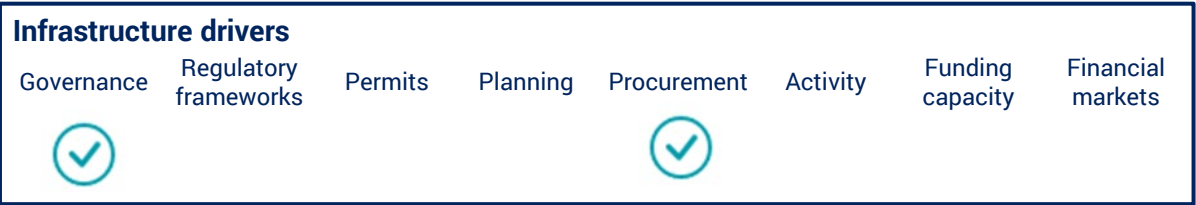
Reference: Equator Principles Association, 2020

Short summary:

The *Equator Principles* (EPs) is a risk management framework for financial institutions. It helps to determine, assess, and manage environmental and social risk in large infrastructure and industrial projects. It sets a minimum benchmark for due diligence and monitoring.

This approach enables **resource and portfolio optimisation** to identify, assess, and manage environmental and social risks for large infrastructure and industrial projects in a structured way and on an ongoing basis. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the achieve transformative outcomes by developing step-change capabilities around **governance** and **procurement** of infrastructure.



Prioritizing Infrastructure Investment: A Framework for Government Decision Making



Link to view full guidance:

[Prioritizing Infrastructure Investment: A Framework for Government Decision Making](#)

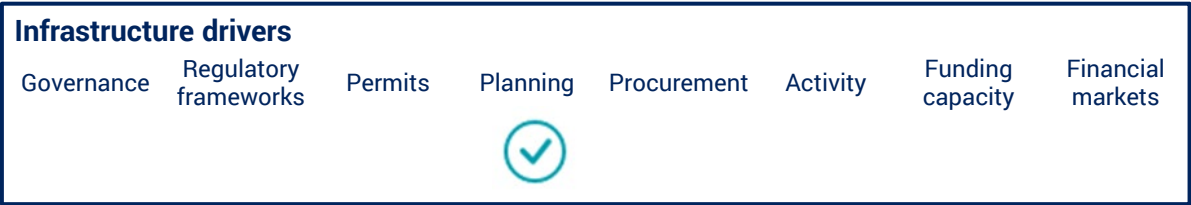
Reference: World Bank Group, 2016

Short summary:

This transformative infrastructure approach is a guidebook on the different frameworks available to create the right enabling environment to integrate existing technologies into infrastructure and spur new innovation.

This approach enables **resource and portfolio optimisation** in the context of prioritising projects through the use of social-environmental and financial-economic indices. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **planning** of infrastructure.





Enabling better infrastructure: 12 guiding principles for prioritising and planning infrastructure

Key transformative outcomes
Affordability and access to services

Link to view full guidance:

[Enabling better infrastructure: 12 guiding principles for prioritising and planning infrastructure](#)

Reference: Institution of Civil Engineers, 2020

Short summary:

A source of guidance on different aspects of strategic infrastructure planning and prioritisation, illustrated with a series of case studies.

This approach enables **resource and portfolio optimisation** to design and deliver national infrastructure planning and prioritisation processes. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **planning** of infrastructure.

Infrastructure drivers							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
			✓				



Sustainable Infrastructure Development System (SIDS) methodology

Key transformative outcomes		
Pollution reduction	Affordability and access to services	Disaster and climate adaptation

Link to view full guidance:

[Sustainable Infrastructure Development System \(SIDS\) methodology](#)

Reference: Sustainable Infrastructure Development Symposium South Africa, 2020

Short summary:

The SIDS methodology is designed to change the process for planning and prioritising sustainable infrastructure by covering the identification, consideration, evaluation, approval, and implementation of sustainable infrastructure to focus on sustainable development outcomes.

This approach enables **resource and portfolio optimisation** to design and deliver national infrastructure planning and prioritisation processes in order to achieve sustainability objectives. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, planning, and procurement** of infrastructure.

Infrastructure drivers							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓	✓		✓	✓		✓	



Shorthand Cost Benefit Analysis Tool for Bus Transportation Projects

Key transformative outcomes		
Low-carbon transition	Disaster and climate adaptation	Access and affordability of services

Link to view full guidance:
[Shorthand Cost Benefit Analysis Tool for Bus Transportation Projects](#)

Reference: Global Infrastructure Hub, 2021

Short summary:
A shorthand cost-benefit analysis tool for analysing the environmental, social, and economic (ESE) benefits of bus transport projects. The tool helps governments and project teams identify ESE benefits of potential bus transport projects in a quicker, more accessible, and more affordable manner.

This approach enables **resource and portfolio optimisation**. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **planning** and **procurement** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
			✓	✓			



Quantifying and valuing energy and GHG emissions

Key transformative outcomes		
Low-carbon transition	Disaster and climate adaptation	Affordability and access to services

Link to view full guidance:
[Quantifying and valuing energy and GHG emissions](#)

Reference: UK Government, 2021

Short summary:
This plan sets out the UK Government’s guidance to quantify and value energy and green house gas emissions in project appraisal and other government decisions.

This approach enables **resource and portfolio optimisation** that accounts for the benefits of long-term decarbonisation. It can be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, and planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓	✓		✓				

Approaches for process design

16

Inclusive Infrastructure tool

Key transformative outcomes	
Affordability and access to services	Social cohesion

Link to view full guidance:
[Inclusive Infrastructure tool](#)

Reference: Global Infrastructure Hub, 2018

Short summary:
This tool aims to help governments and other stakeholders understand and implement the critical success factors that deliver inclusive infrastructure. It provides an actionable framework and practical recommendations based on relevant literature, as well as live project examples and case studies.

This approach enables **process design** to implement inclusivity in infrastructure at the policy and project levels. This approach can be applied to **transport, energy, water, communications, and social infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, planning, activity, and funding capacity** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓	✓		✓		✓	✓	

17

Policy and Institutional Framework for Delivering on Sustainable Infrastructure

Key transformative outcomes		
Low-carbon transition	Affordability and access to services	Disaster and climate adaptation

Link to view full guidance:
[Policy and Institutional Framework for Delivering on Sustainable Infrastructure \(Chapter 1 in Building the Future of Quality Infrastructure\)](#)

Reference: T20/ADB Institute, 2020

Short summary:
This framework forms Chapter 1 in *Building the Future of Quality Infrastructure*. Robust policy and institutional frameworks enable increased infrastructure investment and high-quality projects. Platforms for project preparation can scale up the delivery of sustainable infrastructure through more bankable projects. This paper proposes more systematic and integrated upstream policy and institutional frameworks to achieve these objectives.

This approach enables **process design** to build policy and institutional frameworks for delivering sustainable infrastructure. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, planning, and procurement** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
✓	✓		✓	✓			



The Construction Playbook: Government Guidance on sourcing and contracting public works projects

Key transformative outcomes

Disruptive innovation

Digitalisation

Link to view full guidance:
[*The Construction Playbook: The Construction Playbook: Government Guidance on sourcing and contracting public works projects and programmes*](#)

Reference: UK Government, 2020

Short summary:
The *Construction Playbook* sets out what can be expected and improved from industry, including safety, cost, speed, quality, data, training, and adoption of the UK BIM Framework.

This approach enables **process design** to set specifications and standards for infrastructure contracting. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **procurement** of infrastructure.

InfraCompass drivers of infrastructure enabling environments

Governance

Regulatory frameworks

Permits

Planning

Procurement

Activity

Funding capacity

Financial markets

✓



Circular Economy Monitoring Framework

Key transformative outcomes

Circularity

Low-carbon transition

Link to view full guidance:
[*Circular Economy Monitoring Framework*](#)

Reference: European Commission /Eurostat, 2018

Short summary:
The monitoring framework allows users to identify metrics for measuring the performance of a circular economy and evaluating a country's progress towards achieving the required outcomes. This process starts at the very beginning of a product's lifecycle: smart product design and production processes can help save resources, avoid inefficient waste management, and create new business opportunities.

This approach enables **process design** to define metrics for the circular economy and measure a country's performance. This approach can be applied to **all infrastructure sectors**. It can also be applied across **Europe**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance** and **planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments

Governance

Regulatory frameworks

Permits

Planning

Procurement

Activity

Funding capacity

Financial markets

✓

✓



Project 13

Key transformative outcomes		
Disruptive innovation	Digital connectivity	Digitalisation

Link to view full guidance:
[Project 13](#)

Reference: Institution of Civil Engineers, 2020

Short summary:
Project 13 provides a framework for infrastructure delivery models, not just for clients and their suppliers, but also for operators and users of infrastructure systems and networks. It proposes a new kind of approach based on an enterprise system (rather than traditional transactional arrangements).

This approach enables **process design** to transition the operation of major infrastructure projects and programs from a transactional model to an enterprise approach. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance** and **procurement** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets



InfraTech Policy Toolkit

Key transformative outcomes		
Disruptive innovation	Cybersecurity	Digitalisation

Link to view full guidance:
[InfraTech Policy Toolkit](#)

Reference: World Bank Group, 2020

Short summary:
This Reference Note outlines priority areas and tools for policymakers to implement the Riyadh G20 InfraTech agenda. It identifies cross-cutting priorities to help governments make more informed decisions around the enabling environment to support InfraTech adoption.

This approach enables **process design** to identify and prioritise policies, regulations, and legislation that foster technological innovation and safeguard the public good when adopting InfraTech. This approach can be applied to the **communications, energy, transport, water, and waste sectors**. It can be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, and planning** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets

Framework for Improving ASEAN Infrastructure Productivity

Key transformative outcomes

Social cohesionAffordability and access to services

Link to view full guidance:

[Framework for Improving ASEAN Infrastructure Productivity](#)

Reference: ASEAN, 2020

Short summary:

The framework is designed to improve overall productivity to sustain economic progress by assisting relevant stakeholders to make improvements across the project lifecycle through informed and evidence-based policies. The framework is designed to improve the future planning, delivery, and operation of infrastructure in the ASEAN region.

This approach enables **process design** to design and deliver regional infrastructure planning and prioritisation processes in order to improve the delivery of infrastructure (through improved productivity) in the region. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.

The aim of this approach is to help the user achieve transformative outcomes by developing step-change capabilities around **governance, regulatory frameworks, planning, procurement, activity, and funding capacity** of infrastructure.

InfraCompass drivers of infrastructure enabling environments

Governance

Regulatory frameworks

Permits

Planning

Procurement

Activity

Funding capacity

Financial markets

✓

✓

✓

✓

✓

✓

Approaches for developing capability

Future of Work in Construction

Key transformative outcomes		
Disruptive innovation	Digital connectivity	Digitalisation

Link to view full guidance:

[Future of Work in Construction](#)

Reference: Royal Institution of Chartered Surveyors (RICS), 2019

Short summary:

"Industrialised construction" as defined by this paper is a model that uses innovative and integrated techniques and processes such as building information modeling (BIM) and common data environment (CDE) to connect the design-to-make processes by embracing the digital megatrends in construction. This study informs how to help reskill and upskill the existing workforce and prepare the next generation of graduates for a digital transformation in construction.

This approach enables **developing capability** to reskill and upskill in the construction industry to facilitate a digital transformation. This approach can be applied to **all infrastructure sectors**. It can also be applied **globally**.














The aim of this approach is to help achieve transformative outcomes by developing step-change capabilities around **governance** of infrastructure.

InfraCompass drivers of infrastructure enabling environments							
Governance	Regulatory frameworks	Permits	Planning	Procurement	Activity	Funding capacity	Financial markets
							



Appendix B - Compendium of Emerging Funding and Financing Case Studies

The table below provides an overview of 13 leading examples across geographies.

	LEVERS APPLIED		
	Revenue	Risk management	Financing
Frontier traversing	 Temporary flood and cyclone reconstruction levy to finance post-natural disaster reconstruction	 Promote private investments in infrastructure projects by providing government guarantees	 Provide long term refinance via infrastructure investment trust mechanism
	 Reduce land acquisition costs through innovative land value capture		 Help countries build green, low-carbon, resilient economies through green financing and policy support
	 Financing greenfield infrastructure through the sale of brownfield infrastructure		 Mobilise private and institutional investor financing to greenfield infrastructure through the creation of an infrastructure bank
Frontier extending	 Whole-of-government coordination to accelerate solar deployment across government entities and achieve cost savings	 Contracts for Difference (CfD) to accelerate electricity market reform and launch auctions for renewable energy	 Green sukuk to attract private capital to finance low-carbon and climate-resilient infrastructure
			 Municipal green finance reforms to attract private capital to finance infrastructure projects
			 Increase private investments in infrastructure projects by organising public-private partnerships
Frontier breaking			 Facilitate long-term infrastructure investment by tapping into captive funds



Temporary flood and cyclone reconstruction levy to finance post–natural disaster reconstruction



AUSTRALIA

Innovation type

Frontier-traversing

Lever type

Revenue

Useful links

- [Temporary Flood Reconstruction Levy](#)

Source: Press search, EY Analysis

Context

Due to the cumulative effects of Cyclone Yasi and widespread flooding (December 2010 – January 2011), 99% of Queensland was declared a natural disaster zone.

The total damage bill arising from the flooding was over AUD10 billion in property and infrastructure losses, in addition to AUD30 billion due to the flow-on effects to productivity and the Australian economy.

The cost of rebuilding infrastructure was estimated at AUD5.6 billion.

Problem

- The cost of the post-flood clean-up left the Queensland government with a large budget deficit and limited fiscal space to finance the rebuilding of infrastructure.
- The Federal Government reallocated AUD1 billion by delaying major infrastructure projects around Australia and a further AUD2.8 billion through spending cuts.

Stakeholders involved

- Australian Federal Government
- Queensland Government
- Queensland Reconstruction Authority

Innovation

- The Federal Government imposed a one-off levy applied in the 2011–12 financial year, to raise AUD 1.8 billion for infrastructure financing.¹⁴ Those who were affected by the floods were exempt from the levy.
- The Federal Government bore the cost of rebuilding infrastructure, freeing up state financing to provide other forms of assistance to those affected.

¹⁴ A levy of 0.5% was applied to taxable income between AUD50,001 and AUD100,000 and 1% of taxable income above AUD100,000. Individuals with taxable income below AUD50,000 and those affected by the floods were exempt from the levy.



Results and impact

- **AUD1.8 billion (USD1.39 billion¹⁵) was raised** through the levy, accounting for one-third of the infrastructure rebuilding costs.
- The government revised the terms of the Natural Disaster Relief and Recovery Arrangements to **ensure state and territory governments take out disaster insurance or establish an equivalent fund**, to secure certain insurance coverage and limit direct access to federal funds.
- A **new reconstruction authority**, Queensland Reconstruction Authority (QRA), was set up to coordinate the rebuilding program in 60 flood-affected communities.
- The **National Strategy for Disaster Resilience was released in 2011** to acknowledge the increasing severity and regularity of disasters in Australia and the need for a coordinated, cooperative national effort to enhance Australia's capacity to withstand and recover from emergencies and disasters.



Key lessons learnt

- **Regulatory:** There was an identified need for action to reform the existing insurance and regulatory regime in light of an increased natural disaster threat.
- **Governance:** The funding did not deal with the prevention of a future event. From a fiscal perspective, simply acting after an event rather than addressing mitigation and resilience is not ideal. The establishment of QRA demonstrated the commitment to advocate for better resilience in design / planning.
- **Governance:** Effective communication assisted in addressing heightened public concerns as to whether the levy is a one-off government charge or whether citizens will be required to pay each year.

¹⁵ Rate used was USD 1 = AUD 1.2972.



Promote private investments in infrastructure projects by providing government guarantees



INDONESIA

Innovation type

Frontier-traversing

Lever type

Risk management

Useful links

- [Indonesia Infrastructure Guarantee Fund](#)

Source: Press search, EY Analysis

Context

The rapid growth in Indonesia's urban areas compared to other countries in Asia, coupled with migration to cities, required a rapid scale-up in infrastructure investment by the Indonesian government to provide adequate urban infrastructure for its people. There was a 3% increase in urban population year-on-year between 2000 and 2010.

Problem

- To accelerate the development of its infrastructure, Indonesia needed to invest more than the annual budgetary allocation in greenfield infrastructure.
- Due to prevailing fiscal constraints, the government found it challenging to have access to the funds needed to finance infrastructure projects.
- To attract international investors, Indonesia needed to establish a strong track record for successful PPP delivery.

Stakeholders involved

- Government of Indonesia
- World Bank Group
- Japan International Cooperation Agency
- Asian Development Bank

Innovation

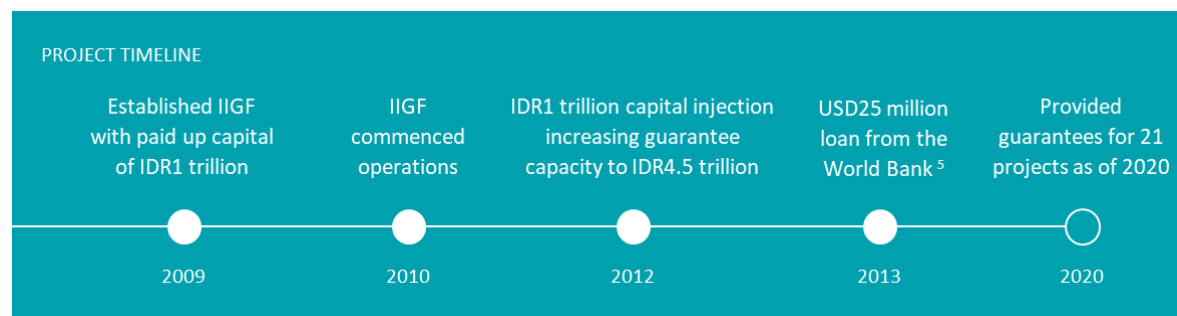
- The Government of Indonesia set up Indonesia Infrastructure Guarantee Fund (IIGF) as a state-owned enterprise (SOE) under the Ministry of Finance (MoF).¹⁶
- The IIGF leverages private investments in infrastructure projects by providing government guarantees or credit enhancements to PPP projects that are financially feasible.
- Given the limited capital base, the IIGF guarantees are backed up by co-guarantors, including the MoF and the World Bank Group.

¹⁶ IIGF is capitalised by contribution from the Government of Indonesia's budget (authorised capital of approximately USD1 billion). In addition, IIGF can access financial assistance provided by the World Bank to provide World Bank-supported IIGF guarantees.



Results and impact

- IIGF **provided advice to contracting agencies on improving PPP project preparation** so that projects meet its appraisal standards and comply with applicable regulations and criteria prior to guarantee issuance.
- The availability of the **IIGF guarantee increased the certainty of private sector participation and financing for infrastructure** development in Indonesia.
- IIGF has provided guarantees to 21 PPP projects worth IDR210 trillion (USD14.6 billion) and two guarantees for a direct loan worth IDR6 trillion (USD416 million) between 2010 and 2020.¹⁷



Key lessons learnt

- **Procurement:** The IIGF had to overcome hurdles to reach a consensus with other government institutions and ministries when it was first established. It also struggled to convince investors to join government projects, so the IIGF did not perform well in the beginning. It was essential to show how a guarantee fund can prove valuable to long-term infrastructure projects by facilitating better stakeholder engagement.
- **Governance:** As the single body to appraise infrastructure PPPs that sought guarantees, IIGF provided consistency, clarity, and standardised procedures as well as better management of MoF fiscal risk vis-à-vis normal government guarantees.
- **Governance:** It was critical for the IIGF to build an ecosystem with experts in alternative financing and PPP schemes such that IIGF's role as development risk manager was strengthened.

¹⁷ Rate used was USD1 = IDR14,414.00.

¹⁸ In addition, MIGA provided a USD50 million co-guarantee commitment.



Contracts for Difference (CfD) to accelerate electricity market reform and launch auctions for renewable energy



UNITED KINGDOM OF
GREAT BRITAIN AND
NORTHERN IRELAND

Innovation type

Frontier-extending

Lever type

Risk management

Useful links

- [Policy paper – Contracts for Difference](#)

Source: Press search, EY Analysis

Context

Contracts for Difference (CfD) was introduced as part of the Electricity Market Reform in 2013, after its initial announcement in a 2011 White Paper.

Electricity Market Reform was a government policy to incentivise investment in secure, low-carbon electricity, improve the security of the UK's electricity supply, and improve affordability for consumers.

Problem

- The UK experienced an increase in electricity demand and a reduction of existing capacity due to the rapid closure of older, polluting power stations. Renewable energy appeared to be an alternative affordable source of energy generation.
- The closing capacity needed to be replaced with a cleaner mix of generation to help meet climate change and renewable targets. There was a need for private investment to bring forward the renewables infrastructure.

Stakeholders involved

- Low Carbon Contracts Company (LCCC)
- National Grid
- Wind farm operators

Innovation

- The CfD was a 15-year contract between a low-carbon generator and the LCCC, a UK government-owned limited liability company.¹⁹ The government determined key parameters ahead of each allocation round, including the list of eligible technologies, the budget, administrative strike prices, etc.
- CfDs were available to a wide range of low-carbon technologies and classified into different 'pots' for emerging and established technologies, with separate respective funding caps.²⁰
- Offshore wind projects were permitted to be built in phases and commissioned up to two years after the start of the first phase.

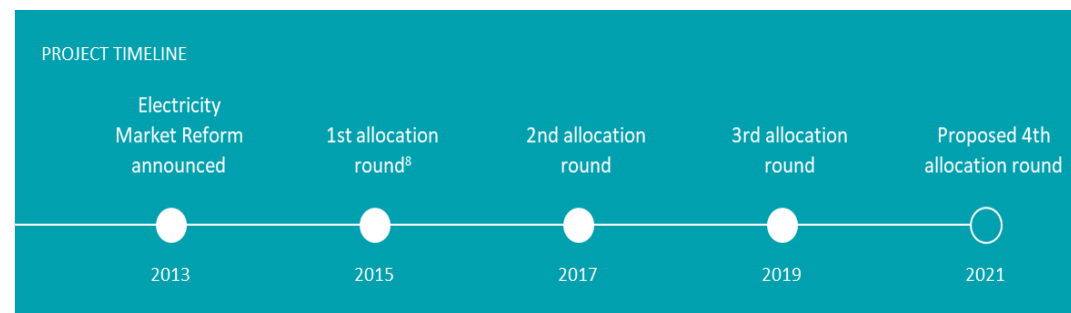
¹⁹ LCCC pays a 'top-up' payment to generators, equal to the difference between a strike price and the market reference price. However, the generator must pay the LCCC if the reference price exceeds the strike price.

²⁰ With the exception of energy from waste, all other technologies offered CfDs cleared below the administered strike price. This was seen by government as a successful attempt at addressing the policy outcome in incentivising investment in secure, low-carbon electricity.



Results and impact

- The three allocation rounds had a total of 11 winning bids; **nearly 10,000 MW was awarded**.
- **Significantly increased share of offshore wind**, which made up over 20% share of the awarded technologies in terms of number of projects in the last three allocation rounds.
- **Program delivered below budget**. There were significant technology cost reductions over the last three rounds since the strike prices were set by government. The strike price was below the reference price and the budget was therefore not fully exhausted. The budgets for ‘Pot 2’ (less established technologies) such as offshore wind, wave, tidal, etc. were GBP155–260 million, GBP296 million and GBP65 million respectively in Rounds 1, 2, and 3.



Key lessons learnt

- **Governance:** The government was able to determine and revise key parameters ahead of each allocation round, including the list of eligible technologies, the budget, administrative strike prices, and the maximum and minimum levels of each technology it was seeking.
- **Procurement:** The non-delivery disincentive mechanism was set out by Department of Energy & Climate Change to discourage generators from applying for a CfD without fulfilling the obligation in project delivery. The government was also considering the introduction of a bid bond where applicants provide a deposit – either by cash payment, bank guarantee, or letter of credit – which would be forfeited upon non-delivery.
- **Technology:** As the balance of different generating technologies changes to deliver the power sector’s contribution to net zero, it is important that electricity markets and any support arrangements reflect wider system costs and benefits. For example, as offshore wind projects were bigger in size and lower in cost compared to other technologies, a new third ‘pot’ has been introduced for offshore wind projects.

²¹ With the exception of energy from waste, all other technologies offered CfDs cleared below the administered strike price. This was seen by government as a successful attempt at addressing the policy outcome in incentivising investment in secure, low-carbon electricity.



Reduce land acquisition costs through innovative land value capture



JAPAN

Innovation type

Frontier-traversing

Lever type

Revenue

Useful links

- [Tsukuba Express Line](#)

Source: Press search, EY Analysis

Context

Tsukuba Express Line started operation in 2005 between the central and north-eastern Tokyo metropolitan areas, to ease severe passenger congestion on the existing railway lines.

Acquisition of the right-of-way and town development along the line was conducted under the 1989 Housing and Railway Act. Under the law, local governments were able to conduct land readjustment to link the reservation of specific land parcels with the relevant rail transit project.

Problem

- The Tsukuba Express between Tsukuba and Tokyo had been planned since 1978. Land acquisition difficulties caused certain changes to the original route and a budget blowout from JPY600 billion to JPY900 billion.
- Railway operators needed to self-finance their projects with little government subsidy to meet the growing demand.
- Faced with financing challenges, cost minimising strategies needed to be explored, especially in land acquisition.

Stakeholders involved

- Urban Renaissance Agency
- Tokyo Metropolitan Government
- Other prefectures and municipalities along the railway line
- Japan Railway Construction Agency (JRCA)
- Metropolitan Intercity Railway Company (MIR)

Innovation

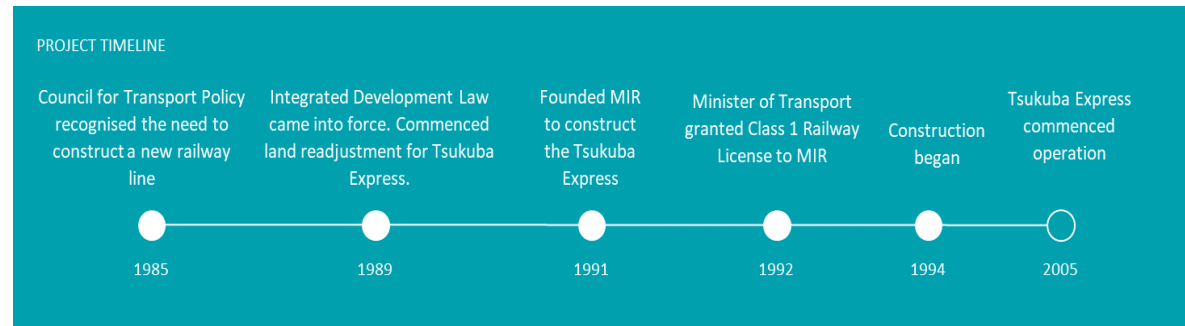
- The new law allowed municipal governments and housing agencies to designate special land readjustment areas along future railway lines.
- Impacted landowners were provided smaller but higher-value land parcels equivalent to the value of their acquired land, and the government consolidated the acquired land parcels to sell to private developers at prices below the new market price.
- The government promoted the public-private partnership to sustainably finance the roughly JPY808 billion (USD7.5 billion²²) cost of construction in the form of non-interest-bearing loans.

²² Rate used was USD1 = JPY108.17.



Results and impact

- The 58.3-km line with 20 stations came into operation in 2005 to offer fast travel between central Tokyo (Akihabara) and the nation's largest research hub (Tsukuba Science City) by serving several satellite towns across four prefectures. About **2,903 hectares of land across 13 stations were designated for special land readjustment projects**.
- The population along the line grew at a much higher rate than other cities in the same prefecture. For example, the average population growth rate in Ibaraki prefecture has decreased by 0.8% during the period between 2005 and 2010, however, the **population in the cities along the line increased by 9.2% per annum**.
- The **total asset price increased from approximately JPY232.6 billion (USD2.2 billion) to JPY330.1 billion (USD3.1 billion), or 41.9% before and after land readjustment**. The project costs of JPY96.3 billion (USD891 million) have largely been recovered from sales of reserved land parcels – about JPY60.9 billion (USD563 million, 63%).
- The **rail line became profitable within five years after it became operational**. The original plan estimated the positive turnaround after 20 years.



Key lessons learnt

- **Financial:** Land use planning and development incentives need to be attractive enough for individual landholders to make contributions to the districts designated for special land readjustment projects.
- **Planning:** Under market freehold systems, inclusive land adjustment schemes can effectively economise urban infrastructure costs and produce transit-oriented rail infrastructure.
- **Regulatory:** Regional governments can capture land value increases due to transport infrastructure improvements through property taxes linked specifically to expected increases in property values.



Green sukuk to attract private capital to finance low-carbon and climate-resilient infrastructure projects



SAUDI ARABIA

Innovation type

Frontier-traversing

Lever type

Financing

Useful links

- [Islamic Markets](#)

Source: Press search, EY Analysis

Context

Saudi Arabia was almost exclusively reliant on fossil fuels for power generation and had a high energy usage per capita because of its reliance on air conditioning and desalinated water. The country faced immense investment needs to finance sustainable development.

The country has been hit by both COVID-19 and lower oil prices and was seeking additional financing channels.

Problem

- As the government of Saudi Arabia aimed to rapidly diversify its economy away from oil, there was an increased focus on sustainable strategies and growth of Islamic capital markets.
- Issuers were looking for ways to either diversify their investor base or gain a pricing benefit by adopting sustainable practices. The green sukuk market was an emerging product in the region.

Stakeholders involved

- The Government of Saudi Arabia

- State-controlled Saudi Electricity Company (SEC)
- Saudi Electricity Global Sukuk Company 5
- First Abu Dhabi Bank PJSC
- HSBC
- J.P. Morgan
- MUFG
- Standard Chartered Bank

Innovation

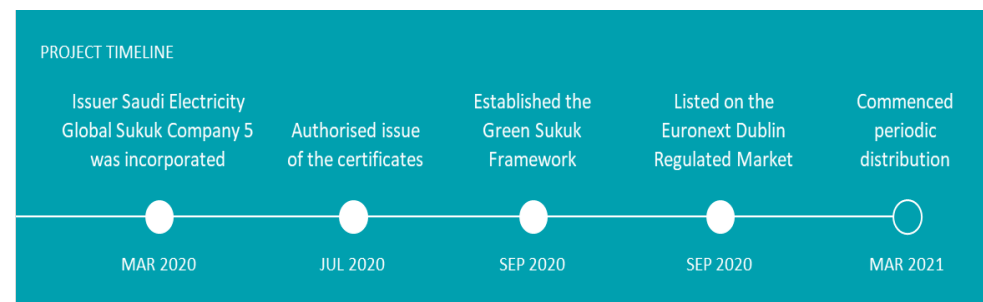
- SEC established a Green Sukuk Framework,²³ under which SEC and its subsidiaries could raise green sukuk, in conjunction with SEC's sustainability strategy. Implementation of sustainable finance guidelines and regulations by the Saudi government helped drive further sustainable debt issuances and provided clarity to investors on criteria such as project eligibility and reporting.
- Under this framework, this was the first public green issuance from Saudi Arabia in international markets and the first USD-denominated green sukuk issuance, with an effort to diversify its sources of financing and grow its investor base in international markets.

²³ According to Moody's, the certificates follow an 'Ijarah' structure whereby proceeds will be used by the issuer to buy certain electricity distribution assets from SEC. SEC will pay a certain rental amount on a semi-annual basis to lease the assets from the issuer, which will then be used to pay the periodic distribution amount to the certificate holders.



Results and impact

- **Over USD1.2 billion green certificates issued**, split into two tranches, the sukuk was made up of USD650 million green certificates maturing in 2025, with the other USD650 million due in 2030. The certificates have been admitted to trading on the Euronext Dublin,
- **Proceeds exclusively used to finance and / or refinance eligible projects.** Proceeds from the sukuk will finance and / or refinance in whole or in part green projects focused on procurement and installation of smart metres as well as construction and operation of infrastructure for connecting renewable energy sources to the grid.
- **The green sukuk issuance generated high interest from investors** and was oversubscribed by almost 4 times. The issuance attracted a combination of more than 267 institutional investors and dedicated green accounts spanning 22 countries from Asia, Europe, and the Middle East.

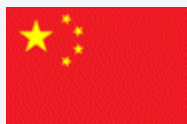


Key lessons learnt

- **Governance:** A third-party auditor was commissioned to perform an external verification of the environmental and social benefits / impacts of the sukuks to verify if the outcomes of the underlying projects have been achieved.
- **Finance:** Islamic finance shared the common goal of sustainable investing to deliver societal impacts with green sukuk. Leveraging untapped Islamic financial capital and innovative green finance thus became an alternative to close the financing gap for climate actions and accelerate progress towards the sustainable development goals (SDGs).
- **Governance:** The government-related issuer (SEC) benefited from credit linkages with the government. The issuer rating of A2 by Moody's reflected the creditworthiness of SEC where it achieved a very high level of dependence and high level of support from the government.



Municipal green finance reforms to attract private capital for infrastructure projects at municipal level



CHINA

Innovation type

Frontier-extending

Lever type

Financing

Useful links

- [China's Green Bond Issuance and Investment Opportunity Report](#)

Source: Press search, EY Analysis

Context

To meet the objectives of the 12th Five-Year Plan to assist China's transition to a low-carbon green economy, the central government announced in 2013 plans to grow a corporate green bond market.

Jiangxi Province of China was one of the pilot areas designated to boost green finance. It needed to finance its infrastructure investment in alignment with a green bond framework. This was the first green municipal special bond issuance in the country.

Problem

- China is the world's largest issuer of green bonds, but commercial banks had dominated the green bond market, resulting in a narrow range of issuers.
- Green industry projects with relatively lower investment return had limited borrowing capacity at the municipal level, which resulted in low investment appetite.
- There was relatively slow progress in developing green sovereign and green municipal bonds with government credit, mainly due to a lack of common disclosure guidelines for banks and a limited legal framework for green finance.

Stakeholders involved

- Jiangxi Province of China
- Industrial and Commercial Bank of China
- China Merchants Bank

Innovation

- China established pilot zones for green finance reform and innovation in five provinces and autonomous regions to gain local experience to inform national green finance policies. Each pilot zone issued specific rules according to the overall plan to develop green finance.
- The province actively explored the framework of green finance policies and innovation in green financial products and services, and released the *Issuance of Green Municipal Bonds Framework Research Report* in the region.
- The ability to issue longer-term debt via bonds was important for green projects, as it reduced the maturity mismatch between project development timelines and borrowing timelines.



Results and impact

- **The first municipal bond in China bearing a ‘green’ label.** In 2019, Ganjiang New Area of Jiangxi Province announced a plan to issue a total of RMB1.25 billion (USD192 million)²⁴ green municipal special bonds. These bonds were issued in three phases.
- **Use of proceeds to finance smart utility pipelines,** managed by the municipal government and held for the construction of the Xingye Avenue Project, an intelligent urban underground utility tunnel project in Rulehu new town.
- **High interest from investors.** The green bond issuance in the first phase in 2019 generated high interest from investors and was oversubscribed by almost 12 times.



Key lessons learnt

- **Regulation:** It has been important to harmonise green definitions across the provinces, i.e. to have a single set of definitions for all user types. This is still currently in development in China.
- **Financial markets:** Local governments, such as the municipal level, formulated their own plans to develop green finance in their regions. Issuing municipal bonds reduced government financing costs, quickly raised a large amount of capital to invest in infrastructure construction, and accelerated the development of the local economy and public utilities.
- **Governance:** Chinese regulators have been encouraging issuers to give more information about their green bonds, including the use of proceeds and the progress and environmental benefits of the green projects. Key performance indicators for green bond monitoring should be adopted for investors to track and compare the impact of bonds.

²⁴ Rate used was USD1 = RMB6.52.



Provide long-term refinance via infrastructure investment trust mechanism



INDIA

Innovation type

Frontier-traversing

Lever type

Financing

Useful links

- [Registered Infrastructure Investment Trusts](#)

Source: Press search, EY Analysis

Context

In 2014, the Securities and Exchange Board of India (SEBI) introduced Infrastructure Investment Trusts (InvITs) as an avenue for infrastructure developers to divest operational projects and reduce their leverage.

India had difficulty attracting and retaining long-term capital from overseas. Therefore, the Indian government introduced various initiatives to demonstrate domestic confidence to foreign investors.

Problem

- The GFC had resulted in a weak macroeconomic and inflationary environment, which coupled with policy gridlock and political instability, had led to the sluggish growth of infrastructure.
- The Indian infrastructure sector needed substantial investment to fulfill the demands of the growing economy.
- There was limited entry for foreign portfolio investors to capital markets because of restrictive foreign direct investment policies.

Stakeholders involved

- Securities and Exchange Board of India
- Digital Fibre Infrastructure Trust

- India Grid Trust
- India Infrastructure Trust
- Indian Highway Concessions Trust
- IndInfravit Trust
- IRB Infrastructure Developers Limited
- IRB InvIT Fund
- MEP Infrastructure Investment Trust
- National Highways Infra Trust

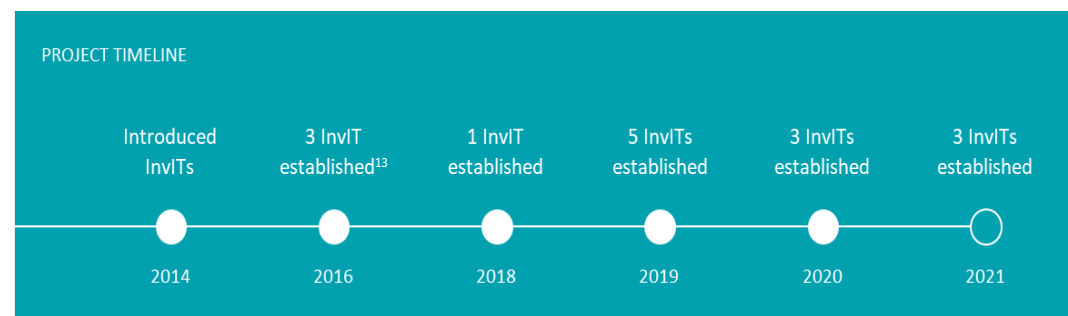
Innovation

- InvITs provided developers and the government (where they had an equity portion) an opportunity to monetise their assets by pooling multiple projects in a single entity, thereby releasing capital for further deployment in new projects.
- Individual and institutional investors pooled money and invested in income-generating assets. The cashflow generated was distributed among investors as dividend income.
- SEBI provided well-structured trust requirements – having a trustee, sponsors, an investment manager, and a project manager in place. Each had a crucial role to play in running an InvIT.



Results and impact

- **The Indian InvIT market has supported formation of 15 InvITs to date** in the roads, power transmission, gas transmission, and telecom towers sectors, amounting to an aggregate initial offer value over INR700 billion (USD9.59 billion).²⁵
- **Robust and predictable regulatory regime.** The Reserve Bank of India has relaxed the Indian foreign investment and exchange control regulation to permit foreign investors to invest in units of InvITs, within an overall ceiling of 20% of their net worth.
- **A new source of liquidity for government.** The trusts augmented government's revenues and increased financing for critical sectors, including transportation and energy, by carving out a state-run entity into a fully-owned subsidiary.



Key lessons learnt

- **Regulatory frameworks:** Favourable tax regimes where InvITs were exempted from dividend distribution tax (subject to certain conditions) were established. This drove appetite and comparatively better yields.
- **Regulatory frameworks:** InvITs must hold investments in infrastructure assets for a minimum period of three years, which can ensure that InvITs do not make speculative investments.
- **Procurement:** 80% of the assets of the InvIT were required to be projects that have commenced commercial operations and have all requisite approvals in place. This ensured that the InvIT was viable in terms of return on capital and lower development risk.

²⁵ Rate used was USD1 = INR73.01.

²⁶ An InvIT is required to get listed within three years from the date of registration.



Increase private investments in infrastructure projects by organising public-private partnerships



UNITED STATES OF AMERICA

Innovation type

Frontier-extending

Lever type

Financing

Useful links

- [Chicago Infrastructure Trust Press Release](#)

Source: Press search, EY Analysis

Context

In 2012, the Chicago Infrastructure Trust (CIT) was created via executive order and a Chicago City Council resolution.

CIT was set up to provide focus and leadership to build a pipeline of executable PPP projects to meet Chicago's infrastructure needs, drive economic development, and create jobs.

Problem

- State and federal infrastructure funding had become inconsistent and unpredictable. This limited Chicago's ability to fund substantial infrastructure projects with taxpayer money.
- The city was looking for alternative, innovative financing and project delivery options for transformative infrastructure projects.

Stakeholders involved

- Chicago Infrastructure Trust
- City of Chicago
- Chicago Public Schools
- Chicago Department of Transportation
- Department of Innovation and Technology

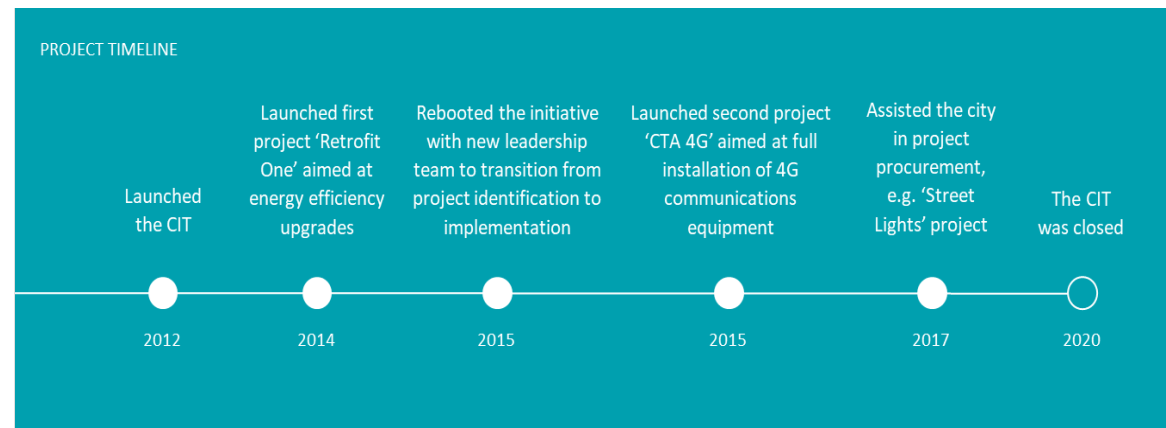
Innovation

- The USD7 billion trust aimed to facilitate private sector investment from institutional investors such as pension funds, insurers, endowments, sovereigns, and private equity.
- CIT was targeted to provide advantaged financing, enabling each project to customise a financing structure using taxable or tax-exempt debt, equity investments, and other forms of support.



Results and impact

- The trust completed two infrastructure projects.
- ‘Retrofit One’ was estimated to bring in more than USD200 million in private funding on more than 1,000 city-owned buildings. Instead, the trust installed less than USD10 million worth of upgrades in 60 buildings due to a lack of interest from investors. **CIT was the financing vehicle used to secure private capital.**
- ‘CTA 4G’ – the USD32.5 million 4G wireless design and installation was provided at no cost to CTA (Chicago Transit Authority) and its customers. **CIT brokered the project**, which was fully financed by four major wireless providers.
- **CIT handled the procurement and management work** that would otherwise be handled by city departments. For example, CIT assisted the project procurement for ‘Street Lights’ project, which was primarily funded through the traditional funding model.



Key lessons learnt

- **Governance:** Transparency, accountability, and oversight measures were required, for example, placing an alderman (elected official) on the trust’s board, guaranteeing a City Council vote on any projects involving city resources.
- **Planning:** A clear overarching goal and a coordinated approach to the types of projects being pursued were integral to set forth a long-term plan for transformational infrastructure investments.
- **Governance:** The closure of the trust was mainly due to a lack of city consensus and investor interest. The City Council passed the ordinance to create the trust with little consultation, and some aldermen remained highly critical of the program on grounds of transparency and protections for taxpayers. The private investment was not well-screened and utilised, which affected investors’ confidence.²⁷

²⁷ It was revealed that Chicago Public Schools spent more than USD0.5 million installing energy-efficient lighting in schools that would be closed. The trust had been seeking investors to reimburse the school system for the work.



Help countries build green, low carbon, and resilient economies through green financing and policy support



**EUROPEAN BANK FOR
RECONSTRUCTION
AND DEVELOPMENT**

Innovation type

Frontier-traversing

Lever type

Financing

Useful links

- [Green Economy Transition](#)

Source: Press search, EY Analysis, EBRD

Context

European Bank for Reconstruction and Development (EBRD) launched the Green Economy Transition (GET) approach in 2015 to accelerate investments that drive environmental benefits.

Following the severe impact of the COVID-19 health emergency, GET 2.0 was proposed to contribute to a green economic recovery post-COVID-19.

Problem

- Private finance mobilisation has been an increasingly important priority for governments due to infrastructure deficits, lack of growth following global financial crises, and commitments to sustainable development goals to address climate change.
- Historically, less than 1% of the capital from non-traditional private institutional investors has been allocated to infrastructure due to inadequate project risk return profiles.
- EBRD has become more engaged in pursuing private capital mobilisation by developing a range of financing channels and capacity-building tools.

Stakeholders involved

- European Bank for Reconstruction and Development
- Climate Investment Funds
- European Union
- Global Environment Facility
- Green Climate Fund

Innovation

- EBRD facilitated a wide range of financial instruments to address green economy opportunities, according to country and sector needs:
 - Direct EBRD financing and syndication in the form of private, non-sovereign and sovereign guaranteed loans, direct equity, equity funds and credit lines
 - Co-financing with the private financial sector, public sources such as multilateral donor funds, and other international financial institutions
 - Selective use of subsidies
 - Carbon finance.
- GET also worked with governments on regulatory frameworks that encouraged knowledge transfer and provided policy guidance.



Results and impact

- The EBRD **exceeded the target GET ratio** of 40% relative to its total annual investment; the green financing ratio as a percentage of Annual Bank Investment²⁸ reached 43% in 2017 and 46% in 2019.
- **Impact in the green economy.** As at the end of 2020, the EBRD had signed EUR36 billion (USD44.03 billion)²⁹ in green investments and financed more than 2,000 green projects, which are expected to reduce carbon emissions by 104 million tonnes annually.
- **Focus on green recovery.** GET 2.0 highlighted areas of opportunity to support green recovery. These include green-oriented measures such as providing emergency short-term liquidity to preserve green businesses and priorities, and defining green standards in the provision of financial support such as emission reduction targets



Key lessons learnt

Funding capacity: Speeding up the rate of recycling capital by syndicating to third-party investors increased EBRD's financial capacity over the project lifecycle, relieved constraints on new lending, and reduced the need for capital replenishment.

Procurement: Well-designed structured financial instruments should reflect institutional investors' requirements in areas such as minimum risk characteristics, liquidity in capital markets, and standardisation of instruments.

Governance: The EBRD establish good internal governance and incentive structures to set new targets, developed a system to track and measure progress, and created procedures to coordinate across divisions.

²⁸ Annual Bank Investment is the volume of commitments made by the bank during the year.

²⁹ Rate used was USD1 = EUR0.8177. Source: Press search, EY Analysis, European Bank for Reconstruction and Development.



Whole-of-government coordination to accelerate solar deployment across government entities and achieve cost savings



SINGAPORE

Innovation type

Frontier-extending

Lever type

Revenue

Useful links

- [SolarNova Program](#)

Source: Press search, EY Analysis

Context

Singapore has been taking pragmatic and measured steps in promoting solar energy as a sustainable renewable source.

Launched in 2014, the SolarNova program is a whole-of-government effort to accelerate the deployment of solar photovoltaic (PV) systems.

Government took the lead in rolling out the rooftop PV systems across public housing and government buildings in collaboration with solar developers.

Problem

- There was a lack of interest from commercial and industrial sector players to take on the risk of investing in solar energy systems.
- Under the old direct ownership business model, consumers paid for solar PV installation with up-front cash or signed a hire purchase agreement, where the consumer assumed full ownership of the solar asset. The high burden of cost on consumers was a deterrent to the adoption of solar energy.

Stakeholders involved

- Singapore Government
- Solar Energy Research Institute of Singapore
- Solar Developers

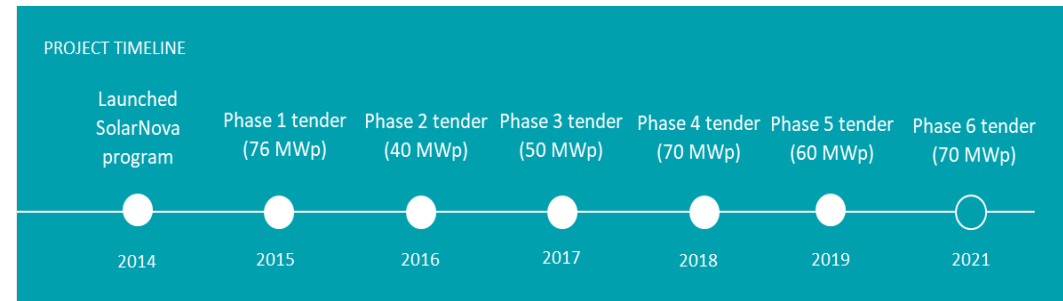
Innovation

- The government coordinated efforts to aggregate rooftop PV demand from various government agencies to achieve economies of scale.
- The government supported the introduction of innovative, cost-effective, sustainable energy alternatives by opening up private sector opportunities to enter and compete in the energy market.
- Changes were made to enhance the market and regulatory framework to facilitate solar deployment. This includes streamlining the registration process for solar consumers to sell their excess solar electricity to the grid and reviewing metering requirements to reduce cost.



Results and impact

- **Solar deployment value creation.** Private solar PV system developers have responsibility to design, finance, install, operate, and maintain the solar PV systems. The cost is recovered through sale of generated solar energy to the national grid. The solar leasing model allows government agencies to purchase the solar power at a preferential rate below the retail price, and without rendering any up-front installation costs.
- **Wide adoption in public housing and government buildings.** Since the inception of the SolarNova program, HDB and EDB have conducted six successful rounds of tenders, awarding a total of 366 MWp solar power capacity across 5,885 public housing blocks and 221 government buildings.
- Housing & Development Board **surpassed its previous solar power target** and rolled out 220 MWp of solar panels, and has now increased the goal to 540MWp to be achieved by 2030.



Key lessons learnt

- **Governance:** The program was administered through a whole-of-government effort, which deepened the integration between different government boards and beneficiaries.
- **Governance:** The government took the lead and set a good example in utilising public rooftops for solar power generation. The government effectively aggregated public sector solar demand for private sector solar developers and ensured economies of scale.
- **Procurement:** Solar leasing, in the form of a Power Purchase Agreement, provided a range of contract pricing structures that offered competitive rates, helping the government save on electricity bills.



Mobilise private and institutional investor financing to greenfield infrastructure through the creation of an infrastructure bank



CANADA

Innovation type

Frontier-traversing

Lever type

Financing

Useful links

- [Canada Infrastructure Bank](#)

Source: Press search

Context

In a 2016 Fall Economic Statement, the Canadian Government announced that it would establish a national infrastructure bank – the Canada Infrastructure Bank (CIB).

The CIB has a mandate to invest up to CAD35 billion (USD26 billion) supported by federal funding.³⁰

Problem

- A lack of sufficient Federal financing represented a barrier to progressing infrastructure projects.
- The Government of Canada needed to attract low-cost investment from private sector investors and institutional investors, in infrastructure projects in Canada or partly in Canada that will generate revenue and will be in the public interest.

Stakeholders involved

- Government of Canada
- Infrastructure Canada

Innovation

- The CIB is structured as a Crown corporation,³¹ allowing it to pursue its public policy objectives whilst balancing commercial and financial pressures.
- Investments (finance at below-market rates or on subordinated terms) are to be made in revenue-generating infrastructure projects in the public interest that would not otherwise be viable to attract private sector investment.

³⁰ Of which CAD15 billion (USD11 billion) will come from existing funds committed in the government's *Investing in Canada* infrastructure plan to three priority areas: public transit systems, trade and transport corridors, and green infrastructure. Rate used was USD1 = CAD1.32.

³¹ A Crown corporation is wholly owned by the federal government but will be operated at arms-length from government.

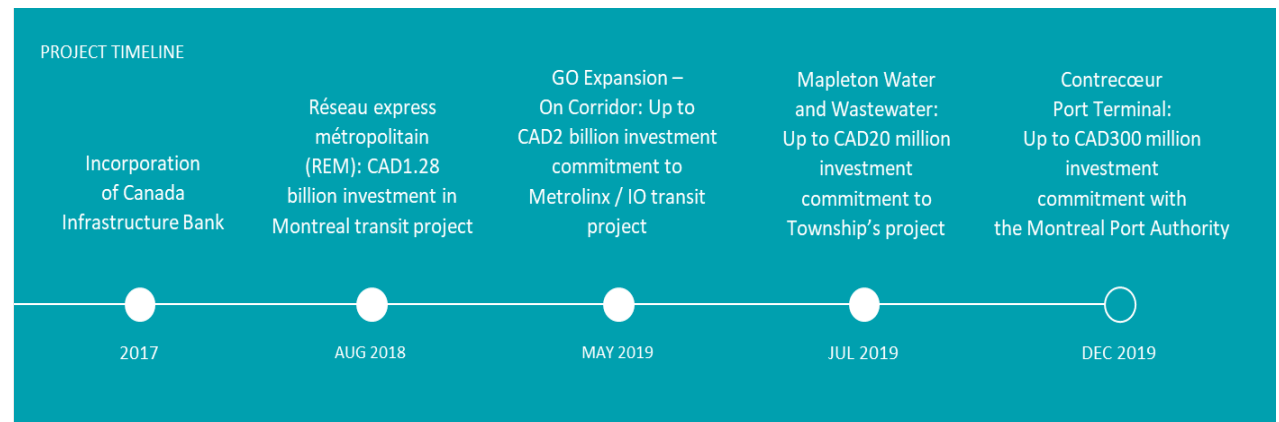


Results and impact

- As at 31 March 2020, CIB had engaged in 13 projects with a total commitment of up to CAD2.8 billion (USD2.1 billion), of which CAD1.28 billion had been disbursed.
- The CAD10 billion, three-year Growth Plan aims to accelerate Canada's transition to a low-carbon economy.

Key lessons learnt

- **Activity:** Compared to private and institutional investors, the CIB has a greater ability to take on some risk and provide patient capital, thus increasing the overall pool of investors for these projects. Blended finance in the form of PPPs brings new innovative partnerships and financing vehicles that are crowding-in private participation in large, complex, high-quality infrastructure projects.
- **Governance:** The CIB conducts commercial due diligence on financing, structuring, risk transfer, and more to ensure project proposals meet public interest and commercial deal structure (or bankability) requirements.
- **Planning:** Statements of Priorities and Accountabilities are used by Ministers to communicate government priorities and expectations to the CIB, which may change quickly. A clear mandate for the CIB and its relationship with government enables it to be nimble and provide leadership in getting transformational infrastructure projects off the drawing board and underway.





Facilitate long-term infrastructure investment by tapping into captive funds



UNITED KINGDOM OF
GREAT BRITAIN AND
NORTHERN IRELAND

Innovation type

Frontier-traversing

Lever type

Financing

Useful links

- [Pensions Infrastructure Platform](#)

Source: Press search

Context

The Pensions Infrastructure Platform (PiP) allowed pension schemes to facilitate long-term infrastructure investment in the UK.

PiP was designed as a not-for-profit alternative to existing fund management offerings, being owned directly by pension funds.³²

The UK Treasury projected an allocation of GBP20 billion of pension assets towards infrastructure projects.

Problem

- The UK government needed to access captive funds to invest in national infrastructure development.
- The smaller pension funds did not have the capacity nor the UK infrastructure industry insights to invest in large-scale and longer-term infrastructure investment by themselves.

Stakeholders involved

- Pension Protection Fund
- National Association of Pension Funds
- Wind farm operators

Innovation

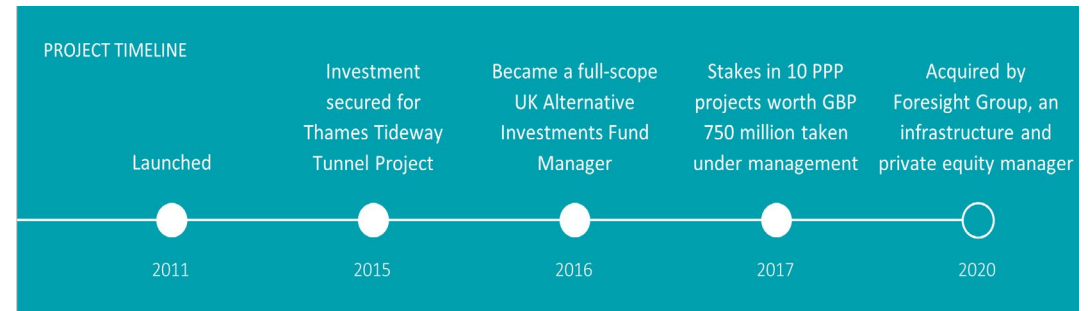
- PiP allowed pension schemes of all sizes to invest in national infrastructure projects by pooling resources into a single investment fund.
- PiP was established by UK pension schemes to operate and invest for pension schemes. This collaborative, mutual approach provides investor schemes with better alignment, better governance, and better value.
- For larger infrastructure projects, PiP made direct investments as well as channelled additional investment through its founding investors.
- PiP's mandate is only to cover its operating costs, thus providing maximum return to its investors.

³² PiP was launched as a collaboration between the Pension Protection Fund (PPF) and the National Association of Pension Funds. It attracted 10 founding investors: the pension funds for BAE Systems, the BBC, British Airways, BT, Lloyds TSB, Strathclyde, and the West Midlands, as well as the PPF, LPFA, and RPMI.



Results and impact

- The **PiP has raised GBP260 million over several funding rounds.**
- The PiP has made GBP370 million in investments in infrastructure projects.
- Since authorisation in 2016, the PiP has **established a portfolio of 17 assets**, mostly through its multi-strategy fund, covering the energy from waste, renewables, social, and transport sectors.
The portfolio has a net asset value of more than GBP700 million.
- At the time of acquisition by the Foresight Group in 2020, the **PiP had GBP1.8 billion (USD2.5 billion) in infrastructure investments under management.**³³



Key lessons learnt

- **Planning:** The GBP20 billion target by HM Treasury was unrealistic, and the PiP was initially seeking a more modest GBP1 billion in assets that can be leveraged to GBP2 billion.
- **Funding:** To bring in institutional investors, such as pension funds, infrastructure investments will only be made if investors are able to earn adequate risk-adjusted returns. It involved contracts and regulatory frameworks that are more complex and of longer duration than in most other parts of the economy, operated under the double imperative of ensuring financial sustainability and meeting user needs.
- **Governance:** Although the setting up of PiP did not eliminate the competition between the PiP and its founding investors for infrastructure investment opportunities, value was created through increased cooperation.

³³ Rate used was GBP1 = USD1.38.



Financing greenfield infrastructure through the sale of brownfield infrastructure



AUSTRALIA

Innovation type

Frontier-traversing

Lever type

Revenue

Useful links

- [Asset Recycling Initiative](#)

Source: Press search, EY analysis

Context

Australia's federal government introduced policy to incentivise asset recycling by state governments, offering up to 15% of the sale or lease proceeds of asset privatisations for re-investment in infrastructure projects.

Continual upgrade and revitalisation of urban assets and infrastructure is required to meet the needs of a rapidly growing and changing population in the state of New South Wales (NSW).

Since 2014, asset recycling has been one of the core principles of the NSW Government's property policy.³⁴

Problem

- To fund an ambitious infrastructure investment program, the NSW Government explored PPP, public funding (including value capture), and debt financing – each of which has its own challenges.³⁵
- The NSW Government faced a politically complex challenge with asset privatisations, given public concern over job losses.

Stakeholders involved

- Australian Federal Government
- New South Wales Government

Innovation

- To alleviate some political pressures, certain asset recycling deals were not required to obtain the approval of the NSW parliament, although they were required to receive a green light from the Australian Competition and Consumer Commission.
- Asset recycling projects also required private sector investors to make capital improvements or expand the capacity of the leased facilities.
- The NSW government established a pipeline of identified infrastructure projects for the asset recycling proceeds to be invested in.

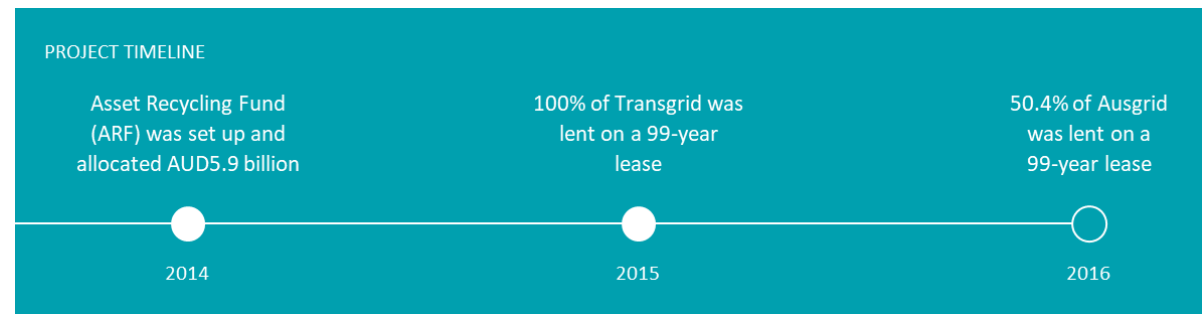
³⁴ Asset recycling (or capital recycling) is the sale of underperforming or surplus assets to return the capital to invest in new assets or revitalise existing assets.

³⁵ PPPs require scale and must demonstrate value for money. Public funding through taxes or user-pays systems have limited maximum market capacity. Further debt financing risks the AAA credit rating of the NSW Government, making it harder to attract investment and impacting future opportunity costs.



Results and impact

- NSW has gained AUD6.7 billion (USD5.2 billion)³⁶ from the leases of Port Kembla, Port Botany, and the Port of Newcastle. As of November 2020, the **proceeds of asset recycling in NSW totaled AUD32.7 billion** (USD25.2 billion).
- These funds are invested in NSW Government agency-led infrastructure projects, as well as local and community infrastructure projects being delivered by local government, non-government organisations, and other entities.



Key lessons learnt

- **Planning:** One success was identification of income-generating public assets that are underutilised and not of long-term strategic importance. Another positive lesson was the value of creating a clear link between the proceeds of the sale of existing assets and new infrastructure investment at the outset of the program.
- **Governance:** The NSW Government utilised 5-year guaranteed employment clauses for employees of privatized public assets to manage public concern about wide-scale privatisation initiatives.
- **Activity:** Transferring an asset from public to private ownership will generate significant risks for the new operator. The challenge for an investor is knowing when and how to undertake commercial risk transfer. This will apply both in terms of operating the asset and in terms of working within a potentially shifting regulatory environment.

³⁶ Rate used was USD1 = AUD1.2972.

A nighttime photograph of a city skyline featuring several tall skyscrapers with illuminated windows. In the foreground, a multi-lane highway shows light trails from moving vehicles. A pedestrian bridge with greenery is visible above the road. The text is overlaid on the left side of the image.

**// Improvements in
infrastructure investment
can recover and advance a
nation's trajectory decades
into the future.**



Map



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