Green Recovery and Finance for Sustainable Infrastructure
ABOUT ICSI

The International Coalition for Sustainable Infrastructure (ICSI) was founded in 2019 by The Resilience Shift, the American Society of Civil Engineers (ASCE) and its ASCE Foundation, the Institution of Civil Engineers (ICE), the Global Covenant of Mayors for Climate & Energy (GCoM), WSP and LA Metro, among others. It aims to bring together the entire value chain of infrastructure and unlock the opportunity of using engineers as a driving force for positive impact and climate action. It will give engineers a voice in ensuring that we pick the right infrastructure projects to fund and then design and build them with sustainability and resilience in mind from the outset.

ICSI delivers industry change by engaging individual members and their organisations through Action Tracks that seek to understand and address the gaps and barriers to the development of sustainable and resilient infrastructure. ICSI responds with specific actions to address these challenges, and engages stakeholders who are instrumental in delivering actions and adopting new resources, practices and behaviours.
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1. INTRODUCTION

1.1 Problem statement

This white paper addresses how public and private sector stakeholders can support the funding necessary to spur a green recovery by sufficiently funding the early stages of infrastructure project development (pre-development) to achieve sustainable outcomes.

1.2 The opportunity

1.2.1 Supporting a green recovery

Integrating sustainable infrastructure investments into government investments in infrastructure, especially with a specific focus on expected stimulus packages to mitigate the economic downturn from the COVID-19 pandemic, is key to building a sustainable and resilient future. The International Energy Agency notes that ‘governments have a once-in-a-lifetime opportunity to reboot their economies and bring a wave of new employment opportunities while accelerating a shift to a more resilient, low carbon, energy future’. However, only 3-5% of an estimated $12-15 trillion in international COVID-19 stimulus is currently committed to green initiatives. The Coalition for Urban Transitions (CUT) found that only 7% of the total stimulus measured in the Green Stimulus Index has gone to sectors that are relevant for cities, such as energy, transport, and waste. Only 16% of the stimulus going to these sectors is green. EY Research for the European Climate Foundation identified 2,000 shovel-ready projects across Europe that could support a green recovery.

1.2.2 Securing success through pre-development funding

A key strategy to ensure sustainable outcomes from stimulus efforts and other planned infrastructure investments is to integrate pre-development funding for municipal, state, and federal projects, as well as private sector project developers and multinational finance institutions. A study of US. stimulus funding after the 2008 recession found that ‘investing in timely pre-development funding for local projects’ would better support a pipeline of shovel-ready projects.

At the launch of the City Climate Finance Gap Fund, Germany’s Parliamentary State Secretary of the Federal Ministry of Economic Cooperation and Development, Norbert Barthle, noted that ‘The climate-neutral and -resilient cities of tomorrow are being built today and it’s our responsibility to lend a hand. Through the Gap Fund, cities are enabled to lay the foundation stone for sustainable infrastructure and ambitious climate action from day one, thus mobilizing urgently needed investments to achieve their climate targets and drive a green recovery.’
1.2.3 What is pre-development funding and why does it matter?

Pre-development funding allows for a range of early planning activities for infrastructure projects. This funding enables early development phases to be guided by economic impact analyses, regional planning, preliminary engineering assessments, preliminary environmental impact assessments and considerations of lifecycle impacts. While it is estimated that total project preparation generally represents about 3-5% of the total project investment costs, it can be up to 10% in emerging markets. The lack of funding for these activities is often a significant obstacle to the development of public sector infrastructure due to fiscal constraints or risk aversion. Pre-development funding can be the difference that allows promising projects to be implemented.8 With successful project implementation, these upfront costs can be recouped over the lifecycle of the project, for example through lower maintenance or mitigated costs resulting from more resilient infrastructure.

Infrastructure development also plays a crucial role in supporting the realization of international agreements such as the UN Sustainable Development Goals (SDGs)9 and the Paris Agreement.10 For example, strategies that address climate change mitigation and adaptation are closely tied to infrastructure design and implementation.11

The Global Infrastructure Hub12 estimates that there is a $15 trillion infrastructure investment gap globally, with additional investment needed between now and 2030 to be in line with delivery of the UN SDGs. The OECD similarly reports that $6.3 trillion in infrastructure investment is needed by 2030 to meet the SDGs and $6.9 trillion would be needed in infrastructure investments to meet the Paris Agreement goals.13

Figure 1: Project Planning and Development Lifecycle (Global Covenant of Mayors)
1.2.4 The pre-development funding gap

Cities may receive support from a variety of partners and funding sources. However, investments from international and local partners are largely focused on backing the right enabling environment (including planning and development of local climate action plans) or advancing projects to transaction from mid/late pre-feasibility — e.g., through project preparation facilities (PPFs) — and later stages — e.g., development bank investments. There remains a significant gap between identifying projects for climate action or sustainable development/sector plans and the ability to bring them to fruition.

Investors have capital ready to invest in urban climate projects, cities have a demand for financing solutions, and some government or multilateral institutions even have specialized capacity-building programs. Nevertheless, projects do not move forward from project concept to financing due to a lack of support at the earliest stages of project preparation.

As mentioned in Section 1.2.3, total project preparation represents about 3-5% percent of the total project investment costs, but can be up to 10% in emerging markets. This means that, for the anticipated $90 trillion infrastructure investment needed for the next 15 years, up to $4.5 trillion will be required for project preparation — $300 billion per year. Without these costs being built in, there is the real risk of lock-in to higher emission pathways. When the full benefits of green infrastructure projects are considered, it may also be possible to account for, or to indirectly recover, pre-development costs over the full lifecycle of a project.

KEY TERMS

Green recovery: Green recovery measures are included in the crisis recovery packages of many nations (preliminary OECD estimates suggest these amount to about $312 billion) through grants, loans and tax relief directed towards green transport, circular economy and clean energy research, development and deployment, as well as job creation to support ecosystem restoration and forest conservation.

Green infrastructure: The definition used in this paper is that used by European political institutions and multilateral development banks, which define green infrastructure as ‘a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation.’ Note that green infrastructure in the United States is defined more narrowly to focus on the management of decentralized storm water management practices... that can capture and infiltrate rain where it falls, thus reducing storm water runoff and improving the health of surrounding waterways.

Sustainable infrastructure: Defined by the Inter-American Development Bank as ‘infrastructure projects that are planned, designed, constructed, operated, and decommissioned in a manner to ensure economic and financial, social, environmental (including climate resilience), and institutional sustainability over the entire lifecycle of the project.’

Pre-development funding: The funding that pays for tasks that need to be completed before construction can occur, such as architectural and engineering work, market assessments and economic feasibility studies, site/lease acquisition costs, business plan writing and permitting.

Shovel-ready: A term usually associated with projects that have been through the required planning and approval processes and can initiate construction upon securing investment. It also refers to projects that will have immediate impact on employment rates and the economy.

Investment Readiness: Generally used in the context of raising external equity finance and is sometimes referred to as project readiness. There are three dimensions to investment readiness: equity aversion; investability and presentational failings. The first of these aspects concerns the project promoter’s attitude towards equity finance, the second to the investment testing conducted by investors and the third to the presentation of ideas, business plans and associated materials. In development finance and emerging markets; project readiness tends to be more focused on concept development and feasibility studies rather than full investment.
2. OPPORTUNITIES FOR A GREEN RECOVERY

2.1 The Current Financial Challenge

COVID-19 has wreaked financial havoc on a global scale. The huge cost of tackling the pandemic and the ensuing economic crisis is mounting. The International Energy Agency (IEA) reports that the global economy is set to shrink by 6% in 2020 and that 300 million jobs may have been lost during the second quarter of the year. According to UNEP, governments worldwide were projected to face a $10 trillion deficit in 2020 and a cumulative shortfall of up to $30 trillion by 2023.

Furthermore, the impacts are especially significant for cities. More than 80% of global economic output is generated in cities, where 55% of the world’s population lives and 95% of COVID-19 cases have been reported. Prior to the pandemic, the City Climate Finance Leadership Alliance estimated that $4.1 - 4.3 trillion in annual urban infrastructure investments would be required to maintain a state of good repair for business-as-usual infrastructure. However, developing climate-resilient and emission-reducing infrastructure would increase the estimated investment needs by 9% to 27%.

In addition to collecting less revenue from federal governments, cities are also seeing reduced revenues from public transport, water utilities, and waste utilities due to emergency measures implemented to contain the pandemic. COVID-19 will likely lead to significant tax revenue losses for cities from tax deferrals and lower taxable incomes. The World Bank’s global estimates projected a 15–25% decline in local government revenues in 2020. In Africa, local governments anticipated a drop in local finances as high as 30–65%, on average, depending on the severity of the crisis.

Major urban infrastructure investments have some of the highest potential to unleash new economic activity, create local jobs, increase public health outcomes, and set cities on a path of prosperity and sustainable long-term development. The CUT found that investments across these areas are estimated to hold the potential to unlock a direct economic dividend worth at least $24 trillion by 2050, alongside supporting the equivalent of at least 87 million jobs in 2030 (mostly from building efficiency improvements) and 45 million jobs in 2050 (mostly in the transport sector).

2.2 The Opportunity of Financial Stimulus Measures

This is an opportune moment, as stimulus initiatives are developed, to leverage sustainable infrastructure investments to provide both immediate economic relief while also laying the groundwork for a transformational, green, sustainable and resilient long-term recovery. The IEA reports that governments globally have announced recovery measures worth about $9 trillion, focusing on emergency financial and economic relief to prevent an even deeper crisis. Relief is also coming from the international development finance community. For example, the International Monetary Fund (IMF) announced its readiness to mobilize its $1 trillion lending capacity to help nations implement essential containment measures, shield affected people and firms, reduce stress to the financial system, and implement recovery programs. The World Bank also announced a $14 billion COVID-19-related financing package.
2.3 Scaling Change with Financial Stimulus Measures

Most infrastructure, in both emerging and developed markets, has some form of public financing – and post-COVID recovery stimulus is well-suited to help build the sustainable, green and resilient infrastructure of the future.

Governments and financial institutions are on the cusp of making investment decisions that will shape infrastructure and industries for decades to come. These stimulus packages offer a unique opportunity to fund sustainable infrastructure projects that can deliver needed services and have a significant positive impact on global environmental quality and social equity.

However, concerted effort will be needed to ensure smart investments are made and that business as usual is not the default approach of stimulus plans. According to the OECD, although many governments have included green recovery measures in crisis recovery packages, ‘the balance between green and non-green spending is not favorable in terms of the support towards positive environmental outcomes.’

The opportunity to turn these stimulus packages into sustainable infrastructure programs to effect global environmental change is enormous. The IEA determined that implementing more than 30 energy policy measures over the next three years with a global investment of about $1 trillion annually (about 0.7% of global GDP) would lower annual greenhouse gas emissions by 4.5 billion tonnes and reduce air pollution emissions by 5% in 2023. This plan would not only make 2019 the definitive peak in global emissions, but it would also put them on a path towards achieving long-term climate goals, including the Paris Agreement. In addition to positive environmental benefits, infrastructure investments also support communities and the economy through job creation. Infrastructure not only accounts for 6% of the global GDP and workforce, but government investment in infrastructure has an annual multiplier effect of 0.4 to 2.2 times GDP. Infrastructure projects can help create at least 10,000 total jobs for every $1 billion invested.
3. AVAILABLE TOOLS AND APPROACHES: THE TOOLKIT

The strategies below detail a wide array of policy and implementation approaches to enable pre-development funding as a crucial step in developing shovel-ready, as well as shovel-worthy, infrastructure projects. Building these approaches into pandemic-related economic stimulus packages can establish a new template for delivering successful infrastructure projects – both for the recovery period and beyond. Ensuring sufficient investment in early project planning not only brings more robust projects to fruition, but it can also ensure that more sustainable projects are developed.

The recommendations for potential tools to encourage pre-development funding are organized by the institutions that are typically responsible for granting and disbursing financial recovery aid – national governments and multinational financing institutions, as well as the on-the-ground implementers – local governments and private sector project developers. While this report focuses on these categories, these stakeholders do not represent the wide array of organizations involved in funding and implementing infrastructure projects.

3.1 National Governments

National governments play a key role in financing infrastructure development. From routine investments that provide and maintain key public services, to targeted initiatives to spur economic development during fiscal crises, national governments are responsible for initiating some of the largest scale infrastructure investments globally.

3.1.1 Good governance enables capacity for project pre-development activities.

Creating institutional capacity within national governments bolsters these institutions' abilities to devote sufficient time to project preparation activities, which can significantly drive creation of investible project pipelines. Creating an enabling environment is crucial to successfully scaling infrastructure investments.35

3.1.2 Create a more robust project pipeline

National Governments should establish pre-development funding as a required component of initiatives to spur infrastructure investment and ensure the long-term success of projects. This can be accomplished by creating separate pre-development funding mechanisms or ensuring that pre-development funding is included as a funded stage of project development in financing packages.

Focusing on the pre-development phase provides opportunities to develop longer-term, more innovative and complex infrastructure projects. This early planning enables stakeholders to assess a range of financing approaches, including public-private partnerships and other types of blended finance. Investment in pre-development planning may also enable state and local governments to assess and pilot emerging technologies, consider lifecycle costs and improved environmental performance, as
well as evaluate enhanced climate change mitigation or resilience approaches.  

Prioritize funding to make sure shovel-ready projects are also shovel-worthy and include sustainability and resilience goals and pre-development activities. Ensuring a robust project pipeline means that readiness alone should not be the top priority for implementation. Criteria for receiving stimulus funding should include requirements regarding project fitness as well as sustainability goals, including climate-related sustainability. During the 2008 recession, policymakers preferred shovel-ready projects that could rapidly start construction, absorb funding and stimulate the economy. This resulted in stimulus funding going to projects that may have likely happened, regardless. Additionally, the US Environmental Protection Agency (EPA) analysis of past stimulus funding found that the ‘goal to inject money quickly into the economy sometimes conflicted with EPA’s goal to fund projects that would yield the greatest environmental benefit.’ The need to find shovel-ready projects meant that sometimes higher priority projects were passed over in favor of other projects that were ready to implement.

Pre-development funding offers many benefits to infrastructure development, as it addresses some of the most persistent barriers to developing successful, sustainable projects.

• Pre-development funding can help bring a greater number of innovative, resilient projects to fruition. Increasing the availability of pre-development funding not only enables early-stage project activities to be more likely to be completed, but it also potentially expands and improves the pipeline of projects. A lesson learned from the last recession in both Europe and the United States, is that results were disappointing from investment in very large, complex engineering projects funded by stimulus measures. The IEA noted that the culprit was often difficult licensing and social acceptance dimensions – issues that perhaps sufficient pre-development planning could have identified.

• Pre-development funding can accelerate project delivery. In October 2020, the Canada Infrastructure Bank (CIB) set aside $500 million of a $10 billion Recovery Fund for Project Acceleration. As large infrastructure projects take years to plan and develop, project acceleration is intended to provide immediate employment opportunities and economic growth. Essentially, this ring-fencing provides funding for pre-development activities ‘to expedite the studies, technical reports and analysis required to shorten critical paths to construction.’

• Pre-development planning can enable community outreach and engagement, resulting in greater equity. As mentioned above, ensuring community buy-in is key to the success of infrastructure projects. Funding pre-development planning can provide the time necessary to work collaboratively with communities to conduct outreach and participatory planning to make sure that community concerns are addressed. Research on this subject points to a strong link between the public participation process and mobilization of public support and involvement, and can ensure greater equity.

Create national and sub-national institutions focused on supporting pre-development activities, as well as implementation. A key aspect of nurturing a conducive enabling environment for infrastructure investments at the national, state or city level is the ability to scale institutional capacity.

• Enhance the ability of Project Preparation Facilities (PPFs) to focus technical assistance and funding for the project preparation process. While PPFs do not necessarily finance implementation of projects directly, they can facilitate...
linkages to external financing sources. Early activities can be emphasized to also include capacity building for project developers, establishing effective implementation frameworks and advocating for an enabling environment. PPFs can support early development with a focus on the following aspects of preliminary planning:

- **Project Concept Definition**: Selecting a project and determining if it will move forward by engaging in pre-feasibility studies, cost estimates, funding analyses and testing of alternative approaches. The first consideration of environmental, social and governance (ESG) factors should also take place in this phase.

- **Project Feasibility**: The next stage involves a more technical analysis and involves more concrete project aspects like feasibility studies, demand planning, engineering, sustainability and resilience aspects, technical planning, institutional and procurement arrangements, business plans, and environmental and social impact assessment.

In addition to PPFs, national governments and regional agencies can support a comprehensive, coordinated approach to project development and funding. National governments can use a number of existing resources or new collaborative models to bolster pre-development activities.

- **Centralized government agencies** can support the aggregation of medium- and long-term infrastructure plans to support a consolidated, multi-year plan. Some central agencies are also entrusted with the role of translating a multi-year infrastructure plan into a pipeline of projects across specific sectors. This level of planning provides a more structured framework to guide project development and can provide a cohesive pipeline of projects that can collectively address development goals.

- **Sector-specific agencies** can also support pre-development investment when there is a large enough number of projects. The specialized technical skills of a sector-focused agency can make sure that the right technical skills are brought to project planning early in the process.

- **Regional collaborative models** that coordinate with national or state agencies and academic and not-for-profit institutions can facilitate infrastructure planning and procurement within geographies. By serving a coordinating function and facilitating planning at a regional level, these exchanges can improve project preparation and prioritization of infrastructure investments. Regional entities can also unlock more investment in pre-development because jointly funding or coordinating overlapping projects across jurisdictions can be more cost-effective.

- **PPFs or government agencies** can bundle smaller projects together to ensure investments are appropriately scaled for large institutional investors or national stimulus programs. Bundling individual projects from small local governments or other parties may enable projects that would not otherwise benefit from stimulus dollars. In scenarios like this, unified early planning activities are also cost-effective when similar projects are pooled together.

### 3.1.3 Reduce financial risk during pre-development activities

National governments can employ a range of strategies to reduce the risk and uncertainty in the early stages of project planning. Reducing financial and other risks during pre-development enables stakeholders to focus on the social, environmental, and technical aspects of project preparation and fitness.

**Design national government programs to mitigate risk for investors.** Governments, lending institutions and non-governmental philanthropic funders can provide direction on deal structure and design options to reduce renegotiation risk (which can deter private investor interest), align project sponsor and investor interests, and achieve well-defined risk allocations that yield risk-return trade-offs acceptable to both sponsors and investors. When aligned early in a project, these strategies can help to increase the likelihood of a project advancing to implementation.

**Include an infrastructure risk and resilience assessment (IRRA) as a criterion for funding.** This assessment ensures that lifecycle project costs, maintenance needs,
and other risks are considered, along with alternative financing and project management systems. Similar to an environmental impact assessment, this evaluation can help improve project readiness.49

Create greater certainty in state/federal permit and approval processes. Outlining clear processes and approval timelines for permits and environmental reviews can provide assurance to project investors and implementers. Increasing predictability by better defining typical permit timelines, developing more standardized approaches to complying with environmental requirements, and expediting environmental approvals could facilitate project delivery and the development of public-private partnerships (PPPs). Increasing predictability and transparency in the permit process could also facilitate PPP delivery. PPP projects tend to be larger, more technically complex, and involve more complicated relationships between public agency sponsors and private developers taking on traditionally public sector roles (e.g., environmental compliance) when compared to conventionally funded projects. Investors are known to be hesitant about engaging with projects that have not yet gone through environmental approval processes, creating a barrier to early project investment.50 Some private sector partners have also noted that they tend not to consider altering nascent projects to fit a PPP model as they fear it will restart the permitting process and substantially delay the project.51

Consider tax rules to enable expanded use of tax-exempt debt financing and the use of PPPs in financing public infrastructure. Evaluate how tax rules impact the private sector’s role in the financing, management, and operation of public infrastructure. Ensure that tax structures do not preclude public sector entities to enter into PPPs, thus potentially prohibiting the early alignment of project capital and subsequent planning activities.52

Build public sector finance capacity and expertise. Most public agencies lack sufficient or skilled staff to develop a pipeline of public-private partnerships and implement lifecycle finance. Not having the right human capital available hampers the ability to ensure the right pre-development financing activities are undertaken. The need to access specialized external expertise also increases the costs of infrastructure project preparation. On the other hand, procurements should ensure that consultant staff understand private financing, as well as public. Third-party resources that have worked with private investors can analyze projects by the success parameters used by private investors. Consultants can also provide a degree of independence and validation to the project preparation process, which gives private investors further confidence when evaluating potential funding opportunities.53
3.2 Regional and local government

National governments are crucial to financing infrastructure initiatives. However, regional, sub-national, and local governments are largely responsible for initiating and implementing infrastructure projects. While national governments or other project funders may set important parameters for project implementation, regional and local governments can independently leverage a variety of tools to enable pre-development planning to ensure more successful, sustainable outcomes.

3.2.1 Utilize contracting and procurement approaches to create capacity for pre-development activities

Implement best-value approaches to contracting and procurement. Local governments can maximize sustainability outcomes in infrastructure projects by using contracting and procurement mechanisms that focus on best value, not lowest cost. This approach enables governments to focus on project outcomes and creates the leverage to require early planning activities as part and parcel of project development. Delivery methods that focus on performance-based standards and outcomes can include, but are not limited to, design-build, design-build-operate, design-build-finance-operate and PPPs.

Adopting a total cost of ownership (TCO) or lifecycle costing approach for project evaluation processes (rather than a low-cost bid) can generate long-term savings. This approach also emphasizes the importance of early planning and pre-development activities, as selection is weighted towards sustainable projects that are NPV (net present value)-positive but may have higher upfront costs (due to more complex systems and the planning required to integrate these into projects). For example, it is common for green buildings or infrastructure to have higher upfront costs and require more robust early planning, but these projects reap deeper savings over a project’s longer-term operations and maintenance.

- Create procurements that include requirements for pre-development activities or sustainable approaches.
  In the Request for Qualifications (RFQ), proposers can require the inclusion of sustainability-oriented or other professionals in the contract and specify the types of experience and education needed. Similarly, the Request for Proposals (RFP) can ensure that specific financing or sustainability roles are included in staffing plans and include sustainable performance specifications.

- Pre-development planning may be needed to develop sustainable, performance-based specifications.
  Performance-based specifications describe the outcomes or results required for functional or sustainable infrastructure performance requirements. These requirements are also sometimes called output or results-based specifications. Often, RFP processes use performance-based specifications to deliver the sustainable outcomes requested by the client and the proposer controls the design and method of delivery. Organizations need to invest in early planning and conceptual engineering in order to know enough to formulate an appropriate, customized suite of performance-based specifications or project requirements.

Performance specifications can support innovation in sustainable solutions, especially when procuring unique or novel requirements. Performance specifications are assessed on their merit by scoring against rated criteria. Proposals can then be ranked against each other based on the quality and best fit for solutions versus the bid value. Generally, detailed technical sustainability requirements ought to be addressed through either precise conformance (describe the exact nature of the technical requirement) or performance specifications (describe the exact nature of the sustainability outcome or objective to be achieved). Furthermore, in addition to technical criteria, procurements can also specify a number of social criteria – from community engagement and outreach requirements, to fair labor practices and human rights standards.
Utilizing industry standards and third-party certifications can help streamline pre-development planning for sustainability. Commonly applied sustainability rating systems can help ensure sustainable and resilient outcomes for building and infrastructure projects by streamlining pre-development planning. Sustainable procurement requirements can utilize existing social or eco-label criteria, which often include prescribed prerequisites for certification whilst also enabling site-specific customization. In the sustainable infrastructure field these can include, but are not limited to, green building standards such as LEED, BREAAM or Green Globes; infrastructure standards such as Envision or GreenRoads; green product standards such as the Red List; and health-based standards such as WELL and Fitwell.

3.2.2 Alternative funding mechanisms to support sustainability and pre-development

The following alternative funding approaches focus on developing sustainable outcomes. While these mechanisms don’t explicitly address pre-development activities, the focus on sustainability ensures that projects are sufficiently supported throughout the project lifecycle, including early planning and development activities.

Employ municipal and green bonds as a revenue source for sustainable infrastructure projects. Local governments may be able to finance capital spending through the issuance of municipal or green bonds. For infrastructure that requires significant upfront capital investment that will operate for many years, bond financing allows a government to pay for a project over the entire life of the infrastructure, as the debt is repaid gradually over time. The long-term nature of this financing approach allows for governments to build in pre-development activities into the project development process. Green bonds have become a more popular mechanism by which governments can fund climate resilience and other environmentally focused projects.

Green bonds are structured to finance a wide range of environmentally beneficial activities. Because green bonds are only used for environmentally beneficial projects, they can attract investors interested in environmental issues as well as traditional investors. This increased interest may reduce future borrowing costs (compared to traditional bonds) for governments raising funds by issuing bonds. Over the past several years, green bonds have been one of the fastest growing sectors of the bond market, with over $257.7 billion dispersed in 2019, marking a new global record.

Institute Tax Increment Financing (TIF) or Land Value Capture (LVC). Tax Increment Financing (TIF), a type of Land Value Capture (LVC), funds projects in a specific geographic area based on the anticipated increase in property tax from the newly developed project. A TIF project generates revenue from the difference in assessed property tax between the developed project and the value prior to development. Although TIF was originally created to finance brownfield redevelopment and the rehabilitation of ‘blighted’ areas, it is now widely used in North America (and to a lesser extent in Europe) for infrastructure improvements. One of the keys to project success is ensuring institutional collaboration to secure funding. Local planning authorities ‘must develop credible bundled infrastructure and service plans so that the risk/reward credentials of TIF bond issues become acceptable to banks, pension funds and overseas investors.’

The City of Chicago has successfully used TIF to fund public infrastructure projects. According to the Georgetown Climate Center, ‘the city has established more than 120 TIF districts, and has leveraged this public investment to attract over $6 billion in private capital investment in TIF districts over two decades of development.’

Utility and Permit Fees provide a means for local and regional governments to directly raise revenue. These strategies enable governments more flexibility in directing funds to early planning and pre-development activities. Additionally, funding mechanisms that reward end-use efficiencies require that there is a greater investment in
upfront planning as there are often financial guarantees tied to meeting the desired outcomes.

- **Local governments can assess permit or utility fees** to provide additional revenue for green infrastructure programs. Where local governments direct water and energy utilities, the fees allow the municipality to raise revenue directly from proposed development or construction projects that exacerbate storm water impacts or increase the need for energy generation. Portland, Oregon has established a ‘One Percent for Green’ Fund which requires that all construction projects in the public right-of-way that do not include ‘green street facilities’ must contribute 1% of project costs to a city fund for green infrastructure projects. It should be noted, however, that assessed fees may not provide sufficient funding to fully implement new projects and that this revenue source is dependent on an economy strong enough to support new construction projects. As a result, this strategy should be bundled with other funding sources. Finally, while called a ‘fee’ in some jurisdictions, it may be considered a tax in others, where voter-approval may be required to assess such premiums.

- **Another potential source of funding for infrastructure investments are Energy Efficiency Obligations (EEOs),** which are a legislative or voluntary mechanism where state or local governments direct energy utilities to meet quantitative energy-saving targets through investment in end-use energy efficiency. While EEOs were initially applied to energy providers such as electricity and gas, they are also being placed on suppliers of transportation fuels, heating oil, and district heating, to name a few. The EEOs set energy-saving targets over a period of a few years, by the end of which the obligated parties must achieve certain reductions in energy use by end-users. Globally, the Regulatory Assistance Project estimates that there are over 50 EEOs operating, and it is rare for the energy saving target to not be met. Generally, the end-use energy-saving measures have been shown to be more cost-effective and attainable than initially envisioned by policymakers and stakeholders.

### 3.3 Multinational Financing Institutions

Multinational financing institutions can play an important role, beyond funding, through capacity building and planning at each stage of an infrastructure project’s lifecycle. These institutions can play a particularly important role in integrating climate and other sustainability components into pre-development activities, and bringing blended finance approaches to accelerate green, resilient and sustainable infrastructure investments faster than the market otherwise might. The World Bank's Global Infrastructure Facility (GIF) provides this type of support for emerging markets projects.

#### 3.3.1 Encourage private sector blended financing to support pre-development

Ensuring that pre-development activities are part and parcel of projects can help reduce risk for private capital; the focus on early planning can help secure a project’s successful and sustainable outcome.

- **Formulate Project Preparation Standards to bolster investor confidence.** A Project Preparation Standard defines baseline criteria across parameters such as costs, returns, risk assessment, environmental and social impact, and vendor selection. This approach enables sufficient preparatory work to occur before third-party consultants are brought on board. The standardization of project parameters can also help reduce the time it takes to prepare projects and reduce efforts in project diligence. Overall, research suggests that standardization can enable national and sub-national governments to quickly ramp-up a pipeline of bankable projects. In addition, this can limit preparation costs and mitigate potential execution risks during the project lifecycle.
• Ensure a detailed approach to diligence to secure investor success in sustainable infrastructure investment. Institutions should ensure that the early financial assessments are integrated into project planning to assure the robustness of potential private investment. This includes analysis of project risks, structuring options for optimal risk allocation and transfer, Value for Money (VfM) analysis, level of government support required, fiscal costs and contingent liabilities, plans for stakeholder engagement and market sounding, and contract documentation.63

3.4 Private Sector Project Developers

Private sector developers often engage in robust pre-development activities because it’s good business. Ensuring good public-private cooperation around pre-development activities increases the likelihood of successfully implementing sustainable, green and resilient infrastructure.

3.4.1 A private developer’s business case for pre-development investment

Investment in pre-development results in more cost-effective projects. Companies that build and operate infrastructure networks, such as utilities or rail infrastructure providers, can benefit from investment in early planning and procurement processes. More time and resources during early planning tends to favor innovation and encourage savings via value-engineering processes that can reduce the cost of materials and services.

Develop new business and contracting models. Businesses with additional early planning capacity have the time and resources to identify and propose additional infrastructure investments or services. Pre-development also provides opportunities to provide more owner-incentivized planning, engineering, procurement, and contract management services.64

3.4.2 Incentives to spur private sector pre-development for sustainable infrastructure

Private developers often engage in projects where they are provided with incentives to engage in pre-development activities as well as the delivery of more sustainable outcomes. Many government-based international aid organizations also rely on incentives to promote the adoption of capacity building, new technologies or sustainable approaches.65

Zoning-related incentives are provided to developers during the permit development and application process. These incentives can include expediting permits, reduced permit fees or increasing the square footage per site in exchange for developing projects with sustainable outcomes. While the permitting processes may be expedited, they may also require early project planning and pre-development activities.66

Rebates and blended financing incentives often require that developers have the upfront capital necessary to fund a project directly. In exchange, private firms receive financing support from the government through low-interest loans, tax credits or reimbursements. In these scenarios, funding organizations can utilize any number of tools or approaches that prescribe the project development process, including requiring specific early planning and pre-development.67
4. ADDITIONAL BENEFITS

There are many co-benefits to implementing sustainable and resilient infrastructure. Looking through the lens of the triple bottom line, infrastructure projects have the potential to support community equity and environmental quality in addition to economic development.

4.1 Infrastructure projects can support social sustainability, reducing poverty and socioeconomic inequality by:

- Creating jobs, including clean and green jobs.
- Generating income, particularly for low-income households.
- Building skills and career development opportunities – especially in green and clean technologies.
- Improving working conditions by meeting or exceeding core labor and human rights standards.
- Striving for gender equality in hiring practices.
- Engaging all stakeholders affected by the infrastructure investment (particularly low-income households and other disadvantaged communities) in decision-making processes.
- Enhancing public health and wellbeing by promoting increased access to basic services for low-income households.
- Creating investment in education, capacity building and professional qualifications.58

4.2 Sustainable infrastructure projects can support environmental stewardship by:

- Promoting and using clean and environmentally friendly technologies that lower air, water, soil, and other forms of pollution.
- Enhancing ecosystem services, biodiversity, and conservation by providing green infrastructure.
- Saving natural resources by efficiently using water, energy, and materials.
- Mitigating greenhouse gas emissions, consistent with the climate change goal under the Paris Agreement.
- Using technologies that contribute to the transition to a low-carbon economy and to the decarbonization of the energy system.
- Considering climate change risks in design, maintenance, and operations to develop resilience to climate change risks, extreme weather events and other natural disasters.69
5. KEY ASKS AND RECOMMENDATIONS

5.1 Build robust project pipelines by advocating for financial packages that:

- Provide pre-development funding to support early planning activities to ensure that sustainably designed projects can move from pre-development to shovel-ready during the investment and implementation timeframe.

- Demonstrate a commitment to community engagement and outreach as part of pre-development activities to adequately integrate community concerns, feedback, and impact into a project's initial planning.

- Prioritize shovel-worthy projects and not just shovel-ready projects. Selecting shovel-ready projects may prioritize projects that are ready for implementation, but not the most cost-effective and impactful projects. Invest in robust pre-development activities to enable projects to become shovel-ready in a timely manner, while also integrating sustainability and community concerns.

- Have the flexibility to include funding for multiple blended financing approaches, including PPPs and other alternative financing mechanisms, such as green bonds, tax increment financing, or land value claim.

- Implement projects via sub-national and regional support facilities which can include a Project Financing Facility or government agencies organized by sector or geography. These institutions can scale projects, ensure they are integrated into regional and national policy strategies, and foster public and private partnerships.

5.2 Reduce financial risk for implementing large infrastructure projects by advocating for:

- The inclusion of Project Preparation Standards. A Project Preparation Standard defines baseline criteria across parameters such as costs, returns, risk assessment, environmental and social impact, and vendor selection, to provide clarity to project teams early in project development.

- Participation in project development and preparation facilities. Financing preparation at the project level either directly or through Project Development Funds (PDFs) or Project Preparation Facilities (PPFs), provides systematic, institutional support for project development.

- Certainty and/or uniformity in government permitting and approval processes. Standardizing language, requirements and timelines helps ensure timeline pre-development activities and increases predictability about permit timelines.

- Taxing structures that allow PPP as a financing mechanism. Consider opportunities for expanded use of tax-exempt debt for PPP financings. Ensure that taxing and other blended financing mechanisms are incentivizing the private sector to participate.

- Capacity building for public sector actors to build:
  - Finance expertise by ensuring that public sector organizations have the internal or outsourced capacity to
understand and successfully manage the financing approaches they will be implementing in partnership with private sector investors.

- **PPPs** and other blended financing by successfully shaping national aid packages that are structured to support and promote these partnerships and by supporting local governments to learn how they can successfully develop and participate in these partnerships.

- **Lifecycle finance** approaches to project development. Many public sector organizations need to build the capacity to finance projects that balance the sometimes-higher upfront costs of sustainable projects with the long-term savings that will accrue over time.

• **Utilizing municipal green bonds, tax increment financing and LVC as a revenue source.** Provide governments with the resources to utilize these cost-effective revenue streams to raise low-debt financing for infrastructure projects.

5.3 Ensure the sustainability and resilience of recovery-focused infrastructure packages by requiring:

- **Performance-based contracting** that includes technical specifications for sustainable outcomes. Outcome-based procurement approaches can ensure that sustainability standards, specifications and third-party certifications are integrated into project delivery and, in some cases, operations and maintenance.

- **Projects to be built to third-party green building and infrastructure standards.** Instead of developing customized sustainability standards, utilize third-party sustainable rating systems, which creates a common language and process for the stakeholders involved in the design, construction, and operation of infrastructure projects.

- **Community engagement and outreach** as a required element in a project’s core approach to sustainability during the project’s entire development cycle. Ensuring community engagement during pre-development phases has been shown to result in better performing projects that are more likely to be constructed and used.
References


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