Estimating the investment opportunity in green buildings

To estimate the size of the investment opportunity in green buildings, IFC first estimated the scale of the new real estate construction projected by 2030 across emerging market cities in the six regions where IFC works. This estimate relied on projections of population growth, urbanization rates, and the construction across existing and future emerging market cities with a population of over half a million by 2030. Second, IFC projected the rate of green construction growth within the overall construction expansion in the target regions and countries. IFC used available historical data on the ratio and growth rate of green construction, data from its EDGE software, as well as stated commitments and targets by national and subnational governments related to urban green buildings. Third, IFC relied on the actual costs plus potential inflation of green construction across emerging markets to calculate the size of the projected investment opportunity.

For a detailed methodology and list of sources used, please see IFC’s Climate Investment Opportunities in Cities report.36
Cities in the Middle East and North Africa have an investment opportunity of over $1.1 trillion, much of which is expected to go towards new commercial and institutional construction, in addition to addressing resilient housing needs to combat extreme heat and water stress in the region.

Sub-Saharan Africa’s cities are home to more than 470 million people today—a number that is expected to double over the next 25 years. Meeting the housing gap as well as constructing commercial, institutional, and industrial buildings presents a major opportunity to green this future construction—worth about $768 billion until 2030.

Latin America is the second most urbanized region in the world, with 81 percent of the population living in cities, of which almost a third are in emerging, intermediate cities. Green housing construction is already a priority in many of the region’s countries, and meeting stated goals and expected demand for housing will create an estimated investment opportunity of $4.1 trillion in green buildings.

**Opportunity by building type**

In emerging markets, residential buildings account for most of the investment potential until 2030—$15.7 trillion across all regions. In comparison, the estimated investment opportunity in commercial buildings is $9 trillion, or about 36 percent of the total investment opportunity in emerging markets.

---

**Figure 3: Total opportunity by building type (USD billions)**

[Circle diagram showing the breakdown of total opportunity by building type, with Multi-Unit-Residential leading at $9.3 trillion, Single-Family-Detached at $6.4 trillion, Office at $2.896.2 billion, Retail at $1.749.2 billion, Education at $1.509.4 billion, Hotels & Restaurants at $1.147.9 billion, Institutional/Assembly at $879.4 billion, Healthcare at $569.9 billion, Transport at $376.4 billion, Warehouse at $190.5 billion, and TOTAL at $24.7 trillion.]
The retrofit market

Although beyond the scope of this report, retrofitting existing buildings represents another sizeable investment opportunity and plays a key role in reaching global climate goals. To bring the buildings sector onto a 1.5°C compatible pathway, 3 percent to 5 percent of the existing global building stock would need to be renovated every year until 2050.\(^47\) The vast majority of the buildings built today will still be used in 2050. This means that almost every building that is not carbon neutral will need to be retrofitted at some point in the next 30 years.

Undertaking these retrofits presents both a challenge and a significant investment opportunity. The retrofit market is expected to grow at a compound annual growth rate of 8 percent from 2018 to 2023.\(^48\) Energy efficiency retrofits have shown attractive returns on investment, even for short-term investors. This is because in addition to generating direct cost savings, these measures positively affect the overall value of buildings.\(^49\)

The investment opportunity in the green residential sector is driven by the growing demand for housing, governments’ concerted efforts to meet housing demand for its citizens, and underinvestment in energy efficiency measures in the sector.

Rapid population growth and increased urbanization will compound the current housing deficit in emerging markets—particularly in affordable housing. India alone needs an estimated 60 million additional housing units to be built between 2018 and 2022 to meet the existing shortfall.\(^42\) By 2025, 440 million households globally—an estimated 1.6 billion people—will live in substandard housing.\(^43\)

Residential construction and affordable housing are key priorities for governments in emerging markets. The Indian government has launched Housing for All by 2022, a policy that aims to meet the gap in urban housing with increased private sector participation.\(^44\) Affordable housing is a key component of Kenya’s Big Four development pillars, and the country is on track to build 500,000 affordable homes by 2022.\(^45\) Similar trends in all regions will help drive demand for investment in buildings—and there is a huge opportunity to make these buildings green.

While residential buildings account for almost 75 percent of energy use by buildings globally, they receive only half of the energy efficiency investment in buildings.\(^46\) There is scope for greater investment in energy efficiency measures, including building envelopes, appliances, water efficiency, and waste management.

In tandem with residential construction, emerging market cities will also see an increase in demand for commercial construction given population growth in cities and the associated increase in economic activity. Commercial buildings have been a key user of green building certifications, driven in part by competition for capital and tenants, as well as increasingly more stringent regulation. The projected increase in commercial building construction presents a significant opportunity for green buildings.
Asset manager Asia Green Real Estate invests capital and sustainability expertise in buildings in Asian metropolises. The firm finances residential and commercial properties for both the expanding middle class and the growing number of national and international companies in the region. Asia Green Real Estate provides an opportunity for private and institutional investors who are looking for both financial and sustainability returns. It offers returns of 8 percent to 12 percent, with increasing land value making these investments relatively safe, as the underlying asset is the acquired land.

To develop a strong pipeline of projects and attract capital from investors looking to fulfill their sustainability commitments, Asia Green Real Estate has an in-house team of architects and engineers with considerable experience in green design and construction. The company helps its clients identify and apply the most practical and cost-efficient solutions to maximize the benefits. To support this effort, it has developed a proprietary sustainability assessment system, EcoTool.

With the EcoTool, a building can be evaluated by resources, health, and comfort, with the aim of achieving above-market sustainability standards within a local context. Based on an analysis of strengths and weaknesses, the company then develops solutions for improvement with the highest benefit-to-cost ratio.

Asia Green Real Estate has also committed to certifying the projects that it finances with IFC’s EDGE. All projects that qualify for financing are required to commit to certification before a transaction proceeds.

To date, Asia Green Real Estate has invested in more than 2 million square meters of green floor space. Each of its projects consumes less energy and water and has a lighter carbon footprint than traditional buildings. The value for clients is created by lower operational costs, lower vacancy rates, and potentially higher resale prices. As 80 million people are projected to enter Asia’s middle class in the next few years, the demand for housing will continue to rise, creating ample business opportunities for investors.
The Business Case for Green Buildings

Investing in green buildings—whether single-family homes, apartment complexes, office buildings, or industrial setups—makes good business sense for a wide variety of stakeholders. This section of the report considers available evidence of the business case for four main groups of stakeholders: investors and financial intermediaries, developers, owners, and governments. These players own and finance a large proportion of real estate across emerging markets and can benefit significantly from shifting their portfolios to green buildings.

Most of the evidence surrounding the benefits of green buildings comes from studies focused on developed markets. However, IFC’s investment and operational experience, combined with anecdotal evidence, points to similar benefits in emerging markets. The type and degree of benefits inherent in building green can differ depending on the climatic conditions of different regions. To build a comprehensive business case for green buildings in emerging markets and to attract substantial public and private financing for green construction, IFC, with financial support from the UK government, will be undertaking further research over the next two years.

Studies and evidence across several markets suggest that to build green could range from savings of 0.5 percent to 12 percent in additional costs. Green buildings are more efficient than traditional buildings and can lower operating costs, increase revenues, and reduce exposure to the physical and transition risks presented by climate change. These factors can increase the valuation of green buildings, making them stronger credit assets and better collateral.
The cost of building green varies across locations, driven by climatic conditions, cost, and availability of building materials as well as energy- and water-efficient equipment, and availability of technical expertise in green construction, among other factors. It is, therefore, difficult to definitively say what it costs to build green across emerging markets. The EDGE software is calibrated to take local conditions into account, including climate and local industry costs and practice. The software allows its users to apply different green systems, solutions, and design techniques and estimate the associated incremental capital costs and the projected payback periods. The examples below from three continents provide anecdotal evidence that building green in emerging markets can be affordable even for low-income housing.

In South Africa, IFC client International Housing Solutions (IHS), a low-income housing developer, reports the additional cost to build in accordance with the EDGE standard to be about $270 per housing unit. This represents less than 1 percent of the construction cost, yielding an internal rate of return between 20 percent and 30 percent. IHS green homes demonstrated annual utility savings equal to one month’s rent compared to IHS non-green development and gave the company a competitive advantage in the market. Having seen that the business benefits outweigh the additional cost of building green, IHS exceeded its original target for green construction by 21 percent and has registered or certified close to 7,000 units with EDGE. Other examples of low-income housing developers in Africa that have embraced the business case for green construction include EchoStone in Nigeria (see p. 65).

In Mexico, IFC client Vinte builds affordable communities that include hospitals and health clinics, parks, and schools. Vinte’s homes, with a starting price equivalent to $20,000, feature solar panels, modern induction stoves, smart meters, and other green features. The cost of adding green technologies and EDGE certification is about $300 per home. Thousands of EDGE-certified homes by Vinte will enter the market in early 2020. Vinte’s commitment to sustainability has placed the company on Fortune Magazine’s 2019 list of companies that change the world.

In Indonesia, the EDGE-certified development Citra Maja Raya reported the additional cost of green measures to be 4.7 percent, with a payback period of 1.8 years. The green measures included optimum window sizing, external shading, insulation of roof and external walls, natural ventilation, and energy- and water-efficient systems. The utility savings per year amount to 30 percent. Some residents reported that their monthly utility bill decreased from an equivalent of $55 in previous non-green housing to $14.
Certified green buildings can lower operating expenses and improve resource efficiency by lowering utility bills, waste output, and maintenance costs. Green buildings can save more than 20 percent on energy and water consumption compared to typical buildings. This can help save green homeowners an average of 15 percent to 20 percent on their utility bills. Green commercial buildings have recorded operating costs of between 18 percent and 37 percent lower than traditional buildings. Green buildings that incorporate recycling can reduce waste output by 90 percent and use 30 percent less energy, equating to a 5 percent increase in net operating income compared to traditional buildings. Green buildings use technologies with a longer anticipated lifespan and/or more durable components (such as LED lights), reducing maintenance costs.

In addition, green property developers can benefit from tax incentives, expedited permitting processes, and density bonuses such as permission to build additional floors beyond the usual limit for conventional buildings, which policymakers are putting in place to incentivize green construction.

Green buildings can increase revenues through higher rent, better occupancy rates, and higher sale prices. Energy-efficient and certified green buildings can attract between 8 percent and 25 percent higher rents than conventional code-compliant buildings. Certified green buildings also enjoy occupancy rates of up to 23 percent higher, tenant retention, and lower vacancy rates. Certified green commercial buildings have demonstrated resale prices of 10 percent to 31 percent higher. The sale prices are 4 percent to 10 percent higher for green residential properties, which sell as much as four times faster than conventional residential buildings. As building owners, buyers, and tenants become more aware of the financial benefits of green buildings, developers of green properties stand to benefit from higher demand and growing market share.

Reduced operating costs and higher revenues are just part of the opportunity. The high resource efficiency of green buildings (water, waste, and energy) can help manage transition and some physical risks posed by climate change, such as increasing energy prices and demand, increasing water shortages and usage restrictions, increased legal liabilities, increased reputational risks, and increased vulnerability to extreme temperatures.

Green buildings can help protect portfolios from the risk of stranded assets, which stems from more stringent green building and energy codes and carbon taxes, and changing consumer preferences. Laws such as the recent Climate Mobilization Act in New York, which sets emissions caps for buildings over 25,000 square feet and large fines for missing the target, will reward green and penalize energy-intensive buildings in their jurisdictions.

Non-compliant buildings will become subject to legal action and fines, making them more expensive to operate and insure. Such buildings may be more difficult to lease and sell or may face premature termination of leases if tenants seek to move to more energy-efficient buildings. Owners of non-green buildings may have to sell their property at a discount or pay for costly retrofits to meet new, stricter requirements or to be competitive in the market. Developers that do not build green may experience slower sales times, lower sales prices, lower occupancy rates, and a loss of market share. Their access to finance may become limited as lenders are starting to screen new real estate assets for efficiency to avoid deterioration in the value of their real estate portfolios and a higher rate of non-performing loans.

In addition to these transition risks, buildings are exposed to physical risks associated with climate change. Green buildings may not necessarily be less prone to flood and hurricane damage, but temperature changes will alter heating and cooling demands. Green buildings will be better positioned to minimize the consequent impact on operating costs (see the box on Integrating Resilience to Climate Impacts into Building Design).

Lower operating costs, increased revenues, and reduced exposure to physical and transition climate risks make green buildings a well-performing asset class for investors and financiers, developers, owners, and governments to have in their portfolios. Green buildings can represent a higher-value and lower-risk asset.
grows, so does the importance of ensuring that sustainability features and business benefits of green buildings are captured and valued appropriately to benefit the owner, investors, and financiers. Although it is the appraiser who would ultimately reflect green features in the valuation of properties, investors and lenders can request these services from valuation professionals. In addition, investors and financiers can develop and implement approaches to reflect the valuation of green properties in their financial models.

Lower operating costs due to energy savings help increase the valuation of green buildings. Figure 4 shows how energy efficiency could increase the valuation of a hotel in India by 6.6 percent.

Other factors that can increase the valuation of green properties are higher occupancy rates, higher rental income, and further potential savings from not having to pay future carbon taxes or fines for non-compliance with emissions or building standards. Figure 5 provides an example of how a building’s green features could be captured in the income capitalization valuation model. As the green buildings market grows, so does the importance of ensuring that sustainability features and business benefits of green buildings are captured and valued appropriately to benefit the owner, investors, and financiers. Although it is the appraiser who would ultimately reflect green features in the valuation of properties, investors and lenders can request these services from valuation professionals. In addition, investors and financiers can develop and implement approaches to reflect the valuation of green properties in their financial models.
Banks across emerging markets can treat savings in utility bills as their clients’ additional income, improving a borrower’s credit and risk profile. Some banks in emerging markets are starting to offer green home buyers a range of beneficial mortgage terms such as lower down payments, reduced interest rates and fees, and longer loan tenors and grace periods. Banks across emerging markets can treat savings in utility bills as their clients’ additional income, improving a borrower’s credit and risk profile. Some banks in emerging markets are starting to offer green home buyers a range of beneficial mortgage terms such as lower down payments, reduced interest rates and fees, and longer loan tenors and grace periods.

Even without beneficial mortgage terms, green mortgages can benefit both banks and homeowners. The calculation in Figure 6 shows that monthly energy savings compensate a green homeowner for the initial cost of “green” improvements. These savings reduce the cost of owning a more expensive and better-performing asset. At the same time, a lending institution will finance a larger mortgage to cover the cost of green improvements, bringing more income for a lower-risk and higher-value asset on its books.

Developers of green properties represent a better credit risk profile due to faster sales and higher sale premiums on green buildings. Banks across emerging markets can share a portion of their higher income

The development of a widely accepted standard for the valuation of green properties could help direct finance towards green real estate. Lower operating costs due to energy savings are a key factor in strengthening the credit risk profile of green buildings and green borrowers. Banks in the United States and Europe enjoy a default rate of up to 33 percent lower from green home buyers. This is partly because green homeowners, as they pay lower utility bills, could direct more of their income towards mortgage payments. In the United States, green building owners report a 7 percent increase in asset value due to a higher resale price than conventionally built homes, making them better collateral.

Utility savings can be particularly significant for low-income families in emerging markets. IHS, a real estate investment and rental company for low-income housing in South Africa, estimates that utility savings equate to one month’s rent per year for the families renting some of their green-certified properties (see Box 4).
accepted standards. According to the Climate Bond Initiative,\(^6\) in 2018, 13 percent of green bond proceeds were earmarked for green buildings in emerging markets.

Finally, green buildings bring a range of economy-wide financial, societal, and environmental benefits. They can help strengthen countries’ and cities’ water and energy security by reducing demand and thus the need for energy imports. More broadly, they can play a significant role in helping countries meet their NDC goals to reduce emissions. Delivering on this green growth trajectory is expected to result in net job growth, with 9 million skilled jobs being created in renewables and construction by 2030 globally.\(^6\) Due to economic linkages between sectors, jobs in manufacturing, services, and waste management will also grow.

(3 percent in the example above) with developers by offering them a range of financial incentives to encourage green construction and build their pipeline of green properties to finance. In turn, banks benefit from owning a portfolio of green assets with greater value and less risk.

Building a portfolio of green buildings opens access for financiers and developers to new sources of capital through green bonds, green credit lines, green securitizations, and impact funds that aim to generate positive environmental and social outcomes alongside financial returns. Green bonds inject liquidity and diversify banks’ and developers’ funding sources by connecting them to new investors, potentially reducing funding costs. The proceeds of green bonds and green loans can be used to finance green buildings certified with internationally accepted standards.
Green mortgages: A triple win

The Romania Green Building Council (RoGBC) created the SMARTER Finance for Families program to convince banks to introduce green mortgages. The program argues that green mortgages can deliver a triple win for developers, banks, and home buyers.

- A participating developer builds a more expensive green home on the condition that a participating bank will provide a larger loan to a green home buyer to cover the extra cost of building green.
- The bank books a larger and less risky loan, earning a higher return.
- The home buyer benefits with a lower monthly ownership cost for a superior home through a combination of preferential mortgage terms and utility savings.

Seventeen organizations from 14 countries—representing a mix of financial institutions, institutional investors, universities, think tanks, green building councils, and manufacturers—are participating in the program.

Two of the participating banks, Raiffeisen Bank and Alpha Bank, offer a green mortgage discount of 75 and 50 basis points respectively on the conventional mortgage rate of 5.25 percent. Raiffeisen developed a specialty branch, trained its staff, and started marketing green mortgages on its website to target first-time home buyers. Alpha Bank recently launched a national television campaign.

About a dozen developers provide green building assets—30 housing projects in total, or 6,500 units that are 60 percent more energy efficient.

It is still too early to know whether these green mortgages will result in fewer late payments or loan defaults—or if they will take off in other European markets. SMARTER Finance for Families will share data among participants to help them better understand how green mortgages perform in comparison to ordinary home loans. The results will show whether the lesser risk of green mortgages does indeed bring better rewards.

---

Box 5

RoGBC’s model assumes a 70-square-meter home with a 15 percent down payment and a payment period of 20 years. Borrowers in both scenarios have the same credit score, determined through typical underwriting procedures. The “B” rated home is determined by an Energy Performance Certificate score and represents a conventionally designed home. The RoGBC Qualified Green Home must pass an RoGBC audit of additional, stringent green criteria. Calculations are meant to be indicative and the interest rate may or may not be the same as banks participating in the initiative.

---

EPC "B" Rated Home

- Loan Amount: 83,300 €
- Down Payment: 14,700 €
- Sales Price: 98,000 €

- Interest Rate: 6%
- Monthly Mortgage Payment: 561 €
- Cost of Energy/Apartment/Month: 33 €
- Total Cost of Monthly Ownership: 625 €

RoGBC Qualified Green Home

- Loan Amount: 88,655 €
- Down Payment: 15,645 €
- Sales Price: 104,300 €

- Interest Rate: 5.25% (5.15%)
- Monthly Mortgage Payment: 662 €
- Cost of Energy/Apartment/Month: 592 €
- Total Cost of Monthly Ownership: 625 €
Governments own, operate, and occupy a substantial portion of real estate, including government office buildings, schools, hospitals, low-income housing, and commercial properties. For example, according to some estimates, the U.S. government owns about 15 percent of the country’s commercial real estate. A 20 percent saving in energy and water in government-owned buildings would lower utility bills, freeing up public funding for priority development areas to improve citizens’ lives. In addition, green social housing would allow low-income tenants to save on their utility bills, thus reducing utility-related subsidies provided by governments. The section on Policy and Regulatory Building Blocks further discusses governments greening their own buildings to shift the market.

Ensuring that government buildings are green creates new technical capacity for architects, designers, builders, appraisers, and certifiers. Large government contracts and policies to encourage green buildings can help create new markets for green products and services, stimulating economic growth. Green buildings could also strengthen the local tax revenue base. Many municipalities collect taxes on local businesses’ profits. As local businesses retain a greater share of their profits due to reduced operating costs, so the government’s tax revenue will go up.
Integrating resilience to climate impacts into building design

Because of their long lifespans, buildings are continually subjected to physical climate risks that are only set to intensify over time. Climate impacts can negatively affect a building’s safety, habitability, and financial performance. Properties’ financial performance is impaired by unforeseen expenses to address damages from acute climate-related events (such as extreme precipitation affecting structural integrity), as well as chronic events (such as sea level rise), that can significantly change a building’s valuation. This will hurt insurance groups, as well as borrowers and lenders locked into long-term mortgages with a maturity mismatch in risks that could spark defaults and financial losses.

Hurricane Dorian, which hit the Bahamas in 2019, could cost the country $7 billion in insured and uninsured losses from damage to commercial, residential, and industrial properties as well as expenses resulting from business interruption. To minimize future losses, all the reconstruction must be designed to be resilient as well as green. According to World Bank analysis, the overall net benefit of investing in resilient infrastructure is $4 for every $1 invested.

Awareness of the need to factor in resilience and energy security in investments is growing globally. More than 70 percent of organizations surveyed by Johnson Controls in 2018 consider resilience an extremely important factor when considering future energy and building infrastructure investments, in order to maintain critical operations during severe weather events or extended power outages.

TOOLS FOR RESILIENT NEW CONSTRUCTION

IFC is developing the Climate Resilience Index for Buildings to help developers assess and report location-specific climate-related risks and risk mitigation measures used for different types of buildings. This web-based tool focuses on climate variables that materially affect buildings, in addition to volcanic, fire, and seismic risks. The objective is to provide a simple self-declaration system for developers applying for construction finance to identify and address risks to the property, while providing a tool for banks and insurance companies to understand the asset’s risk potential. This unified system to measure risk and resilience across all building types and developments will provide consistent definitions for all actors and increased...
transparency to support enhanced resilience in developments and reduced risks for all involved. This tool is being developed for piloting in the Philippines. When paired with green building certification, this tool will ensure both emissions mitigation and resilience in buildings.

The U.S. Green Building Council recently adopted RELi, a new resilient construction standard that takes a holistic approach to design. It is used to assess and mitigate against all acute hazards that buildings and communities can face during unplanned events. Based on the assessment, buildings are designed and built to maintain critical life-saving services during an extended loss of power, heating fuel, or water. The new certification system gives property owners points for features like adaptive design for extreme weather, resilient and urban flood prediction, and access to emergency supplies. To be eligible for RELi certification, all prospective projects must also register for LEED certification. Other certifiers, such as the Indian Green Building Council, provide a design and construction framework for buildings that emphasizes using less water and incorporating resilience features suited for local climatic conditions.

Sustainably developing the built environment to address climate risks is no longer a nice-to-have. It must be considered within all decision-making processes to ensure that buildings are fit for use over their lifespan.

EXAMPLE: IFC EDGE FOR GREEN AND RESILIENT CONSTRUCTION IN THE PHILIPPINES

Developers and banks in the Philippines are interested in IFC’s resilience tool, given the frequent natural disasters in the country. Developers such as The Ascott Limited and Italpinas Development Corporation are already using EDGE to build green and command greater value in the market. They are interested in using the climate resilience index tool under development, together with major banks such as Banco de Oro, China Bank, Rizal Commercial Banking Corp., Union Bank, and Security Bank. The tool will help integrate new technologies into buildings to withstand extreme weather events and help the financial sector assess the impact of climate and disaster risks to projects seeking green financing. The tool’s five-level grading system, with a grade of A given to projects that bear the least risk, will also help buyers understand the risks involved in buying properties. The aim is to make green certification and the new resilience tool a standard for green building development in the country.
Key barriers to the uptake of green construction

Despite the growing evidence of the business case for green buildings, the market remains small, with global investments in certified green buildings only accounting for $423 billion of the $5 trillion spent on building construction and renovation in 2017.69 A number of constraints hamper the development of a robust pipeline of green properties and widespread adoption of green construction.

The perception that green construction involves high upfront costs is a key barrier to its widespread adoption. In some cases, the perceived additional cost is as high as 30 percent, whereas the actual cost ranges from savings of 0.5 percent to 12 percent in additional costs.70 New technological advances in construction, stricter building codes, and maturing supply chains for green materials and technologies will continue to reduce the incremental cost of building green. As more data becomes available from the growing green construction market, the perception of high costs will change.

Another constraint to the growth of green construction stems from differing incentives and benefits among market players. Developers are reluctant to absorb the additional costs of green design when energy-saving benefits are realized by owners. Owners often focus on immediate affordability over uncertain utility savings or long-term appreciation. Bankers fail to provide additional financing to cover extra capital costs, for fear of increasing non-payment risk, and are reluctant to establish systems to validate savings if there is an insufficient green building pipeline.

There is also a mismatch between the relatively short hold periods of real estate assets in portfolios and the long lifespans of buildings, as well as when they might be affected by climate change and stricter regulations. For example, investors and financiers hold assets for seven to 10 years and building owners about 10 to 15 years. In contrast, a building’s full lifecycle is 70 to 100 years. As such, market players may not feel the immediate need to invest in green measures as the adverse impacts are likely to be felt when they no longer have the asset.

Although many developing countries have ambitious targets for green buildings, they struggle to put in place effective measures to mandate and incentivize large-scale green construction. This is partly due to low technical capacity, lack of knowledge, and weak enforcement regimes. In addition, the construction industry is highly local and decentralized. This poses challenges in developing and enforcing consistent standards and requirements for green construction. Low-income countries and fragile and conflict-affected states face additional challenges given weaker institutions and capacity, and underdeveloped financial systems, including the mortgage market.

The remaining sections of this report examine emerging best practices among investors, financiers, developers, building owners, and governments in providing various products and policies to overcome these market barriers, align incentives across different market players, and generate economic benefits for all.