Why Did an International Bank Create A Green Building Rating System?

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ABSTRACT

Why did IFC—the world's largest development finance institution focused on the private sector, and part of the World Bank Group—develop a rating system for green buildings? Sustainable building rating systems such as BREEAM and LEED have set the stage for green buildings in the developed world. However, the world is building the equivalent of a new Paris every week (Bienkowski 2017), most of it in emerging economies, where (1) decoupling economic development from resource consumption is a priority, (2) enforcement of codes has been a challenge, and (3) there is asymmetry of information on the value of green buildings between investors, developers, and end buyers. A building rating system that is data-driven and connected to financial instruments through return-on-investment calculations is necessary to tap the carbon mitigation potential in green buildings, especially in emerging economies.

Recognizing and responding to this need, IFC developed the EDGE program: a green building standard, certification system, and software tool that specifically targets emerging economies. EDGE connects the entire ecosystem of market players—from governments, financial institutions, developers, and designers to individual homeowners—with green buildings. Uniquely designed by a bank to work with the requirements of financial institutions, EDGE helps drive market transformation based on financial decisions. Given the increasingly regulated real estate sector with potential penalties for carbon emissions, and the shifting priorities of consumers toward green buildings, EDGE is designed to help the real estate market adopt green buildings at scale and avoid future stranded assets.

Green Buildings: Where Climate Commitments Meet Financial Opportunity

Financial institutions (FIs) have traditionally engaged with the building sector through real estate portfolios and through their own building assets. The traditional mandate of financial institutions has been to maximize profits at minimum risk. Global financial institutions lend money to development projects internationally such as hospitals, schools, hotels, and housing projects, increasing their visibility in the process and giving them access to strong foreign currencies. The process of accessing financing through international banks also includes a review of the project's governance and environmental processes, which helps the development team identify any gaps more readily and contributes to elevating their work to an international level.

The first two decades of this century have seen the rise of investor demand for socially responsible investing, which has put pressure on FIs to evaluate the social impact of their investments. For example, IFC introduced performance standards on environmental and social sustainability to the lending world, which are now widely adopted globally by the banking sector under the Equator Principles.

With the current climate crisis, mitigation of climate change has emerged as a crucial option for impact investment. For example, FIs set organizational climate mitigation goals

including carbon reduction, both for their in-house operations and for their investments. In 2019, banks with more than $47 trillion in assets (a third of the global industry) pledged to invest in green development (UN News 2019).

As an impact investor focused on pursuing positive social and environmental outcomes through profitable investments, IFC views the green buildings sector as a multitrillion-dollar business opportunity and an avenue to reduce energy-related emissions (IFC 2019a). IFC research shows that green buildings present the highest untapped opportunity for social impact investing via climate change mitigation. In 2016, IFC estimated that green buildings represented a $17 trillion investment opportunity in the largest emerging economies which represented over 70% of the investment opportunity among all climate sectors; see Figure 1 (IFC 2016, 11). In a more recent report, IFC updated the investment opportunity figures for green buildings in emerging market cities to $24.7 trillion by 2030 (IFC 2019a, viii).

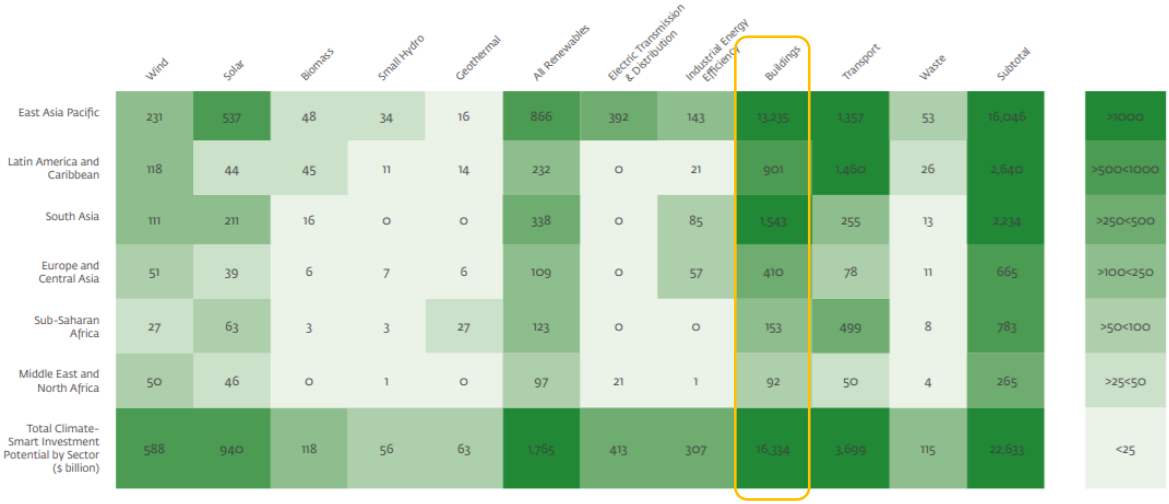

Figure 1. Investment potential by region and sector ($ billion). *Source*: IFC 2016, 11.

As seen in Figure 2, this opportunity is assessed on the basis that less than 1% share of the investment in buildings is currently spent on improving energy efficiency (IEA 2019, 23).

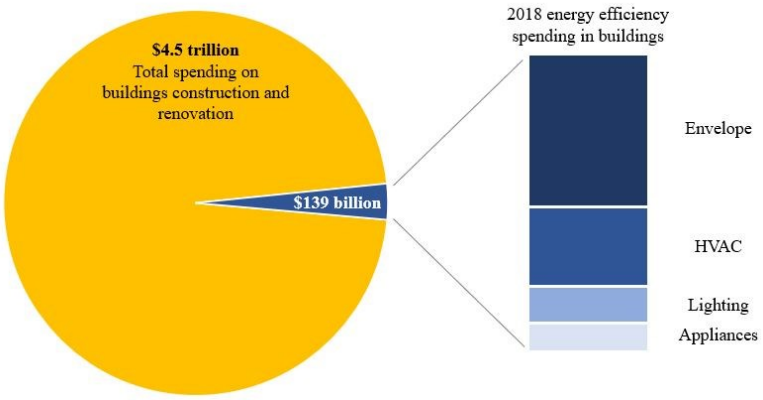

Figure 2. Global energy efficiency investments and total spending on buildings, 2018. HVAC = heating, ventilation, and air conditioning
Source: Adapted from IEA 2019, 23.

Evidence indicates that green buildings are a higher-value, lower-risk asset than standard structures. Green buildings can decrease operational costs, achieve higher sale premiums and shorten sales times, command higher occupancy rates, produce higher income rental, and yield lower default risk for borrowers (IMT and Appraisal Institute 2013; UNC Center for Community Capital 2013).

Investors, owners, and tenants are beginning to recognize the clear business case and are demanding buildings that can maximize returns and minimize environmental impacts while meeting the needs of the tenants. For example, a paper published by the International Tourism Partnership identifies six business drivers for sustainability in the hotel industry: 1) Boosting profit margins through utility savings; 2) Increasing revenue through satisfying consumer preference and reducing reputational risk; 3) Future proofing investment strategies; 4) Safeguarding against regulatory risk and benefit from incentives; 5) Increasing value and validation through certification; and 6) Ensuring a long-term energy supply (International Tourism Partnership and IFC 2020).

With green buildings now evaluated as a distinct financial asset category, the economic advantage of green buildings is becoming increasingly apparent to FIs (Guin and Korhonnen 2018),[1] further spurring their interest in green building portfolios.

The investment potential for green buildings correlates to their potential environmental impact. As seen in Figure 3, buildings represented 39% of global greenhouse gas (GHG) emissions in 2018, in a rapidly growing sector that the International Energy Agency marks as "Not on track" for meeting Paris Agreement goals (IEA 2020).

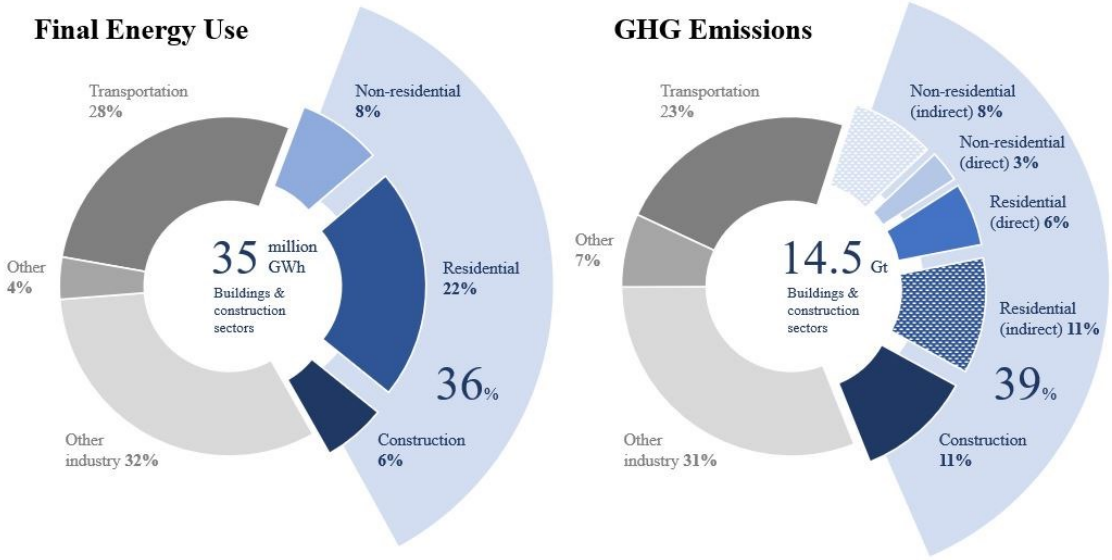

Figure 3. Impact potential for green buildings (2018 data). Buildings and construction accounted for 36% of final energy use and 39% of energy- and process-related GHG emissions in 2018. *Construction* is the portion (estimated) of overall industry devoted to manufacturing building construction materials such as steel, cement, and glass. Indirect emissions are emissions from power generation for electricity and commercial heat. *Source*: Adapted from IEA 2019, 12; building emissions total from Levin 2018.

[1] Staff from the banking policy and data and statistics divisions of the Bank of England compared 2017 loan performance data for residential mortgages in the entire UK (>1.8 million observations) with the energy performance certificates (EPCs) of the underlying properties, controlling for several factors (borrower income, etc.). They concluded that the energy efficiency of a property is a relevant predictor of mortgage risk.

Over the next five-year period (2020-2025), the World Bank Group has committed to investing and mobilizing $200 billion to combat climate change and increasing climate finance to at least 35% of its direct financing (IFC 2019b). Similarly, the European Investment Bank (EIB) drastically increased its goals for the current decade (2021-2030) to support €1 trillion of investments in climate action and environmental sustainability (EIB 2020). As of June 2019, IFC had invested $5.5 billion in green buildings—$4.5 billion in green building projects and an additional $1 billion in financing for green homes and commercial and institutional buildings (IFC 2019a, 2).

The Genesis of the Rating System: Financial Sector Needs and Market Gap

To participate in the investment market that green buildings offer, FIs must evaluate these buildings quantitatively using a metrics-driven, numbers-based approach. In addition, FIs are increasingly utilizing new financial mechanisms such as green bonds and loans, green mortgages and leases, and green REITs. Therefore, FIs need a system that provides potential financial outcomes of investments being made in green buildings that can be easily translated into terms familiar to investment professionals such as CapEx (capital expenditure), OpEx (operational expenditure), ROI (return on investment), and NOI (net operating income).

In addition, to access international green finance and report on their own carbon reduction impacts, FIs need a system that provides GHG reduction metrics. GHG emissions from a building depend on the amount and type of energy required for building operations, as well as the emissions embedded in the construction materials of that building. FIs do not need to understand the details of building construction and energy performance. Rather, they need to view the cash flow and emissions metrics.

Emerging Economies Have Unique Needs

The need for a simple, metrics-driven system that accounts for cash flows and GHG emission reductions is especially true in emerging economies. The global floor area of buildings is expected to double by 2060; most of this growth is expected to occur in the residential sector of middle-income countries.

Meeting the demand for new buildings through green construction can spur low-carbon economic growth and create skilled jobs in emerging markets. In addition, green buildings can help investors and owners manage the risks associated with a transition to a lower carbon economy. This transition will bring regulatory, economic, and resource changes, at which point some energy-inefficient assets will no longer be profitable.

The Paris Agreement[2] and its ensuing requirements apply to all countries and economies. Parties seeking to meet their respective commitments under the agreement need a system that will help them make meaningful and measurable advancements in carbon mitigation regardless of their level of economic development or geographic location. Global FIs are mandated to assist emerging economies in meeting their climate goals. Governments of 136 countries mention buildings in the Nationally Determined Contributions (NDCs) submitted to date in response to the Paris Climate Agreement (IEA 2018).

[2] The Paris Agreement (2016) builds upon the United Nations Framework Convention on Climate Change (UNFCCC) (1994) and for the first time brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so.

Green buildings will play a pivotal role in stimulating low-carbon economic growth of emerging economies and securing a transition to clean energy.

Existing Rating Systems Are Designed for Leadership Rather Than Adoption at Scale

The green buildings market saw its inception in the 1970s at a time defined by the oil crisis. Once the oil crisis was averted, interest in green buildings waned, until it re-emerged in the 1990s after the publication of the Brundtland Report, named "Our Common Future," with the development of green building rating and certification systems such as BREEAM (Building Research Establishment Environmental Assessment Method)[3] and the LEED (Leadership in Energy and Environmental Design) rating system by USGBC (United States Green Building Council) (Ade and Rehm 2019). These certification systems helped to meaningfully unify and standardize disparate sustainable strategies required to both define and design green buildings.

However, the existing systems for rating green buildings have several limitations when applied to the evaluation of lower to mid-market buildings from the perspective of FIs working with emerging economies. Some of these are discussed below.

Lack of awareness and access. Project teams working in middle-income or low-income sectors may not be aware of available international green building certification programs or the most advanced technology options. Teams in locations such as Latin America and Asia where English is not a primary language can be at a disadvantage with international certification systems offered primarily in the English language. It may also be cost prohibitive for the teams to access international expertise, licensed software packages for energy modeling, or reference standards typically required to show compliance with international certification systems.

Financial data for green buildings not easily available. The main reason that green buildings have not been more widely adopted is the perception of high incremental costs. According to a World Green Building Council study, the perceived premium for green building construction cost has been as high as 29% while the actual premium ranged from -0.4% to 12.5% of capital costs (WorldGBC 2013, 26). This was still the top barrier to increased green building activity, as cited in a more recent 2018 report (Dodge Data & Analytics 2018, 14).

Resource efficiency indicators not directly accessible. Popular industry-leading rating systems such as LEED offer comprehensive evaluation criteria for green buildings including categories such as air quality, daylighting, and views. Similarly, BREEAM, developed in the UK, assesses both environmental and social performance criteria. While these comprehensive criteria serve well to ensure that buildings are green and sustainable in the broad sense of the term, key resource metrics such as energy and water efficiency and GHG emissions remain unknown in the certification information without reviewing detailed project documentation.

Asset quality intertwined with occupant behavior. Some rating systems such as the ENERGY STAR rating system for buildings by the US EPA (Environmental Protection Agency) do separate out fuel efficiency as a metric. However, they do not differentiate between efficiency

[3] BREEAM was developed by BRE (Building Research Establishment) in the UK and assesses an asset's environmental, social, and economic sustainability performance.

achieved by the quality of the building asset versus that achieved by occupant behavior, leading to uncertainty about the persistence of savings.

Labor and time-intensive certification process. Typical rating systems require an array of professionals to achieve certification. The project team usually consists of engineers, building designers, and consultants who assess the physical asset, with additional specialized professionals engaged to create predictive models of the building energy performance. Information pulled together by this team is then input into separate tools for financial analyses, typically by yet another set of professionals. Existing systems also require tremendous infrastructure for design, commissioning, construction, and rating-system compliance evaluation. Building developers often do not know if they have passed the compliance criteria until their certification submittals are reviewed; this adds risk to pending financial transactions. These compounding factors require significant investment of time and money, as noted in Figure 4, making it harder for leading rating systems to scale in emerging markets.

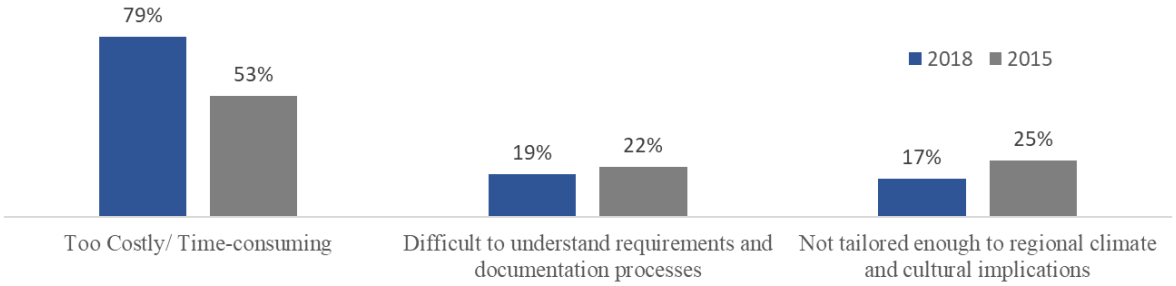

Figure 4: Top reasons for not using a green building rating system (according to survey respondents). *Source*: Adapted from Dodge Data & Analytics 2018, 21.

Global or developed country standards used as the baseline. Most existing certification systems use a uniform baseline to measure their projects across the world. However, building practices differ in each market, and the same standards may not be appropriate across the board. Most global rating systems currently leading the market measure the performance of criteria against standards developed in the US and UK (Zhang et al. 2019). The same standards apply to buildings around the world for the most part regardless of their location. Emerging economies — such as Nigeria, Indonesia, or Colombia — do not have base building standards or codes in line with the US or the UK standards.

According to IFC research, many rapidly growing countries such as Nigeria had no certified green buildings as of 2018, while green labels in countries such as Vietnam, Philippines, Indonesia, South Africa, and Mexico were concentrated in office buildings in the capital or large cities (EDGE 2020a). Even the relatively large absolute number of green properties in India and China pales in comparison to the total market size (EDGE 2020b).

The Needs of Banks and Mass Markets Give Rise to the EDGE Rating System

In response to the needs of the global financial sector, IFC created the EDGE (Excellence in Design for Greater Efficiencies) rating system, incorporating an international standard set by the World Bank. EDGE was designed to serve as a numerical, economical, and efficient system for broad application in diverse global contexts, as noted in Figure 5.

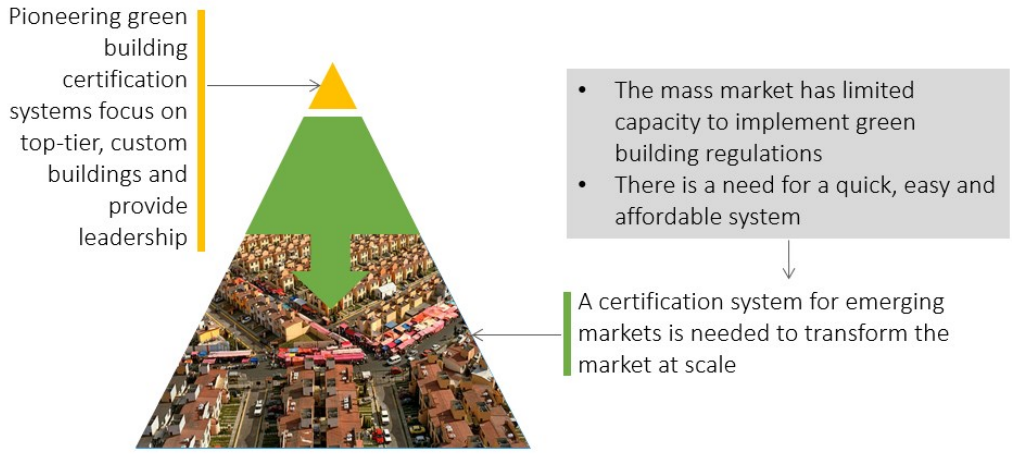

Figure 5. EDGE was created to mainstream green buildings and tackle climate change.
Source: Graphic created by IFC EDGE.

Unique Features of the EDGE Green Building Rating System

EDGE has several unique features that make it advantageous for use by global financial institutions in emerging markets. These features are listed in Table 1 and discussed below in more detail.

Table 1. EDGE as a tool for global mass-market green buildings adoption

Global Needs and Gaps in Green Building Rating Systems		EDGE Facilitates Global Green Buildings Investments	
Existing rating systems have limitations for broad adoption in emerging markets	Local lack of awareness / access to international certification programs and technology platforms	EDGE accelerates green building adoption with a simple, fast, and affordable rating system	-Local market stakeholder consultations -Free online, easy-to-use, multi-language certification platform
	Financial data for green buildings is not part of assessment or reporting mechanisms and is not readily available		-Numerical platform with cashflow view -Metrics-driven system with quantitative savings
	Resource efficiency indicators not directly accessible		-Solely focused on resource efficiency -Automated reporting of metrics (e.g., emissions)
	Asset quality intertwined with occupant behavior		Rates asset independent of occupant behavior to reduce the risk of lack-of-persistence in savings
	-Fragmented set of actors required to implement -Lengthy and complex certification process -Substantial organizational infrastructure required		Simplified one-stop shop for green building standard, software platform, and certification system
	Limits in scaling across the mass market		Aimed at mass-market commercial and residential buildings, even affordable housing
	Use of global / developed country standards as the baseline for emerging economies		-Local market contexts used for baselines -Alignment with global standards

Source: Created by authors.

Numerical platform with cashflow view. The requirements for EDGE certification are numbers-based and intentionally kept simple. To focus solely on resource efficiency, EDGE purposefully excludes elements — such as light pollution, views, waste management, location and transportation, social performance criteria, and universal accessibility — that other green building rating systems might cover. Behavioral measures are also excluded to ensure that buildings maintain their expected performance regardless of occupant behavior, reducing the risk associated with the expected performance of a building.

To be EDGE-certified, buildings must demonstrate predicted performance improvements of 20% above the baseline in each of three categories: Energy, Water, and Embodied Energy in Materials. With a focus on the mass market, the bar is kept sufficiently low to make it readily achievable, yet high enough to attain meaningful reductions via volume. Additional plaudits are awarded to buildings that achieve a 40% reduction in Energy (EDGE Advanced certificate) or go even further to reach carbon neutrality (Zero Carbon certificate).

EDGE evaluates the building in terms of quantifiable metrics: energy savings measured in kilowatt-hours (kWh), water savings measured in liters, and embodied carbon emissions measured in megajoules (MJ). EDGE converts all fossil-fuel-based emissions to tons of carbon for easily viewing GHG emissions reductions. In addition, EDGE provides cash flow metrics. Expected monthly expenditures on utilities, savings in utility bills, expected capital investment, and payback period are calculated automatically in the EDGE software application. All these metrics are visually displayed in a results bar at the top in the EDGE App interface. Category metrics are graphically rendered, and the EDGE certificate depicts the metrics to easily view and capture this information critical to bankers. Figure 6 shows a screen capture of the web-based EDGE software.

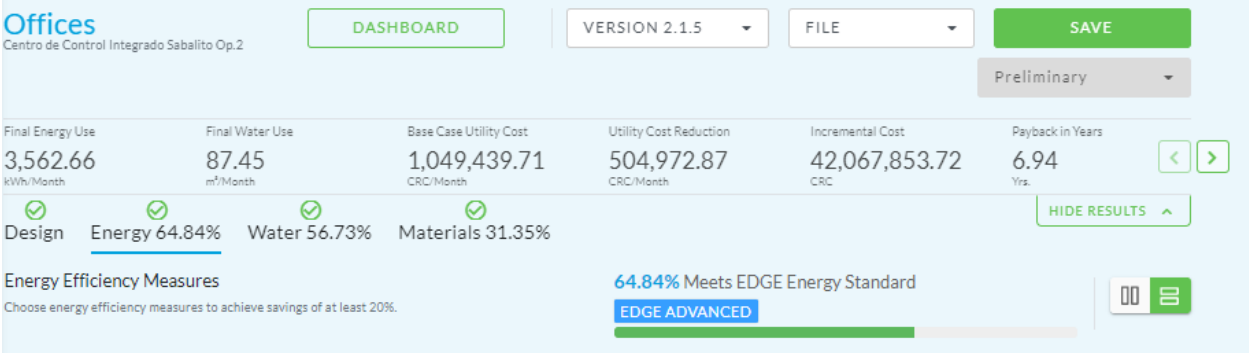

Figure 6. A screenshot of the web-based EDGE App shows the results bar positioned on top. *Source*: EDGE 2020c.

Local market context. Rather than using global universal benchmarks, EDGE customizes the baseline to the local context. EDGE defines the baseline as the "standard construction practice currently prevalent in a region (e.g., city, district, or state) over the previous three years for the specific building type being evaluated." To keep the EDGE standards relevant, baseline reviews are undertaken every 3-5 years, if needed.

Even though the same requirement of 20% savings applies globally, using a local baseline means that buildings must demonstrate 20% improvement over their counterparts in their local context. For example, in the UK an EDGE certified building must be 20% more efficient than buildings following the current building regulations, which are close to zero carbon buildings. In Nigeria, a building can get EDGE certified by only being 20% better than current

local building practices due to lack of local regulations. Thus, an EDGE certified building in each country is advancing the standards of construction based on the local context.

EDGE also incorporates different baselines for homes for different income categories. Energy and water consumption are not the same for low-income and high-income housing projects; the EDGE baselines for low-income households incorporate different assumptions such as fewer appliances and less efficient lighting.

These customizations create a more equitable baseline for each location. It also helps jurisdictions deploy EDGE to meet their NDCs (nationally determined contributions) under the Paris Agreement which are also based on their local context. Further, this helps FIs easily distinguish green buildings from the average local building stock.

Stakeholder consultations. EDGE parameters are determined in consultation with local industry stakeholders and experts. For example, prior to launch in South Africa, the EDGE baseline was analyzed by a Technical Working Group convened by the Green Building Council of South Africa. In China, IFC collaborated with the Center of Science and Technical and Industrialization Development associated with the Ministry of Housing and Urban Development, resulting in formally recognized alignment between EDGE and China's national labeling system, "Three Star" (EDGE 2020b). IFC has similarly worked with many national and local governments such as Bangladesh, Brazil, India, and Peru which deploy incentives for developers who are certifying with EDGE (EDGE 2020d). The baseline parameters are typically revisited during the 3-5 year update cycle; occasionally, mid-cycle updates are performed if new standards are being implemented in a particular country or city or if expert input is received on a particular parameter which necessitates an update. Based on feedback from users, updates to calculators, measures, languages, and new features are undertaken continuously and released every two weeks.

Standardized certification. The certification process and platform are designed to be user-friendly. An international standard enables democratization of expertise, simplifying it sufficiently to give access to the lower end of the market. Highly specialized training is not necessary to use the EDGE system. Banks can train internal staff to perform and review EDGE evaluations.

Third-party rating of the physical asset. EDGE certification requires an on-site evaluation of the physical asset properties of buildings using third-party auditors to verify that measures have been installed. The work of auditors is audited by Certifiers. IFC in turn performs audits of certification partners. The multiple levels of checks reduce risk for financial institutions.

One-stop shop with a free, online platform. A singular EDGE platform serves three purposes:

1. Establishes a standard against which buildings are measured,
2. Provides a free software platform in seven languages that project teams can use from registration through certification, and
3. Serves as a certification system.

In other words, project teams can perform all steps—determine the requirements applicable to their project, conduct a self-assessment online, select efficiency strategies, conduct project performance analysis, and take their projects from registration to certification—all

without leaving the free EDGE online platform. The web-based interface provides ease of availability, addresses numerous challenges of access and data review by multiple parties, and removes the hurdle of the cost of tools. This results in a significantly streamlined certification process, and savings in time and cost for the project team.

The predictability of the process and associated cost also reduces risk for FIs making lending decisions based on the expected outcomes.

Effective reporting. With the entire process conducted online and all data stored in a central database, the EDGE online platform facilitates more effective reporting, including GHG emissions and expected savings, minimizing the need for FIs to deal with the building's details.

Metrics-driven. The metrics-driven EDGE program is designed for construction finance as well as green mortgages. The EDGE program provides a standard that global capital markets accept, with an aggressive focus on GHG requirements and resource efficiency rather than general sustainability. It provides a singular focus on the carbon reduction metric to help meet global carbon commitment goals.

Alignment with global financial standards. EDGE is recognized by several international financial and disclosure standard-setting bodies.

- The International Capital Markets Association (ICMA) recognizes EDGE as one of the qualifying certification systems in its Green Bond Principles, which are a set of guidelines recommended for issuing a green bond (ICMA 2019).
- The Climate Bonds Initiative includes EDGE as a qualifying certification system to achieve the Climate Bonds Standard and Certification Scheme, which is used to prioritize investments that contribute to addressing climate change. EDGE fulfills the requirements for both residential and commercial criteria (Climate Bonds Initiative 2020a, 2020b).
- GRESB is the global standard for Environmental, Social, and Governance (ESG) benchmarking for the real estate sector and is used by property developers and investors to obtain disclosure data on the performance of their investments. EDGE can be used to qualify for a GRESB Score when completing the GRESB Real Estate Assessment or the GRESB Developer Assessment (GRESB 2020).
- EDGE was used as the cornerstone of a series of trainings titled "Investment Readiness for Green Finance Mechanisms" by the multi-stakeholder agency UNWTO (2020).
- EDGE is an implementing platform for the Zero Carbon Buildings for All program of the World Resources Institute (WRI) under the UN Secretary General's initiative, as well as WRI's Building Efficiency Accelerator (WRI 2019).

Research and evidence program. EDGE is in the process of starting a new program in collaboration with the UK government to research the benefits of green buildings and green financing for the entire value chain. Using this program, IFC intends to better communicate the outcomes of the EDGE program for wider adoption of green buildings globally.

How EDGE is Implemented

IFC is responsible for creating and providing the EDGE platform and setting global policy. This work is funded mainly by international donors and to some extent by a portion of the certification and training fees. Meanwhile, EDGE has partnered with the largest global network of independent certification partners who engage directly with the market to implement EDGE. EDGE is offered globally by GBCI (the certification arm of USGBC) as well as the Sphera-SGS consortium. Certain countries have local certification providers—India, Indonesia, Philippines, Nigeria, Ghana, South Africa, Colombia, and Costa Rica. Local EDGE auditors and experts are also part of the EDGE ecosystem. The EDGE software application has been translated into several local languages including Spanish, Bahasa (Indonesia), Vietnamese, Chinese, Portuguese, and French to reach a wider audience of users and implementers.

EDGE has also partnered with the World Green Building Council and Architecture2030 and aligned its platform with their goals to meet zero carbon emissions in new construction by 2030.

EDGE has also established partnerships with several development FIs (Inter-American Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Asian Development Bank, and the UK's CDC Group) as well as global private sector investors (e.g., HSBC and Standard Chartered). These partnerships ensure uniformity in global standards to serve clients across various FIs.

The Impact of EDGE

Since its launch in 2015, EDGE has established a significant global footprint with over 12 million m² of certified space and another 16 million m² registered for certification across 75 countries. Table 2 summarizes the global impact of EDGE as of June 2020.

Table 2. The global impact of EDGE as of June 2020

Floor space certified (m^2)	Floor space registered for certification (m^2)	Energy savings (MWh/ year)	GHG savings (tCO_2/ year)	Homes certified (number)	Countries where EDGE is available (number)	Countries with EDGE certified/registered projects (number)
12,088,575	16,499,851	448,362	222,001	83,631	170	75

Source: IFC EDGE online tracker and internal database.

Data gathered from EDGE projects has been a key factor in convincing FIs in emerging markets that the cost to build green is much lower than previously thought. For example, Capital House in Vietnam reports a 3x increase in sales volume for their low-cost housing due to EDGE certification, while the upfront increase in capital expenditures was only 1% of total construction costs (Cairncross and Naicker 2020, 40). The developer won the Financial Times Transformational Business Award for their efforts to catalyze the green building market in Vietnam. Similarly, International Housing Solutions in South Africa found that three EDGE-certified developments demonstrated impactful cost savings for the residents at less than 1% (0.25-0.8%) incremental cost. Table 3 shows data from smart meters for energy and water compared to a previous, non-certified development of very similar design. The EDGE-certified

units showed high savings which in some instances translated to nearly one month of rent over the course of the year (Cairncross and Naicker 2020, 40).

Table 3: Energy consumption and savings for three EDGE-certified developments in South Africa

	Ravenswood	Candlewood	Goedeberg
Actual consumption figures (kWh)	107	219	175
kWh savings compared to a previous non-certified development	54%	68%	41%
Total savings per year ($)	$128	$181	$338

Source: Cairncross and Naicker 2020, 40.

Bancolombia was named the most sustainable bank in the world by the Dow Jones Global Sustainability Index in 2019, in part due to their EDGE-focused green buildings investment program funded by the country's first green bond (Dinero 2018). Bancolombia is just one example of a growing list of investors providing incentivized loans to developers and end buyers of green buildings, as a way of attracting institutional investors, capturing a larger market share, and gaining marketing exposure. Multiple other commercial banks, such as Davivienda in Colombia and Banco Pichinca in Ecuador, are now offering lower rate green mortgages or lower interest rate construction finance for EDGE-certified homes and buildings.

Also, many cities and governments are offering tax or other types of fiscal or non-fiscal incentives for EDGE-certified buildings to help scale up green buildings.[4] For example, Bangladesh is offering a discounted financing rate, Kenya is offering tax exemption, Cusco in Peru is offering a height bonus incentive, Lima is offering extra Floor Area Ratio (FAR), and Colombia is offering VAT exclusion and income tax deduction for EDGE-certified buildings.

Such initiatives have markedly increased the number of green building projects in these countries. Colombia is a case study of how rapidly green buildings can take off when all stakeholders utilize a finance-focused system like EDGE. When IFC started working with CAMACOL, the Colombian Chamber of Construction, to launch EDGE in 2017, the country had only one certified residential building, other certified buildings being largely offices and few retail buildings (GBIG 2020). In 2016, IFC's client Bancolombia launched the country's first green bond—a growing capital markets instrument for climate action—for $117 million, followed by a second bond for $100 million that was oversubscribed by 2.8 times, attracting 72 new investors (Piza 2019). IFC also provided technical assistance and incentivized loans to developers, which enabled green mortgages. Today, Colombia has 1.4 million m² of certified green residential space, growing at 324% since 2018, as seen in Table 4.

Table 4. Yearly EDGE-certified residential space in Colombia

	2018	2019	2020	Total	% Change
EDGE-certified residential space (m²)	201,935	396,022	856,271	1,454,228	324%

Source: IFC EDGE online tracker and internal database.

[4] Typically, government financing mechanisms are available that allow for the greening of affordable housing.

A common definition of a green building, with a labeling system easily understood by investors across the globe, has led to combined investor platforms and easier finance. For example, IFC led an $800-million platform of multiple investors for EDGE-certified warehouses developed by a European REIT, WDP (IFC 2020). HSBC invested $130 million to refinance a portfolio of EDGE properties by IndoSpace Core in India (Economic Times 2020). The refinance will free up the developer's balance sheet to invest in new projects. Similar financing mechanisms can be structured for securitization of portfolios, freeing up cash flows for more investments.

In Conclusion

Climate investments and the standards associated with them are making their way into standard protocols of investment portfolios of major financial institutions. To meet the climate challenge, financial institutions must create a mechanism to shift from simply financing buildings to financing green buildings instead. By requiring their investments to be green, financial institutions can move the mass market before too much inefficient new building stock gets built, and the related low performance gets locked in. Green investments are also a significant opportunity to generate jobs along the way, which is a mandate of many financial institutions focused on international development. To effectively rate the "greenness" of their investments, financial institutions need a green building rating system that is practical and can achieve adoption at an accelerated pace.

In response, IFC created the green building rating system EDGE to provide a simple and cost-effective rating system that can be adopted at scale. While EDGE devised a uniform global standard for simplicity, the standard is quantitative and numerically evaluates critical metrics for energy, water, and carbon savings. To ensure that EDGE-certified buildings reflect improved performance compared to their peers and can ultimately be counted towards nationally determined contributions (NDCs) to the Paris Accord, EDGE utilizes baselines customized to local market conditions in consultation with local stakeholders.

The accompanying web-based online software called the EDGE App provides a streamlined one-stop shop for the entire assessment and certification process, reducing administrative burden on the project teams and speeding up the process which can be critical in financing cycles. Besides calculating savings numerically, the EDGE App instantly calculates financial metrics meaningful for FIs. Mandatory third-party verification of the physical asset with on-site inspection reduces the risk to FIs.

The EDGE program has only reached 5% of its capacity, with promise to grow and expand to more countries. With its simple, cost-effective, and streamlined approach, EDGE enables global financial institutions to contribute effectively to climate mitigation goals.

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