



**IFC**

International  
Finance Corporation  
WORLD BANK GROUP

*Creating Markets, Creating Opportunities*

# Green Buildings and Sustainability In The Built Environment

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# Climate Change Cannot be Solved Without Tackling Buildings Emissions



## Climate Pressures:

- Buildings account for 19% of the world's GHG emissions.
- According to the IPCC's special report, by 2030 all new buildings must be zero net carbon.
- Existing buildings must be zero net carbon by 2050.

## Urbanization Pressures:

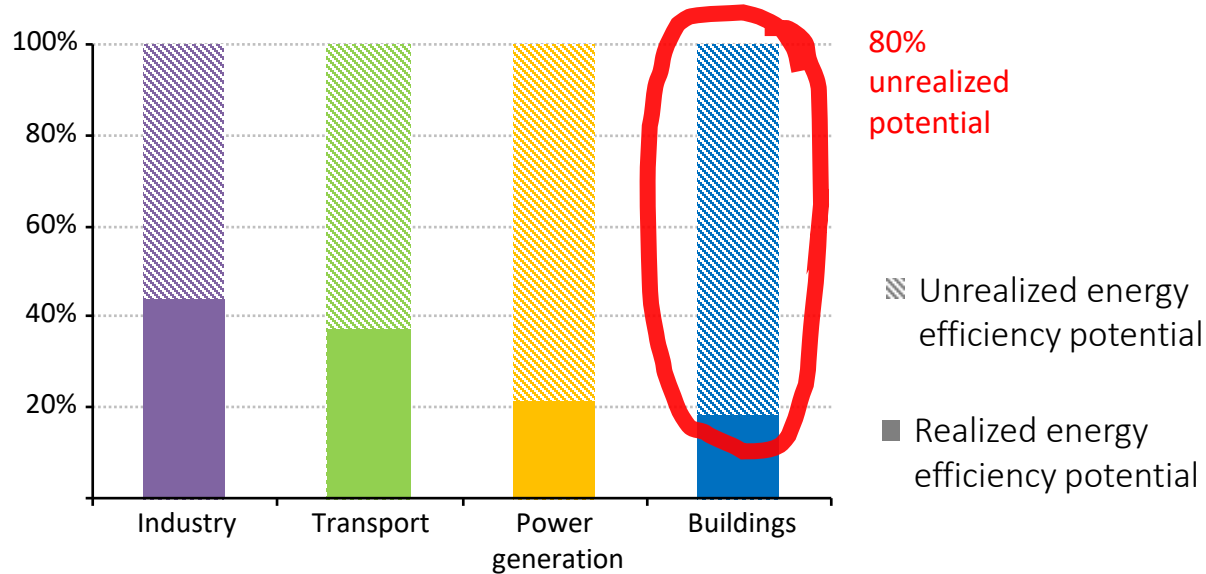
- 90 million middle class growth p.a.
- 70% world's population in urban areas in 2050.

## Economic Opportunity:

- 80% of viable potential is untapped.
- Solutions can benefit multiple stakeholders.

# Buildings emit almost 40% of GHGs from energy Yet Profitable Energy Efficiency Remains 80% Untapped

Eighty percent of the economic potential to improve energy efficiency remains untapped



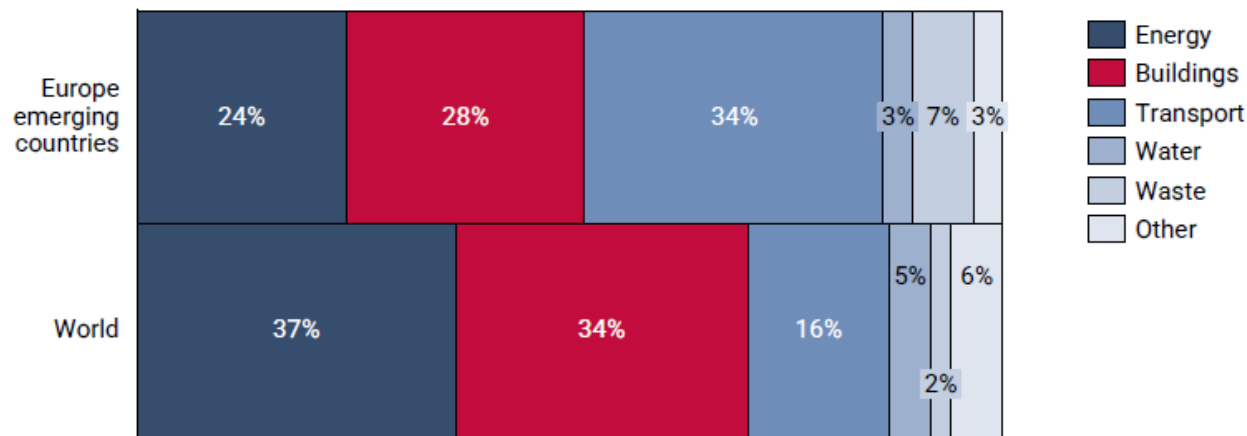
Source: World Energy outlook

# Green Buildings Allow Issuers To Tap Growing Demand For Green Finance From International Investors

Green building bonds have been growing faster since 2013, reaching \$78 billion in 2020.

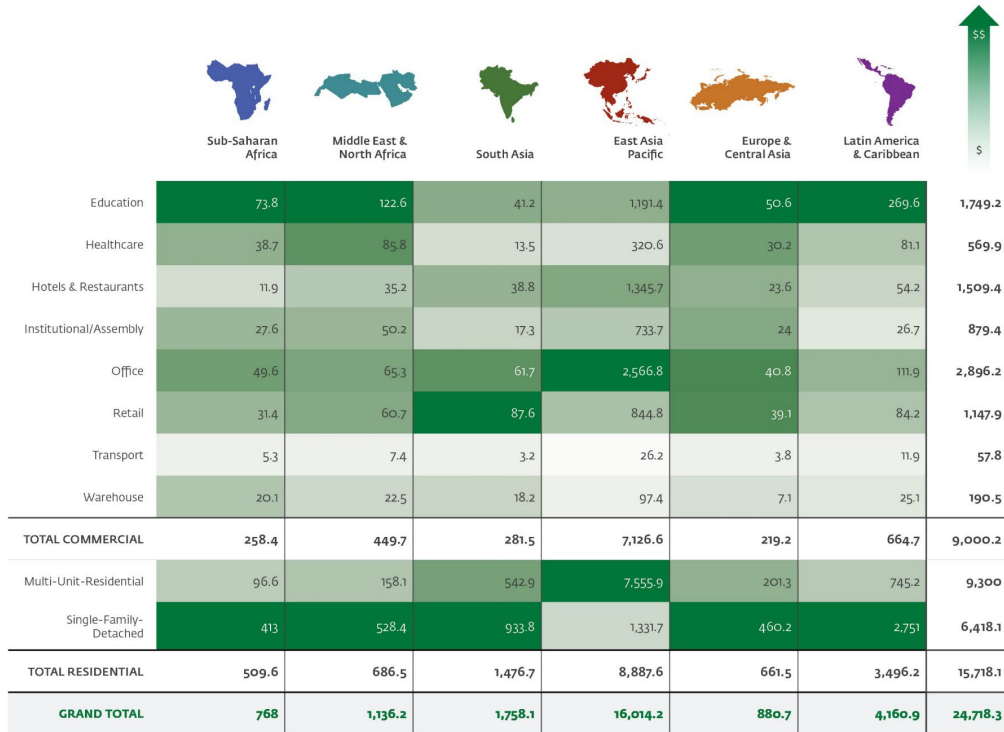
Over a third of green bond proceeds go to green buildings worldwide.

**STRUCTURE OF ISSUED GREEN BOND IN EUROPEAN EMERGING COUNTRIES AND WORLD TOTAL, 2020, %**



Source: Climate Bond Initiative

# Green Buildings are a \$768 Billion Investment Opportunity in SSA



The estimated \$768 billion investment potential in green buildings between 2018 and 2030 in emerging market cities is due to the sharp increase in building construction expected over the next few decades and the opportunity to ensure these are built green.

# Green Buildings Cost ~ 3% More Upfront But With a ~ 3-year Payback

This translates to different business cases for different stakeholders in the built environment

STAKEHOLDER	BUSINESS CASE = reputational benefits, Paris alignment +
<b>Developers</b> certifying	faster sales, higher prices, access to green finance
<b>Owners</b> buying green	lower operating costs, higher occupancy and rentals, stronger asset value appreciation, access to green finance
<b>Occupiers</b> renting space	lower operating costs
<b>FIs</b> launching a green building business	access to green finance (diversifying funding sources, lowering funding costs), increase in business volume, capturing new forward-looking clients, greater loyalty from existing clients whose game they help raise, the opportunity to cross sell from construction to mortgage finance, lower NPLs, better collateral values
<b>Policy-makers</b> launching (non-fiscal) incentives	Global leadership and local pride, quantifiable results relevant to NDCs, more efficient infrastructure - so more competitive businesses, lower subsidies for utility bills, and higher disposable income for all residents



# INVESTORS, DEVELOPERS, AND GOVERNMENTS ARE LAUNCHING INNOVATIVE FINANCIAL PRODUCTS FOR GREEN BUILDINGS

## GOVERNMENT INCENTIVES



- Create awareness of affordability
- Build technical capacity for developers
- Recognize lower risk rating
- Offer discounted financing rate



- Increase allowable loan ratio
- Include utility savings in homebuyers' income
- Attract more responsible homebuyers with less risk of late payments and loan defaults



- Issue green bonds for new portfolio
- Securitize portfolio as collateral
- Attract new investors
- Expand into new markets

Develop new products: Leasing, REITs



**How do developers choose the most cost-effective options to design green?  
And How do end customers recognize the value?**





# The Drive for sustainability and innovation



*Mvule Gardens by 14 Trees, 1<sup>st</sup> green certified 3D printed house in Africa*

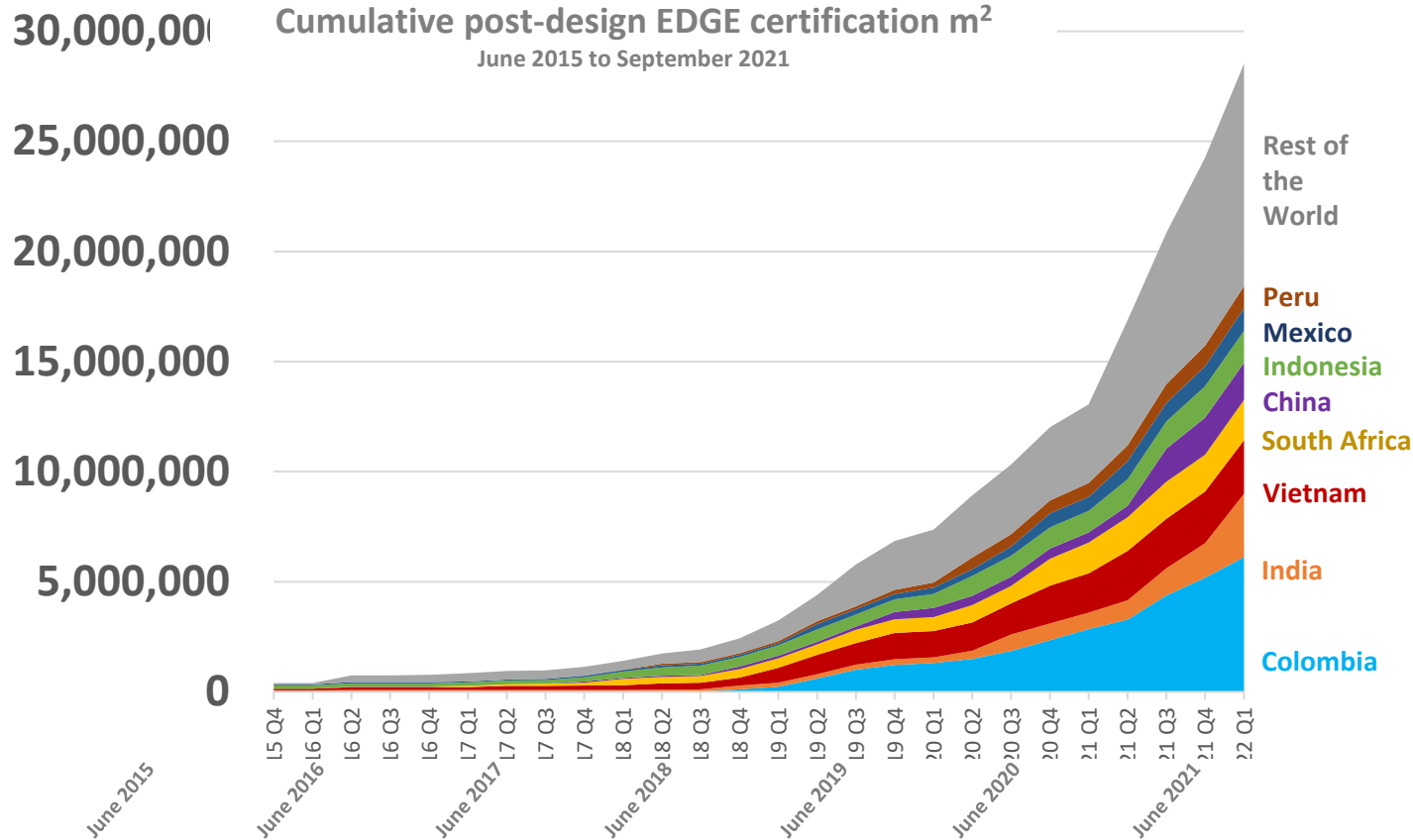
A photograph of a modern, multi-story hospital building with a light-colored facade and numerous windows. A prominent glass-enclosed entrance is visible on the left side of the building. The building is situated in an urban environment with some greenery and a fence in the foreground. A green speech bubble is overlaid on the right side of the image.

**EDGE:**  
At the fore front of  
sustainability and  
innovation

*Evercare Hospital, Lagos (1<sup>st</sup> green certified hospital in Nigeria)*



# EDGE is growing exponentially – now certifying over \$1.5 billion a month



Colombia mainstreams green buildings from zero in 2017 to **over 20% of new build in 2021**

# EDGE CERTIFICATIONS ACROSS AFRICA (AS AT JUN 2022)

## WEST AFRICA -

- **Nigeria**
  - 12 Projects (215,000m<sup>2</sup>)
- **Ghana**
  - 16 Projects (358 000m<sup>2</sup>)
- **Cote D'Ivoire**
  - 6 Projects (67 000m<sup>2</sup>)
- **Senegal**
  - 3 Projects (30 000m<sup>2</sup>)

## CENTRAL AFRICA

- **Cameroon**
  - 3 Projects certified (54 000m<sup>2</sup>)

## EAST AFRICA

- **Kenya**
  - 22 Projects certified (441 000m<sup>2</sup>)
- **Djibouti**
  - 1 Project certified (7 000m<sup>2</sup>)
- **Ethiopia**
  - 1 project Certified (19 000m<sup>2</sup>)
- **Uganda**
  - 1 project Certified (8 000m<sup>2</sup>)

## SOUTHERN AFRICA

- **South Africa**
  - 70 Projects (3.1 mil m<sup>2</sup>)
- **Angola**
  - 1 Project (32 000 m<sup>2</sup>)
- **Namibia**
  - 3 Project (29 000 m<sup>2</sup>)
- **Zambia**
  - 3 Projects (40 500 m<sup>2</sup>)
- **Mozambique**
  - 1 Projects (15 000 m<sup>2</sup>)

## NORTH AFRICA

- **Egypt**
  - 1 project certified (7,000m<sup>2</sup>)
- **Morocco**
  - 1 Project certified (7 000m<sup>2</sup>)

## Madagascar

- 1 Project certified (17 000m<sup>2</sup>)

# EDGE is growing so fast because it's a tool to tap into green finance

EDGE aligns with all the Major International Green Finance Standards



- ICMA releases the [Green Bond Principles](#) as well as [guidelines for green buildings](#).
- EDGE is listed as an accepted certification standard. (See Section E: Certification Standards).
- Used by property developers and investors to obtain data on the performance of their investments.
- EDGE can be used completing the [Real Estate Assessment](#) or the [Developer Assessment](#).
- CBI releases standards for green bonds funding [residential](#) or [commercial](#) buildings.
- EDGE is included as a qualifying certification system.
- Global disclosure system for [investors](#), [companies](#), [cities](#), [states](#) and [regions](#) to manage environmental impacts.
- Protocol for reporting to CDP using EDGE is forthcoming, following joint webinar.
- [EU Taxonomy](#) was launched by the European Commission to guide sustainable finance.
- EDGE definition of 20% quantified resource efficiency is aligned with EU Taxonomy Principles.



# EDGE aligns with financial taxonomies due to its quantitative approach

## EU Taxonomy

### Construction of new buildings

10% savings on primary energy demand ( $kWh/m^2/yr$ ) based on EU member states' Nearly Zero Energy Building (NZEB) standards

### Building renovation

Meet local requirement as per the Energy Performance of Buildings Directive, **or**

30% savings over the performance of the same building before the renovation

### Acquisition and ownership

Built on or after 2021– 10% savings over NZEB standards, **or**

Built before 2021 – comparable performance to the top 15% of the national stock or it has an EPC class A

## EDGE

20% savings over local EDGE baseline

(i.e. business as usual today for new construction measured in  $kWh/m^2/yr$ )

20% savings over local EDGE baseline

20% savings over local EDGE baseline

# EDGE provides free design support and affordable third-party certification

1.

## Free Software



Further Resource:  
[EDGE Software Demo](#)

2.

## Achievable Standards



EDGE standard: 20% reduction in **energy** and **water** use in operation and energy in **materials** relative to local BAU baseline

3.

## Third-party Verified Label



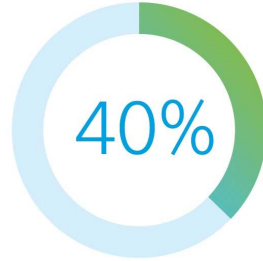
Administered by the largest network  
of green building certification  
providers in the world

# Three Levels of EDGE Certification Cater to All Ambition Levels of Sustainability



## Level 1 - EDGE Certified

- 20% or more savings in
  - ✓ energy,
  - ✓ water,
- ✓ embodied energy in materials



## Level 2 - EDGE Advanced

- ✓ EDGE certified with
- ✓ 40% or more on-site energy savings.

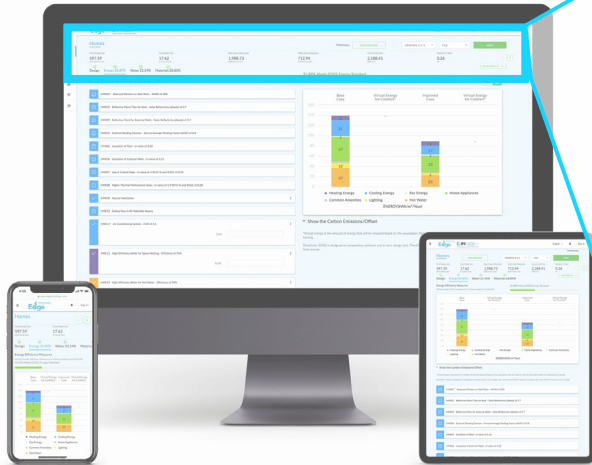


## Level 3 - Zero Carbon

- ✓ EDGE Advanced with
- ✓ 100% renewables or purchased carbon offsets.

# The Free EDGE Software Shows the Payback for Each Efficiency Measure - Reducing Costs and Speeding up Design and Decision-making

## Instantaneous Feedback on Green Options



✓ Energy 36.52%    ✓ Water 32.77%    ✓ Materials 47.67%

Progress Toward  
Certification

Utility Cost Reduction

9,788.45

PAB/Month

Incremental Cost

49,753.26

PAB

Payback in Years

0.42

Yrs.

Incremental Cost  
and Payback

Embodied Energy Savings

1,056.04

MJ/m<sup>2</sup>

Energy Savings

506.90

MWh/Year

Water Savings

4,520.42

m<sup>3</sup>/Year

Energy, Water, &  
Materials Savings

Operational CO<sub>2</sub> Savings

155.89

tCO<sub>2</sub>/Year

Carbon Emissions

265.92

tCO<sub>2</sub>/Year

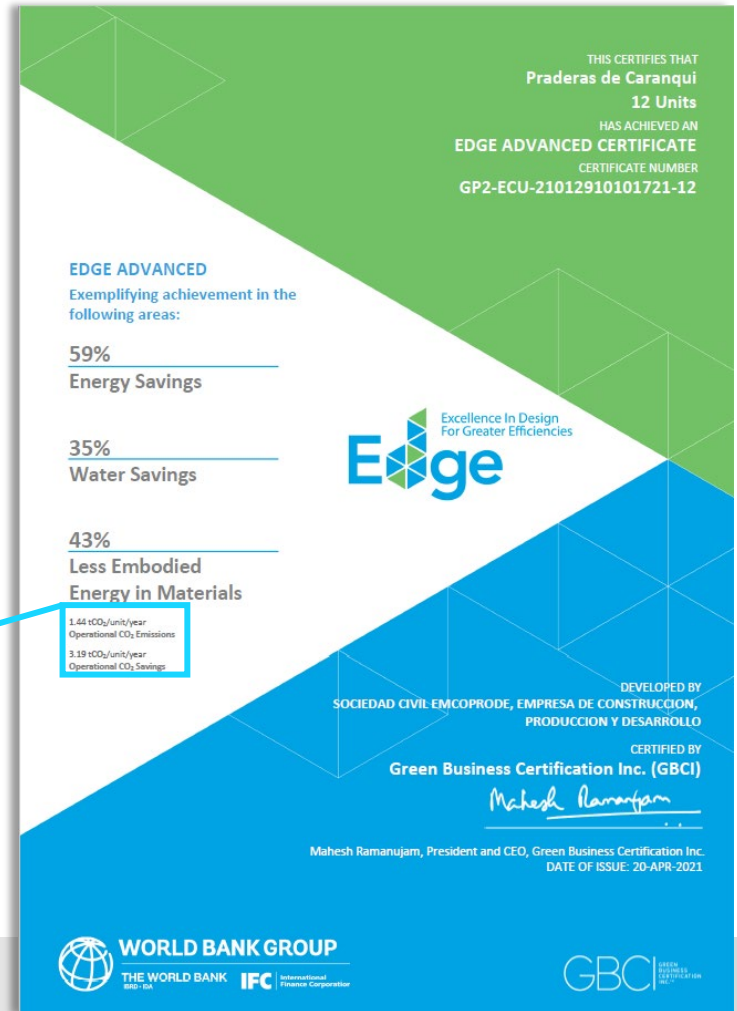
Carbon Tracking

# The EDGE Certificate displays the key indicators for impact reporting

- Operation Energy Savings %
- Operational Water Savings %
- Embodied Energy in Materials Reduction %
- GHG Footprint (tCO<sub>2</sub>e)
- GHG Savings (tCO<sub>2</sub>e)

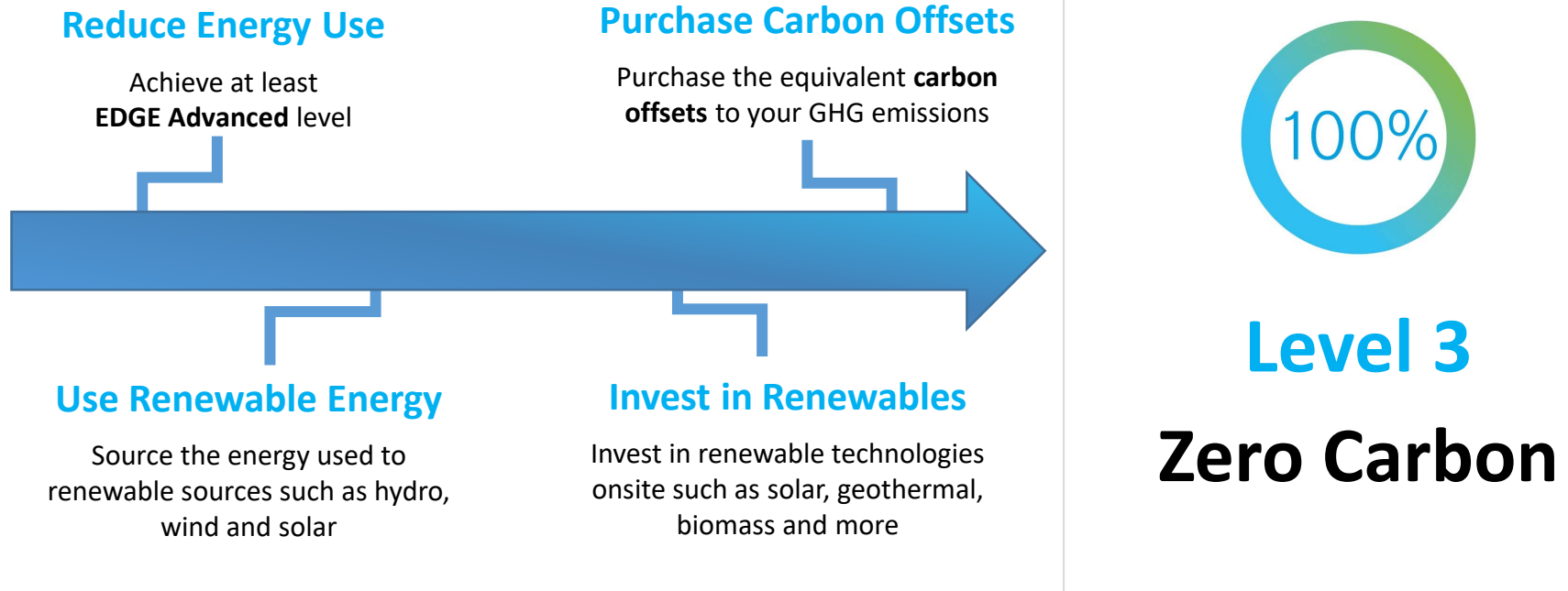
1.44 tCO<sub>2</sub>/housing unit/year  
**Operational CO<sub>2</sub> Emissions**

3.19 tCO<sub>2</sub>/housing unit/year  
**Operational CO<sub>2</sub> Savings**





## Getting to Zero Carbon with EDGE



## CASE STUDY: Acorn used green building definition to launch Kenya's first green bond



- Kenya's 1<sup>st</sup> green bond for 5 billion shilling (~\$50 million) with structuring by Stanbic Bank.
- Use of proceeds for new student accommodations that are EDGE certified.
- EDGE preliminary and post-construction certificate ensure green standard.
- EDGE provides reporting in line with ICMA standards.
- Government now made interest from green bonds tax exempt.

Case study:  
ABSA launches  
South Africa's first  
Green Mortgage



### ABSA Statistics

- ABSA Bank collaborated with Balwin Properties to launch an eco-home loan for homebuyers interested in purchasing the developer's green homes.
- Qualifying homebuyers can get a reduced interest rate on their mortgages at Balwin Properties' EDGE-certified residential communities.

*Balwin Properties  
sold a record  
**807 homes**  
in one month.*



## CASE STUDY: Best Western Nairobi saves on operating costs through sensible design

- Hotel identified operational savings through sensible approaches, such as natural ventilation, solar hot water collectors, and LED lighting, as well as sensible water measures.

Further Resource: [Business Case for Sustainable Hotels](#)

Further Resource: [IFC and UNWTO Training for Hotels](#)

Boost profit margins through utility savings

Increase revenue by satisfying consumer preference

Future-proof investment strategies

Safeguard from regulatory risk and benefit from incentives

Increase value through certification

Ensure a long-term energy supply

## CASE STUDY: retail shopping malls are saving through EDGE in Cote D'Ivoire and Zambia



- Cosmos Shopping Mall used sensible interventions such as reflective paint and skylights to reduce utility bills.
- Novare Great North in Zambia was developed at minimal additional cost, with utility bill savings expected at 40%.

Further Resource: [Cosmos Case Study](#) and: [Novare Great North Case Study](#)





Case study:  
IHS catalyzes  
the Green Buildings  
market in  
South Africa



### IHS Statistics

- International Housing Solutions (IHS) was the 1<sup>st</sup> in Africa to adopt EDGE.
- Used EDGE to find the best solutions that will save energy and water, given the local climate and construction practices.
- Minimize incremental costs from an initial 2-6% to now as little as 0.25-0.8% per unit.
- Compared to the performance of their green developments against non-green developments, the green homes created annual savings on utility bills equal to 1 month's rent.

*Yearly utility bills  
equal to*  
**1 month's rent**

Case study:  
Africa Logistic  
Properties (ALP)  
is fulfilling its vision  
for more sustainable  
warehouses



### ALP Statistics

- In 2018, ALP certified its ALP North Logistics Park, the first modern grade-A logistics and distribution park in Kenya
- Green solutions for three warehouses include solar photovoltaics, skylights, insulation, and low-flow plumbing fixtures
- Projected utility savings are nearly \$16,000 per month, cutting operational costs almost in half
- The project won “Best Logistics/Industrial Development” at the 2019 African Property Investment Summit and Expo

Predicted Savings of  
EDGE Certification  
*ALP North Logistics Park*

**41%**

Energy Savings

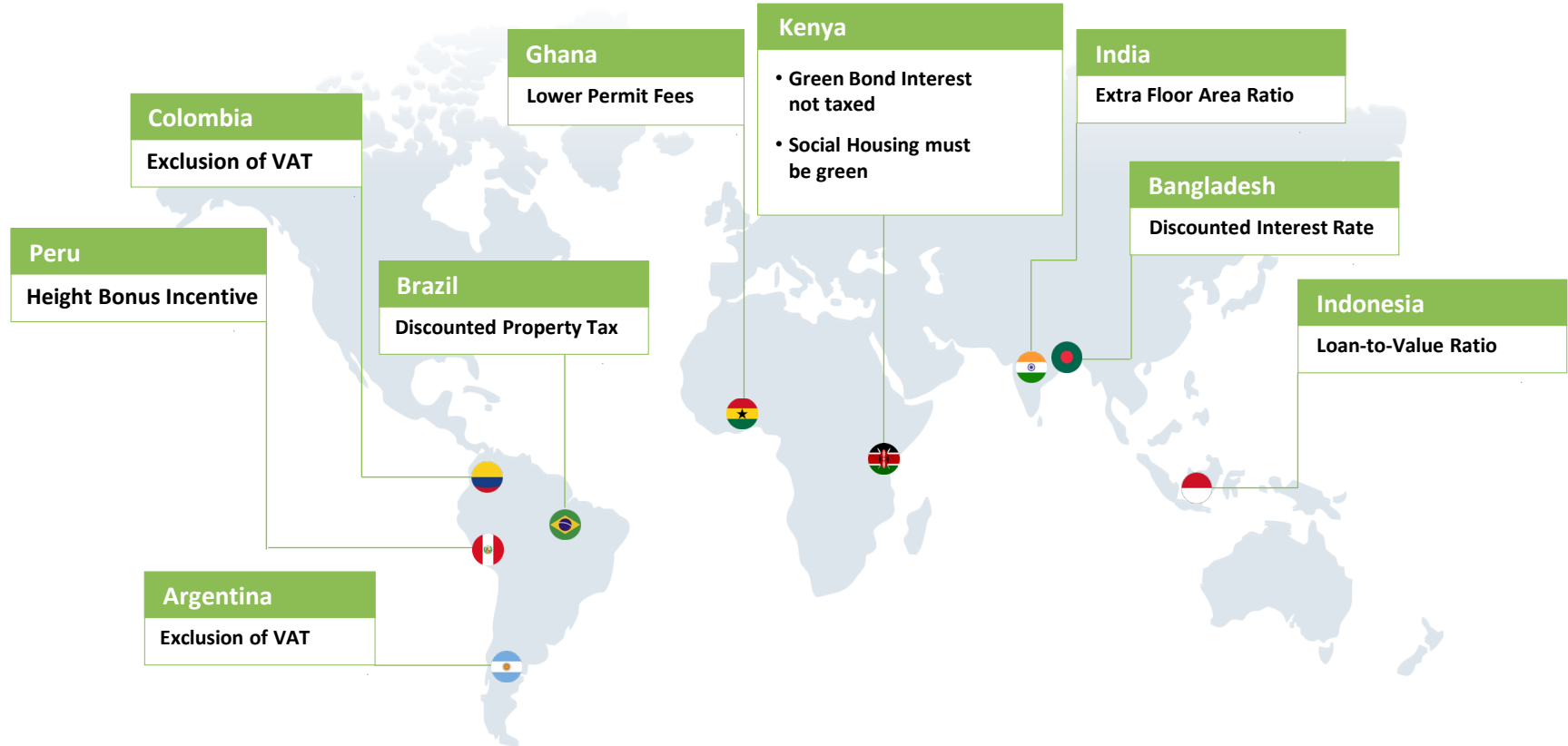
**52%**

Water Savings

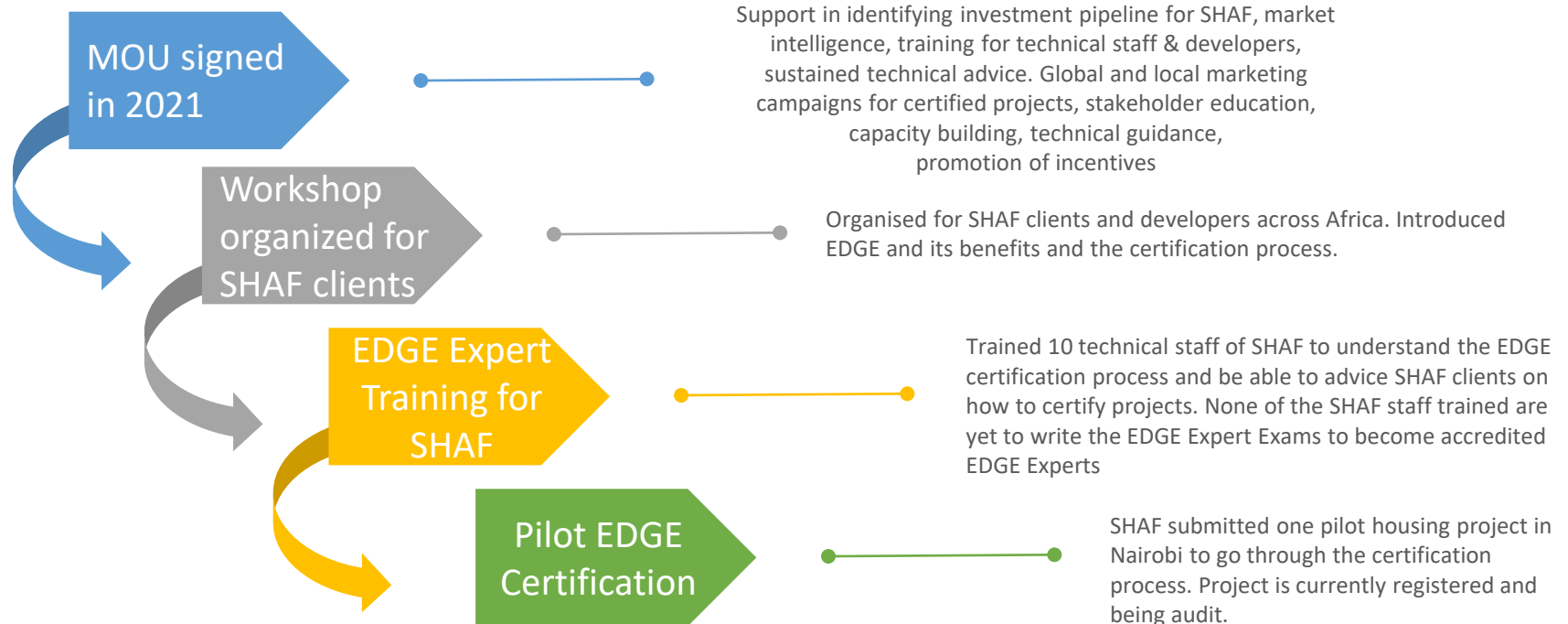
**50%**

Less Embodied Energy in Materials

# Government Incentives for Green Buildings



# IFC EDGE'S COLLABORATION WITH SHAF





**International  
Finance Corporation**

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**[www.edgebuildings.com](http://www.edgebuildings.com)**